



KINEXUS

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1. INTRODUCTION

Our Kinex™ KAM Antibody Microarray Services empower our clients to have their cell and tissue lysates from their experimental model systems investigated for the discovery of biomarker leads with the highest content antibody microarrays available in the field today. Our antibody microarrays are convenient and very cost-effective tools to explore in a directed manner the expression and phosphorylation states of hundreds of key cell signalling proteins simultaneously with minute amounts of specimens. Samples suitable for analyses include unfractionated cell extracts, fresh or frozen tissues and biofluids such as serum and cerebral spinal fluid. As little as 25 µg of unfractionated lysate protein can be sufficient. The results can provide novel and useful insights into differences in protein expression, covalent-modification and protein-protein interactions, and define antibody reagents that enable follow up on these findings with other immunological-based methods such as Western blotting, immunoprecipitation, ELISA and immunohistochemistry.

Our integrated platform of well-established proteomics and bioinformatics services and proprietary technologies make the Kinex™ KAM antibody microarrays superior to any other commercially available antibody microarrays. Some of the key advantages of our antibody microarray include highly validated antibody probes (most of which are generated in-house), wide coverage of cell signalling proteins and pathways, extensive follow-up services for validation, and supporting bioinformatics analyses for comparison purposes. While antibody microarrays are highly efficient for screening a large number of antibodies simultaneously for potential biomarkers, due to unforeseen antibody cross-reactivity validation of the results from microarrays for the intended target proteins should be confirmed by Western blotting.

No other proteomics technology, including mass spectrometry, can compete with antibody microarrays for the directed study of target proteins in lysate samples in terms of sensitivity, speed, reproducibility, dynamic range, and cost. For example, an analysis of 5,000 functionally important phosphosites in the PhosphoSitePlus website revealed that approximately half of them were undetected or reported only once or twice across over 4,000 high throughput mass spectrometry studies. Therefore, the antibody microarray is a particularly attractive initial route for taking a directed, systems biology, proteomics approach to studying human diseases and experimental model systems.

In this comprehensive information package, we explain the vulnerabilities of antibody microarrays in general, and the versatility and power of the KAM-2025 antibody microarray to work with different formats and overcome these issues to effectively advance your research programs. This latest generation antibody microarray benefits from more than 16 years of continuous research and development for improvements in sample preparation, microarray antibody quality and coverage, background reduction, signal detection and data analyses. With the KAM-2025 microarray, we have developed a range of alternative detection strategies to track protein expressions, covalent modifications, protein-protein and protein-drug interactions. Presently, we offer two services with this microarray that permit detections of changes in protein expression and phosphorylation at specific phosphosites (KAM-2025) and protein-tyrosine phosphorylation (KAM-2025-pY). Clients should contact us regarding alternative formats for detection of other types of covalent modifications, and protein- and drug-interactions.

Kinexus offers full service to our clients with cell and tissue specimens shipped to our facility in Vancouver, British Columbia, Canada. We provide fully confidential services as well as non-confidential services with significant discounts.

This Service Information Package provides extensive information and all of the forms that will enable you to take advantage of our unique proteomics services. For a general review on the applications of antibody microarrays for biomarker discovery, we recommend our recent publication with open-access in the on line journal *Advances in Proteomics and Bioinformatics* with the following download url: https://www.gavinpublishers.com/assets/articles_pdf/1531983613article_pdf1062288898.pdf

Should you have any questions, call or e-mail our technical service representatives and we would be pleased to assist you in developing the best strategy to cost-effectively put our proteomics platform to work for you.

2. HIGHLY VALIDATED ANTIBODIES

Kinexus presently offers Kinex™ KAM antibody microarray services that utilize our latest antibody microarray chip. The KAM-2025 antibody microarray features at least 1,047 phosphosite-specific antibodies (for phosphorylation) and 980 pan-specific antibodies (for expression levels of these phosphoproteins). Our microarrays are the culmination of continuous on-going efforts to steadily improve their power and accuracy over the last 16 years. Kinexus has already performed over 3,500 antibody microarray analyses for our clients and internal research.

The antibodies deployed on the KAM-2025 chips have been selected from more than 6,000 different commercial antibodies sourced from over 26 companies that have been independently tested in-house by Kinexus to identify many of the best immunological reagents available today to track important signal transduction proteins. The top 15% of these antibodies that performed well in Western blotting applications have been incorporated into our Kinex™ Antibody Microarrays. Such cherry-picking is apparently not performed by other microarray companies, which rely only on one or a few suppliers with dubious information about individual antibody performance. In addition, Kinexus has produced its own panel of highly characterized cell signalling antibodies, many of which are incorporated into the KAM-2025 antibody microarrays. Over 1,500 of the antibodies on the KAM-2025 microarray were developed at Kinexus and many of these are against unique phosphosites on target proteins.

When our clients utilize the KAM-2025 antibody microarray services, upon request, we are happy to disclose their commercial sources and most of these antibodies are available directly from Kinexus at very affordable prices in smaller 25 µg pack sizes. Immunoblots images with the antibodies sold by Kinexus are available for easy viewing on our Products website (www.kinexusproducts.ca), and in the case of phosphosite-specific antibodies often include epitope mapping by SPOT peptide arrays. Our KAM-2025 reports provide direct url links to view more than 7,000 images of our Kinexus antibody testing data. A complete listing of all the antibodies printed on the KAM-2025 chip in MS-Excel format is downloadable from the Kinexus website and also included in Appendix 1 in this information package. In particular, at least 949 unique signalling proteins and their targets are tracked with these antibodies. We often use multiple antibodies that recognize different epitopes on the same target proteins to permit internal cross-

validation of changes in protein expression or modification that are evident on the microarrays. The antibodies in our microarrays have been optimized to work in human, mouse and rat model systems, but have also been shown commonly to work in cow, pig, dog, chicken, frog, sea star and many other diverse model systems. We have targeted phosphorylation sites that are highly conserved in these different species, and which are likely to be functionally important. The classes of targeted phosphoproteins and their phosphosites on the KAM-2025 antibody microarrays are listed in Table 1 below.

Table 1. Antibodies with their protein targets by classification printed on the KAM-2025 antibody microarray slides. These statistics may be slightly altered in future print runs of these microarray chips. A complete listing of the antibodies is provided in Appendix 1.

Target Protein Classification	Total Targets	Total Antibodies
Protein kinases	376	1134
p-Tyr kinases	82	330
p-Ser/p-Thr kinases	260	728
Dual specificity kinases	16	54
Regulatory subunits	18	22
Protein phosphatases	65	130
p-Tyr phosphatases	19	33
p-Ser/p-Thr phosphatases	14	21
Dual specificity phosphatases	18	48
PI-phosphatases	3	14
Regulatory subunits	11	14
Transcription proteins	114	178
Receptor proteins	102	257
Ion channel proteins	27	32
Protein synthesis proteins	8	18
Protein degradation proteins	15	21
Metabolic pathway enzymes	66	97
Stress proteins	31	64
Apoptosis proteins	11	13
Adaptor/scaffold proteins	56	85
Cytoskeletal proteins	31	74
Cell adhesion proteins	6	7
Calcium, lipid or solute proteins	19	22
Vesicle proteins	22	35

Table 2. Breakdown of the pan-specific and phosphosite-specific antibodies printed the KAM-2025 antibody microarray slides. These statistics may be slightly altered in future print runs of these microarray chips. A complete listing of the antibodies is provided in Appendix 1.

Target Protein Classification	Pan Antibodies	Phospho Antibodies	Total Antibodies
Total number pan-specific antibodies			980
Total number of phosphosite-specific antibodies			1047
Phosphoserine (p-Ser)		>409	
Phosphothreonine (p-Thr)		>229	
Phosphotyrosine (p-Tyr)		>409	
Protein kinase antibodies	651	483	1134
p-Tyr kinase	171	159	330
p-Ser/p-Thr kinase	422	304	726
Dual specificity kinase	38	16	54
PI kinases	1	1	2
Regulatory subunits	19	3	22
Protein phosphatase antibodies	70	60	130
p-Tyr phosphatase	4	29	33
p-Ser/p-Thr phosphatase	7	14	21
Dual specificity phosphatase	48	0	48
PI-phosphatase	10	4	14
Regulatory subunits	1	13	14
Transcription protein antibodies	23	155	178
Receptor protein antibodies	126	131	257
Ion channel protein antibodies	24	8	32
Protein synthesis protein antibodies	5	13	18
Protein degradation protein antibodies	15	6	21
Metabolic pathway enzyme antibodies	20	77	97
Stress protein antibodies	53	11	64
Apoptosis protein antibodies	9	4	13
Adaptor/scaffold protein antibodies	37	48	85
Cytoskeletal protein antibodies	11	63	74
Cell adhesion protein antibodies	3	4	7
Calcium, lipid or solute protein antibodies	13	9	22
Vesicle protein antibodies	8	27	35

3. QUALITY CONTROL PROCEDURES

The antibodies on the KAM-2025 microarray are deposited in two replicate fields on 3D-matrix-coated glass (Nexterion) slides with a quill-printing contact microarrayer. A deposition amount of ~100-400 pg of antibody are printed in each spot. These microarrays are subjected to stringent quality control measures designed to ensure optimum antibody activity, printing consistency, and consistent intra-slide and inter-slide variability. The specific printing of individual antibodies at the expected positions on our microarrays are validated by probing with dye-labelled anti-rabbit, anti-mouse, and anti-goat secondary antibodies as well as direct dye-labelling of the capture antibodies on the microarray. Figure 1A provided scanned images of one of the two fields on a KAM-2025 chip. The top set of antibodies are separately reprinted in the bottom half of the field to reduce the chances of duplicate spots experiencing contamination or other issues.

Figure 1. Scanned images of a developed KAM-2025 antibody microarray that is visualized by probing with fluorescent dye-labeled streptavidin. The array was previously incubated with lysates from human embryonic kidney cells. The lysate proteins were subjected to chemical cleavage to fragment the proteins at cysteine residues and were subsequently biotinylated prior to capture on the KAM-2025 array. Panel A shows the top field of the array, and Panel B shows a closeup of 2 of the 24 antibody blocks printed in this field. Decreasing signal intensity corresponds with a red to orange to yellow to green to blue transition.

A. One field of 2 fields
in a KAM-2025 array

B. Close-up of 2 blocks of 24 blocks
in a KAM-2025 array

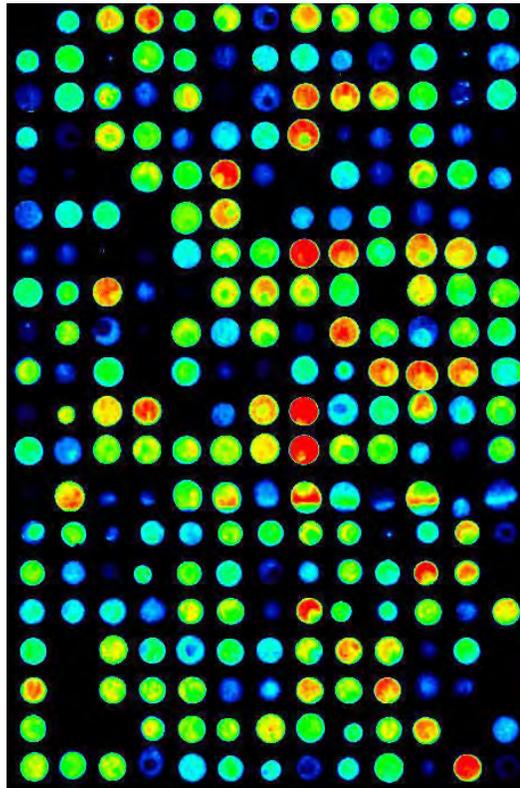
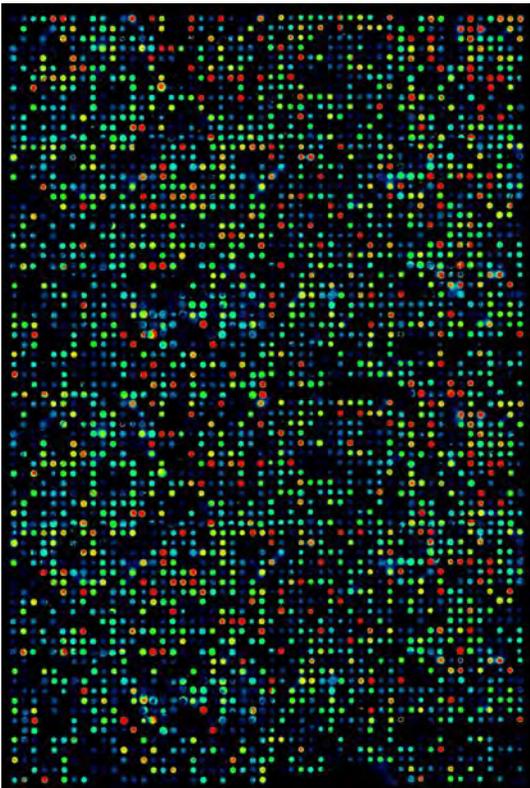
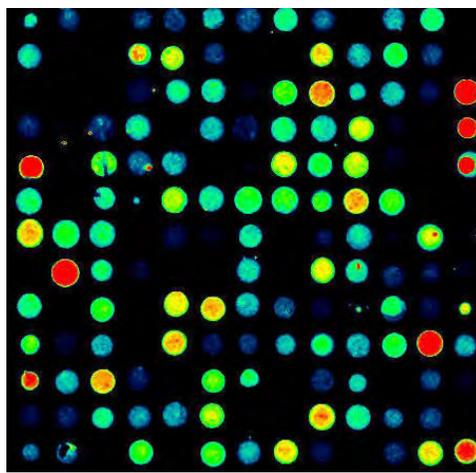
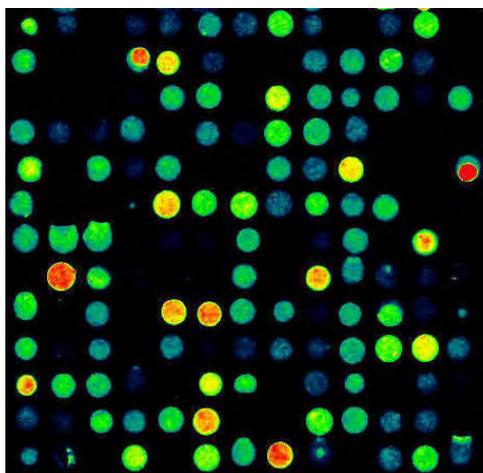


Figure 2. Scanned images of the same region of two Kinex™ KAM-2025 antibody microarrays that were visualized with dye-labelled streptavidin after incubation of chemically cleaved lysate peptides from a mixture of mouse tissues. The peptides were biotinylated after an acid phosphatase reaction (Panel A) and also after the incubation with ATP and recombinant protein-tyrosine Src (Panel B) and then incubated with the KAM-2025 arrays. Note the increase of signals for several phosphosite-specific antibody spots with Src and ATP as compare to the acid phosphatase-treated lysate samples.

A. Acid Phosphatase-treated

B. Src+ATP-treated



Each KAM-2025 microarray also has loading controls to ensure the amount of deposited antibody is consistent on all fields. Each microarray provides for semi-quantitative analyses of the expression and phosphorylation status of cell signalling proteins in two separate specimens of cell or tissue lysates. The quantitative analysis of the strength of the fluorescence signals for each captured target protein is based on duplicate measurements within the same field. We also employ a normalization step to take into account any minor differences in protein loading on to our microarrays. If quadruplicate replicate measurements are required, then a whole KAM-2025 chip can be utilized with only one lysate sample per chip.

In our Kinex™ KAM Microarray Quantitation and Report Service, we provide a Microsoft Excel spreadsheet that includes the (average) percent change from the control sample (%CFC), and the percent error in duplicate measurements from the average, which can be used to determine which target proteins to follow up. In internal studies with our KAM-2025 series antibody microarrays, we determined that the spread between duplicate measurements with the same antibody in printed spots on the same slide corresponded to a median standard deviation of 5-6% (calculated from 20 separate KAM-2025 microarrays tested). The frequency of flagged antibody spots due to dust or misprinting was less than 3%. The dynamic range between the highest and lowest fluorescent dye-signals of captured lysate proteins from these KAM-2025 chips was over 2,000-fold after subtraction of background signals.

We believe that our KAM-2025 antibody microarrays are the best commercial high content antibody arrays that are available in the market place today for tracking both signalling protein expression and specific phosphorylation. Our Kinex™ KAM chips consistently out-performed the leading antibody microarrays from at least three other suppliers when tested side-by-side in our hands. In fact, most of our competitors, including Thermo-Fisher, Becton Dickinson, Clontech, Sigma-Aldrich and Takeda have since discontinued offering their antibody microarray products.

The performance of our Kinex™ KAM chips is further exemplified in Figures 3 and 4, which utilize two separate detection formats as outlined in the next section. In these examples, the data from our previous Kinex™ KAM-1325 antibody microarray is shown for illustrative purposes. In these experiments, lysates from overnight serum-starved human A431 cells epidermoid carcinoma cells treated with and without 100 ng/ml of epidermal growth factor (EGF) for 5 minutes prior to harvesting were used. The experiment shown in Figure 3 applied an earlier format in which lysates are biotinylated, captured on the microarray, and then probed with a dye-labelled anti-biotin antibody. In this experiment, the lysates were subjected to cysteine chemical cleavage, whereas in the experiment shown in Figure 4, the cells were extracted with 1% Triton X-100 in the presence of 5 mM sodium vanadate and other protein phosphatase inhibitors. Since the lysate proteins are not cleaved in the experiment shown in Figure 4, it permits the detection of more potential tyrosine phosphorylation sites on the captured proteins with an antibody spot, and it also allows monitoring of phosphorylation on proteins captured with pan-specific antibodies. Figure 4 shows some of the results with our KAM-2025-pY format in which the captured lysate proteins on the microarray are probed with our dye-labelled PYK anti-phosphotyrosine antibody (Cat. No. AB-PG001). Figures 3 and 4 show closeups of the same two regions of KAM-1325 slide. Comparison of these images reveal many changes in protein phosphorylation in response to the EGF treatment. A431 cells over-express the EGF receptor, which is protein-tyrosine kinase that is activated upon ligand binding. Appendix 2 provides quantitation data for over two hundred antibodies that showed enhanced tyrosine phosphorylation of lysate proteins in the experiment shown in Figure 4. These include the EGF receptor and its related kinases ErbB2 and ErbB3 as well as several of the MAP kinases, which are well documented in the scientific literature to become tyrosine phosphorylated in response to EGF in this cell line. In the next section, the principles of these two detection systems are explained in greater detail.

Figure 3. Close ups of scanned Kinex™ KAM-1325 images of replicate fields (A+C, B+D) corresponding to two regions in the same antibody grid. The slide was incubated with cysteine chemically cleaved, biotinylated lysates from overnight serum-starved A431 cells that were treated without (A,C) and with 100 ng/ml EGF for 5 minutes (B,D). The captured lysate proteins on the microarray were then probed with fluorescent dye-labelled anti-biotin antibody prior to scanning. Decreasing signal intensity corresponds with a red to orange to yellow to green to blue transition. Short term EGF exposure altered the phosphorylation of several A431 cell proteins.

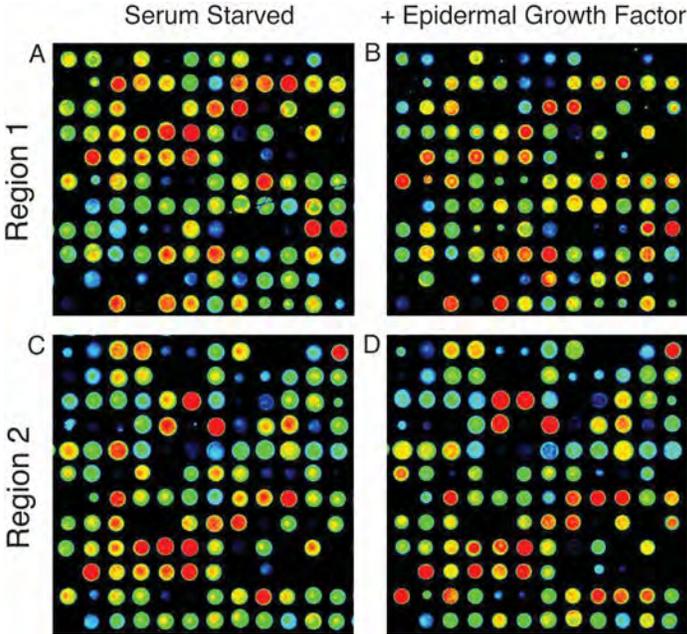
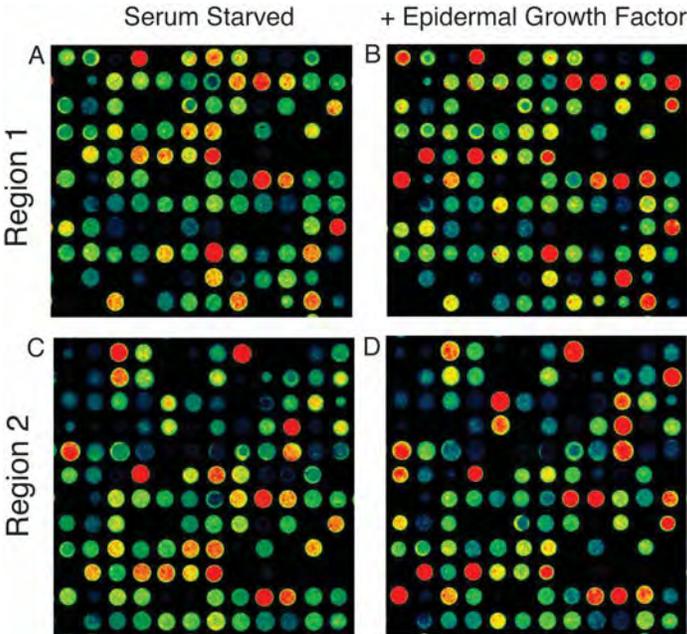


Figure 4. Close ups of scanned Kinex™ KAM-1325-pY images of replicate fields (A+C, B+D) corresponding to two regions in the same antibody grid. The slide was incubated with 1% Triton X-100 solubilized lysates from overnight serum-starved A431 cells that were treated without (A,C) and with 100 ng/ml EGF for 5 minutes (B,D). The captured lysate proteins on the microarray were then probed with a dye-labelled anti-phosphotyrosine antibody (PYK, Cat. No. AB-PG001) prior to scanning. EGF treatment can be seen to increase the tyrosine phosphorylation states of several A431 cell proteins. These are the same regions shown in Figure 3.



4. NON-COMPETITIVE SINGLE FLUORESCENT DYE COMBINATION LABELLING

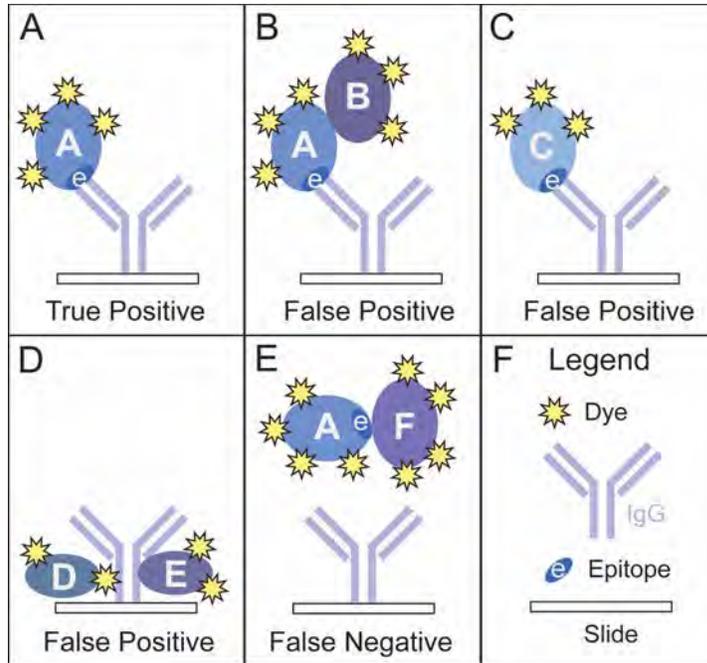
One key advantage of our antibody microarrays is that lysate samples from control and treated cells are labelled with a mix of the same fluorescent dye combination to eliminate dye-related differences in binding to proteins. In our experience, the use of a two dye, competitive binding system, in which a control sample is labelled with a different dye from the treatment sample and the two samples are mixed and co-incubated with the same regions of the same chips, generates a higher rate of false leads as well as lower signal detection, since each antibody spot must bind the target proteins from both samples. Unlike oligonucleotides such as DNA and RNA, proteins display strong individual differences in their relative affinities for dyes. It should be appreciated that this problem also significantly impacts other proteomics approaches such as DIGE 2D gel analysis where two samples that are labelled with different dyes are mixed prior to electrophoresis. Colour changes seen with spots evident on a DIGE 2D gel may not be related to differences in protein expression but rather dye binding to individual protein species. Since signalling proteins are typically present at concentrations that are 100- to 1,000-fold lower than structural proteins and metabolic pathway enzymes, these low abundance proteins are usually not evident on 2D gels without some type of special pre-enrichment. This is why we feel that antibody-based detection of proteins with our Kinex™ KAM antibody microarrays and our follow-up Kinetworks™ custom Western blotting services are superior and complementary methods to undertake broad studies of proteins for signalling network analyses.

5. DETECTION OF PROTEIN EXPRESSION AND SITE-SPECIFIC PHOSPHORYLATION WITH THE KAM-2025 ARRAY

Historically, lysate proteins are commonly directly dye-labelled prior to capture on antibody microarrays in most published studies. However, as illustrated in Figure 5, there are many opportunities for false negatives and false positives following standard procedures. Since most proteins reside in complexes, dye signal can also arise from associated proteins (Fig. 5B), from cross-reactivity with off-target proteins that share similar epitopes (Fig. 5C), and from the direct binding of the proteins to other regions in the immobilized capture antibodies (Fig. 5D). A very significant amount of non-specific interactions can arise from direct binding to the dye used to label lysate proteins. False negatives may also be produced, if the epitope on the target protein is masked through interaction with an associated protein (Fig. 5E).

Another problem is that it is critical to remove the free dye after the lysate protein labelling reaction. This usually involves the use of a Sephadex G25 spin-column to resolve the dye-labelled proteins from the remaining, unbound free dye, and the presence of ethanolamine and/or hydroxylamine during the incubation with the antibody microarray to quench any free dye that is unresolved from the dye-labelled proteins following the gel filtration step. However, despite these precautions, we find that there is still some direct dye labelling of the capture antibodies on the microarray, and this can contribute to higher backgrounds for some of the antibodies that are printed in a more concentrated form. However, the bulk of the non-specific binding appears to be primarily mediated through the protein-bound dye that is used to label the lysate proteins or reporter antibodies (Fig. 5D). This can contribute to over 80% of the signal arising from antibody spots on microarrays. One way that Kinexus controls the background signals is by limiting the time of incubation with the dye-labelled streptavidin.

Figure 5. False positive and false negative signals that may be generated with standard antibody microarray protocols.



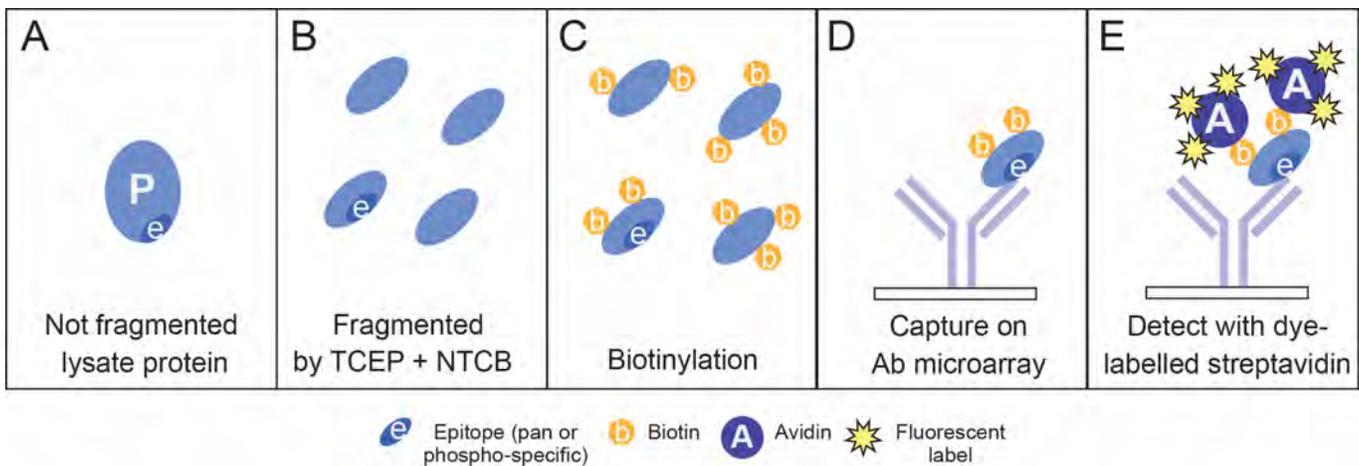
Since non-denatured proteins are commonly analyzed by antibody microarrays historically to preserve antibody-antigen interactions, there is increased opportunity for false positives and false negatives due to antibody cross-reactivity and blocked epitopes in protein complexes. Under non-denaturing conditions, many apparent changes in protein expressions or phosphorylations with antibody microarrays may arise instead from alterations in protein-protein interactions. In our internal studies with cells from different cells, tissues and species, only between 30 to 45% of the protein changes detected on a protein microarray were reproduced by immunoblotting. In addition, about 20 to 30% of the protein changes could not be validated either way by immunoblotting, because no detectable immunoreactive proteins were evident in these studies as antibody microarrays appear to be around 50- to 100-times more sensitive than standard Western blotting. It should be appreciated that this high rate of false positives is an inherent problem with all commercial antibody microarrays due to the reliance on non-denaturing conditions for immune capture of target proteins. We believe that all of these various aforementioned issues have compromised much of the findings from the use of antibody microarrays in the past and have hindered their adoption.

To help mitigate the problem of target proteins residing in complexes, we have developed a sample preparation method that involves fragmentation of the lysate proteins by chemical cleavage at cysteine (CCC) residues using Tris (2-carboxyethyl) phosphine hydrochloride (TCEP) and 2-Nitro-5-thiocyanatobenzoic acid (NTCB) (Fig. 6). This fragmentation leads to dissociation of complexes, but does not destroy most of the epitopes recognized by pan and phosphosite-antibodies. This is because we avoid the use of cysteine residues in the immunogenic peptides that we use for antibody production. Furthermore, the chemical cleavage step permits more even dye-labelling of the similarly sized target protein fragments that is much less reflective of the initial size of these proteins, which can vary by more than 20-fold.

The CCC treatment not only dissociates protein complexes and cleaves the proteins, but in doing so, it abolishes the activities of endogenous kinases, phosphatases, proteases and other enzymes, resulting in more stable peptide samples and better preservation of protein phosphorylation and other forms of covalent modification. However, some epitopes may still be blocked by internal interactions amongst amino acid residue side chains even within the same chemically cleaved fragment; for example, a phosphorylated residue with a neighbouring arginine or lysine residue. The resulting lysate peptide solutions following CCC may be shipped and stored for several weeks at ambient temperature without the need for refrigeration. With this method, CCC treatment is best performed at the time of homogenization of cells and tissues. But CCC can also be carried out at a later date prior to labelling of the lysate proteins with a fluorescent dye.

Another advantage of the CCC method, is that the cleavage of lysate proteins reduces competition of different capture antibodies for the same target proteins, since the targeted epitopes may reside in different fragments of the proteins. This results in higher signals for the captured lysate peptides on the microarray that are in low abundance or need to bind to lower affinity antibodies. Finally, as the chemical cleavage step typically generates peptides in a similar size range from proteins that may differ by over 10-fold in size, the intensity of the signals recorded from the antibody microarray spots are less dependent on the size of the target protein. Otherwise, larger proteins would normally generate much stronger signals than smaller sized proteins.

Figure 6. Chemical cleavage of lysate proteins at cysteine residues and detection.



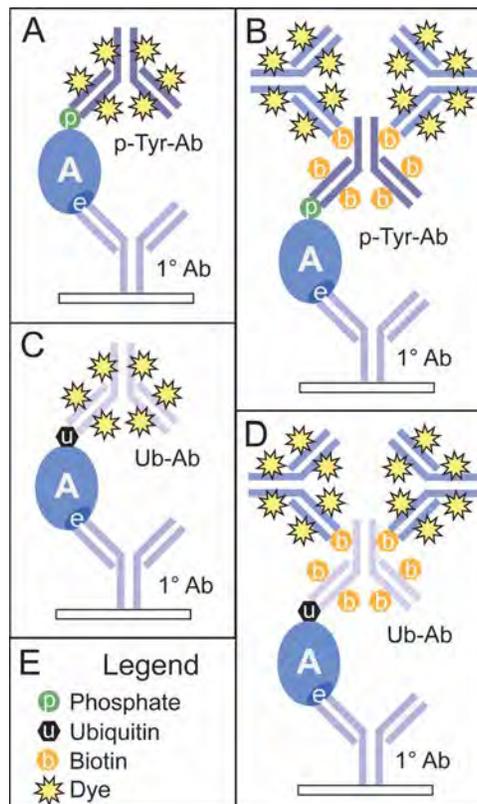
Lysate proteins can be directly labelled with a fluorescent dye after CCC and then captured on the KAM-2025 antibody microarray. However, many of the proteins targeted on the KAM-2025 slide are normally produced at levels that are thousands of times lower than structural proteins and housekeeping metabolic enzymes. Furthermore, most protein phosphorylation, when it occurs in cells, is usually substoichiometric. To improve the sensitivity for detection of low abundance phosphoproteins, we usually tag lysate proteins or peptides with biotin first rather than directly dye labelling them. We find that this produces much lower background signals than observed with the direct-dye labelling approach. After capture of the biotinylated proteins on the microarray, the array is then probed with a dye-labelled streptavidin or anti-biotin antibody. Furthermore, since IgG is about three-times larger than streptavidin, this allows for much more dye signal generated from the reporter antibody than from streptavidin. The configuration represented

in Figure 6E, with a dye-labelled streptavidin represents one of the protocols that we we have adopted using the KAM-2025 slide in our services.

6. DETECTION OF COVALENT MODIFICATIONS WITH THE KAM-2025 ARRAY

The Kinex™ KAM-2025 antibody microarray can also be used in a sandwich antibody microarray approach to monitor various types of covalent modifications or protein-interactions of captured lysate protein in complexes following probing of the microarray with an appropriate reporter antibody. It can be more informative not to subject the lysates proteins to chemical cleavage at the time of homogenizing in these instances, since sites of post-translational covalent modification outside of the sequence encompassed by the cleaved peptide fragment with the capture epitope will be lost. However, changes in covalent modification of lysate proteins that are evident following chemical cleavage can help to localize these modifications. For example, captured lysate proteins can be probed with a fluorescent dye-labelled version of our rabbit polyclonal anti-phosphotyrosine antibody PYK (Cat. No. AB-PG001) to reveal changes in total phosphorylation on tyrosine residues (Figure 4). Figure 7 illustrates the expected configurations of primary capture (1° Ab) and reporter antibodies binding to different epitopes on the same target protein using either a phosphotyrosine-specific antibody (Fig. 7A and 7B) or a ubiquitin-specific antibody (Fig. 7C and 7D) as the reporter antibodies. In principle, most generic antibodies for different types of covalent modifications, such as ubiquitination, should be compatible with this detection strategy.

Figure 7. Possible configurations for tracking phosphorylation or ubiquitination of lysate proteins with the Kinex™ KAM-2025 antibody microarray. In Panels A and C, the reporter antibody is directly labelled with a fluorescent dye. In Panels B and D, respectively, amplified detection is achieved by using a biotinylated reporter antibody specific for phosphotyrosine (p-Tyr) and ubiquitin, and subsequent probing with a dye-labelled anti-biotin antibody.

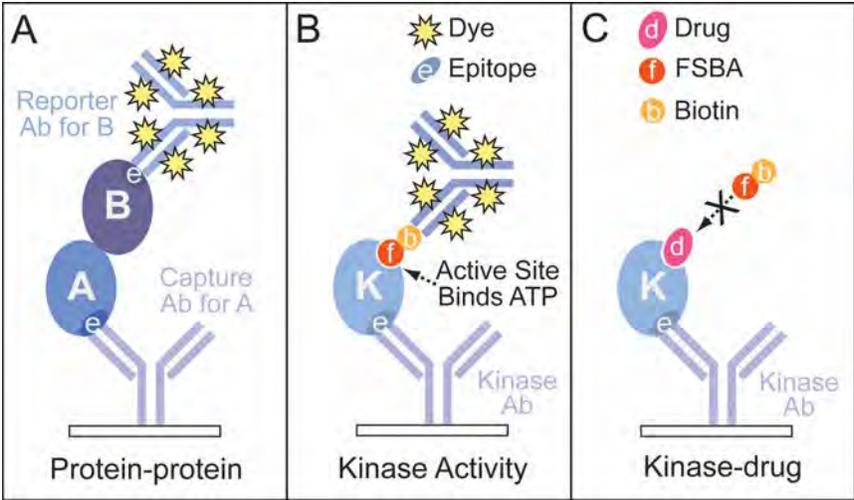


Presently, Kinexus offers our Kinex™KAM-2025-pY Antibody Microarray Services to track global tyrosine phosphorylation of captured cell and tissue lysate proteins on this microarray using the configuration in Fig. 7A. Clients interested in tracking ubiquitination and other types of covalent modifications for which primary antibodies are available should contact our technical services representatives for feasibility and pricing. Appendix 2 provides a sampling of the increases in protein-tyrosine phosphorylation that was evident with more than 200 capture antibodies using the KAM-2025-pY system. It is noteworthy that many of these capture antibodies were specific for tyrosine-phosphorylation sites on their target proteins.

7. DETECTION OF PROTEIN-PROTEIN INTERACTIONS WITH THE KAM-2025 ARRAY

The sandwich antibody microarray format can also be adapted to identify partners of adapter, scaffolding and chaperone proteins, and how these interactions are affected, for example, by diverse treatments of cells in culture. Fig. 8A outlines the possible configuration of capture and reported antibodies for two different proteins that reside in stable complexes. This assay system could be used to investigate how protein-protein interactions may be affected by phosphorylation or other types of covalent modifications. Due to the possible actions of cysteine chemical cleavage conditions to disrupt protein-protein interactions, we strongly recommend not using protein fragmentation conditions for exploring protein complexes. While this methodology for exploring protein-protein interactions on microarrays has not yet really been exploited in the past, we believe that it should prove to be very fruitful.

Figure 8. Possible strategies used with the Kinex™ KAM-2025 antibody microarray to examine protein-protein interactions (Panel A), protein kinase activation (Panel B), and protein kinase-drug interactions. In Panel A, detection of a fluorescent signal denotes the successful interaction of a protein of interest (Protein B) to one of the proteins (Protein A) captured on the antibody microarray. The active site of a captured protein kinase on an antibody microarray can become covalently bound to a biotinylated version of the ATP analogue FSBA if the kinase is in an open, active conformation (Panel B). Preincubation of active, captured protein kinases on antibody microarrays with inhibitory drugs can sterically block subsequent access of the FSBA-biotin probe, and through a reduction of signal from dye-conjugated anti-biotin antibody binding observed in the absence of the inhibitor reveal those kinases that are sensitive to the drug (Panel C).



8. DETECTION OF PROTEIN KINASE ACTIVATION AND DRUG INTERACTIONS WITH THE KAM-2025 ARRAY

Antibody microarrays can be adapted to monitor the activity states of proteins, especially as more biosensor molecules become available that selectively detect the inhibited or activated forms of enzymes. One of the most promising opportunities in this direction is for tracking the activation states of protein kinases. Assaying the enzymatic activity of protein kinases in crude cell and tissue lysates is a formidable task without some sort of affinity purification. At least 536 different human protein kinases are documented on our open-access KinaseNET (www.kinaset.net) website, and they have highly overlapping substrate specificities. Approximately 484 typical protein kinases of the human kinome feature a common catalytic domain that includes a highly conserved lysine residue in the kinase subdomain II region in the “AXK” motif, which is located in the active site of these kinases and is critical for phosphotransferase activity by transferring the gamma-phosphate of ATP on to the hydroxyl group of phosphorylatable residues on protein substrates. Affinity labelling with the ATP analogue 5'-(p-fluorosulphonylbenzoyl) adenosine (FSBA) inhibits protein kinases by covalently modifying the kinase subdomain II lysine residue. The active site of protein kinases need to be open and accessible for FSBA to bind, so it can be a useful probe to determine whether kinases are in a state when they may be catalytically active. We have successfully used a biotinylated version of FSBA to interrogate the activation states of protein kinases as illustrated in Fig. 8B on our antibody microarrays. The catalytic subunits of 358 different protein kinases are targeted on the KAM-2025 antibody microarray, of which 82 are protein-tyrosine kinases.

By using preparations of cell lysates in which the endogenous protein kinases have been preactivated *in vivo*, and able to bind FSBA, it is also feasible to identify subsets of protein kinases that may be sensitive to inhibition by test compounds. As documented in our open-access DrugKiNET website (www.drugkinet.ca), most of the known protein kinase inhibitors bind directly to the active sites of protein kinases, and are partly analogues of ATP. Preincubation of captured protein kinases on an antibody microarray with a kinase inhibitor that occupies the active sites of sensitive kinases will pre-empt the binding of the biotinylated FSBA (Fig. 8C). The reduction of biotinylated FSBA binding to the array can be monitored with dye-labelled anti-biotin antibody. Such approaches could be very useful for counter screening promising kinase inhibitor leads with hundreds of kinases for off target effects. It is also possible that the biotinylated FSBA probe may be helpful for identifying possible peptide and protein substrates of kinases, since the binding of these substrates may also interfere with the interaction with the biotinylated FSBA.

Clients interested in utilizing the KAM-2025 antibody microarrays should directly contact our technical services representatives about these novel applications of our microarrays.

9. KAM-2025 ANTIBODY MICROARRAY REPORTS

The Kinex™ KAM services also permit our clients to move from “pixels” to “pathways”. As part of our KAM Antibody Microarray services, Kinexus quantifies the intensities of dye-signals from captured proteins on the KAM Antibody Microarray using Imagen Version 9.0 software, and then we use our proprietary software to normalize for differences in protein loading and dye-labelling, average the intensities recorded for each duplicate measurement of antibody spots to calculate the differences between the control and treated lysate samples. This includes calculations of

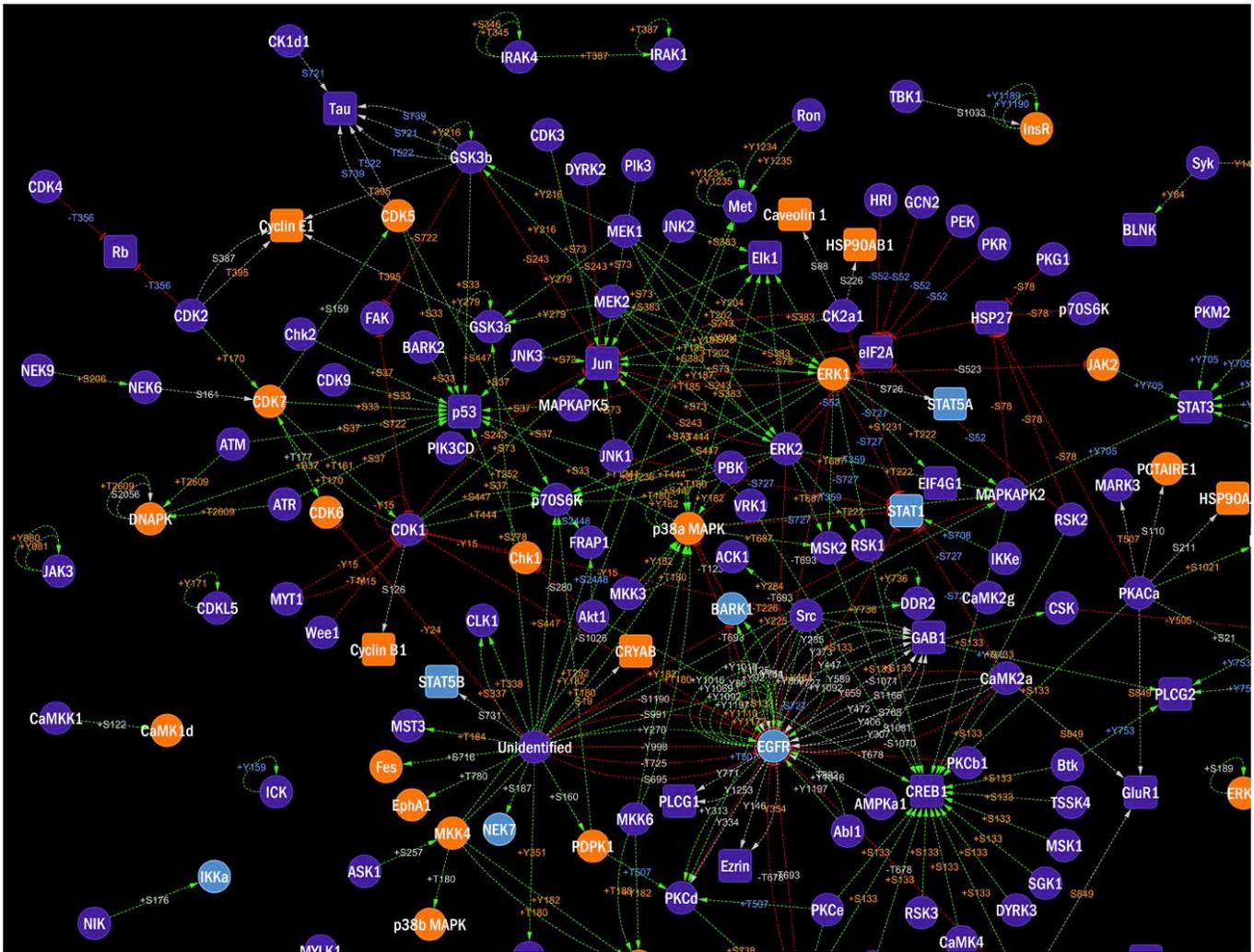
percent changes from control (%CFC), and identification of the most promising leads for followup studies such further validation by immunoblotting. The Analysis Report is in PDF and MS-Excel formats.

To provide a sense of the typical performance of individual antibodies on the Kinex™ KAM-2025 antibody microarrays and enable comparison of the specific results obtained with a tested customer cell/tissue lysate, our Analysis Report also includes summary data obtained from the analyses of many other different cell or tissue lysates samples with chemical cleavage. This includes the minimum, maximum, average, median and standard error values of the globally normalized signal intensities across these other studies. It also indicates which antibodies printed on the KAM-2025 chips can be ordered directly from Kinexus for follow up to experimentally validate key leads from the antibody microarray analyses. Access to over 7000 images of the testings of the Kinexus antibodies, including full Western blots of diverse mouse tissues and human cancer cells lines, dot blots with purified proteins and peptide analogues, is provided with our Analysis Report with direct url links for viewing and downloading. Furthermore, the performance of several of the antibodies in previous KAM antibody microarray studies with other experimental model systems is also available for comparison on our www.kinet-am.ca website.

The Analysis Report also provides extensive information of the antibodies deployed on the KAM-2025 microarray and the proteins and phosphosites that they target. This includes direct hyperlinks to our SigNET Knowledgebases (www.phosphonet.ca, www.kinasenet.ca, www.onconet.ca), UniProt, and PhosphoSitePlus. Direct hyperlinks are also provided for downloading over 200 Kinections Pathway Maps (in MS-PowerPoint format) for many of the phosphoproteins and phosphosites tracked on the KAM-2025 antibody microarrays of the main www.kinexus.ca website. With the MS PowerPoint format, these Kinections signalling pathway maps can be custom tailored for the specific needs of the users. Our KiNector website (www.kinector.ca) provides graphic maps of over 24,000 kinase-substrate experimentally detected interactions, and can also reveal indirect connections between a kinase and phosphosites on proteins. Furthermore, KiNECTOR graphically represents over 2500 direct interactions between receptors with extracellular ligands and intracellular proteins. Clients can also use our open-access KinATLAS website (www.kinatlas.ca) to identify kinase-substrate interactions between the proteins monitored on our microarrays as well as kinase-drug interactions.

Kinexus also offers our custom KiNetscape Network Mapping service to connect the leads from our Kinex™ KAM-2025 analyses into protein phosphorylation network maps. We have produced a database of over 22,000 experimentally confirmed kinase-substrate relationships (KSR's), for which a specific protein kinase phosphorylates a specific phosphosite in a substrate protein in a KSR. For many of these KSR's, the functional consequence of the phosphorylation is known or highly predictable. These KSR's are available for viewing in the KinaseNET (www.kinasenet.ca) and KiNector (www.kinector.ca) websites. For those KSR entries from the KinaseNET database where the effects of a treatment on cells or animals generate significant changes from the antibody microarray analyses, we use the Cytoscape 3.4 program (The Cytoscape Consortium) with our customized settings to rapidly create publishable phosphorylation network maps. Figure 9 shows an example of a portion of a qualitative KiNetscape map. Custom qualitative KiNetscape maps are typically priced at US\$400 each, but can be more expensive if the maps are highly complex. Clients should directly contact Kinexus for further details if they wish to utilize this service.

Figure 9. KiNetscape qualitative representation of the key EGF-induced changes in protein expression or phosphorylation from a Kinex™ KAM-900P antibody microarray analyses of the lysates from serum-starved A431 cells that were treated without or with 100 ng/ml EGF for 5 minutes. Lysates were prepared by directly homogenizing the cells into CCC buffer and subsequently biotinylated. Relevant kinase-substrate relationships were imported into the Cytoscape 3.4 program (The Cytoscape Consortium). With this style of protein signalling map, protein kinases are represented with circular icons and other proteins with rounded box icons (nodes). Activating phosphorylation events are shown with green dotted lines and arrows, inhibitory phosphorylations with red dotted lines and arrows and phosphorylations with undefined effects with grey dotted lines (edges). Proteins that showed increased expression changes greater than 45% are coloured orange, but appear blue if there was decreased expression greater than 45%. Protein expression changes less than 45% are not identified and these protein icons are coloured purple. If the phosphorylation of a site on a protein was induced more than 45%, then the text for this phosphosite is coloured orange. If its phosphorylation was reduced more than 45% in response to EGF, the text is colored blue. Changes in phosphorylation less than 45% are not indicated and the text for these phosphosites appears grey. The appearance of a positive or negative sign in front of the phosphorylation site text shows if the site is known to be stimulatory or inhibitory, respectively. A portion of the full map is shown.



10. PRICING INFORMATION

Kinexus offers the Kinex™ services at different pricing levels depending on the level of confidentiality required for your samples. With the full analysis with over 2000 pan-specific antibodies and full confidentiality, our regular price for the Kinex™ KAM-2025 Antibody Microarray Services is US \$1650 per cell or tissue lysate sample submitted and analyzed in duplicate. At this pricing level, only the species needs to be disclosed. To receive a further 24% discount off of these prices (*i.e.*, US \$1250) Kinexus requires the Non-Confidential Sample Description Form (NSDF-LY) to be completed in full including species, organ, tissue, cell, cell state, fractionation, perturbation, and treatment for each sample being analyzed. The Kinex™ KAM-2025-pY Antibody Microarray Services are priced at US \$1750 for the full Confidential service and US \$1350 for the Non-Confidential service per cell/tissue lysate sample.

The philosophy behind the non-confidential data pricing is to accelerate signal transduction research and knowledge within the scientific community. After a one year hold, Kinexus is permitted to utilize as well as post the results of a Non-Confidential analyses on its websites if it chooses to do so, although client identification is never revealed. Please note that at any time, clients can change the status of their order from Non-Confidential to Confidential by paying the difference in price. To receive a quotation or for a volume discount on large orders, please contact the Director of Sales & Marketing at 1-866-KINEXUS or 1-604-323-2547 (Extension 11) or e-mail info@kinexus.ca .

11. FOLLOW-UP SERVICES

We highly recommend that all interesting leads generated with the Kinex™ KAM-2025 Antibody Microarray should be validated by Western blotting before proceeding to other follow-up studies. Such validation is really essential with any commercial or custom produced antibody microarray. As good as antibody may be in terms of specificity and potency, it is still not possible to identify all of the possible cross-reactivities in every different type of tissue or cell type, and this is especially true for phosphosite-specific antibodies. To assist in this regard, Kinexus offers two convenient and cost-effective custom immunoblotting services.

Clients can use the Kinetworks™ Custom KCPS 1.0 (Multi-Antibody) Protein Screen, where any 18 antibodies used on the KAM-2025 chip can be selected, and we can test whether they correctly detect their target proteins and phosphosites in your experimental model system. If there are a large number of lysate samples to test, it is often advisable to have a pre-screen performed where equal aliquots of sample lysates are pooled and then tested to confirm the antibodies are detected on a Western blot. Alternatively, with the Kinetworks™ Custom KCSS 1.0 (Multi-Sample) Protein Screen, 8 to 13 different samples can be probed with an antibody. Lysate samples for Kinetworks™ analyses may be shipped without refrigeration to Kinexus if they are boiled and stored in SDS-PAGE sample buffer. More information about these Kinetworks™ services and the necessary forms can be download from our website at http://www.kinexus.ca/ourServices/immunoblotting/custom_profiling/custom_profiling.html

The availability of these Kinetworks™ Custom screens is another important distinguishing feature of our antibody microarray services as clients can have their research leads conveniently and cost-effectively confirmed. The cost savings arising from the use of the Kinexus discovery platform becomes immediately apparent when one considers the purchase costs of individual antibodies and the labour necessary to confirm key antibody results obtained with other antibody microarrays. In addition, once the results are confirmed by Western blotting, clients can correlate their data with thousands of other data points from hundreds of different model systems using our KINET-AM database, which contain the results from thousands of previous Kinex™ Antibody Microarray analyses. Over 500 scientific publications have been published that reference the Kinexus Services, of which more than 150 are directly related to the Kinex™ Antibody Microarray Services.

In addition to the Kinetworks™ Custom Immunoblotting Services to validate leads, Kinexus can assist with many other aspects of your research project from start to finish. Other services that can be used in combination with our Kinex™ Antibody Microarray services include the following:

- *In vivo* services – send us your experimental compounds, proteins or oligonucleotides and we will perform the treatment of cells according to your specification and generate lysates for testing with our microarrays;
- Tissue or cell pellet processing – send us your cell pellets or tissues and we will prepare lysates for you;
- Mass spectrometry identification of antibody cross-reactive proteins;
- Custom Graphics – we can prepare pathway charts and bar graphs for your scientific publications;
- Custom Antibody Microarrays – we can print custom microarrays with hundreds of antibodies selected from our antibody library or supplied by you for your own internal research programs;

- Custom Antibody Macroarrays – we can print custom nitrocellulose or glass slide arrays with 10 to 100 or more antibodies from our antibody library or provided by you;
- Custom Reverse Phase Lysate Microarrays – we can print custom microarrays with hundreds of cell or tissue lysates to allow for further evaluation of the biological robustness of biomarkers identified through our Kinex™ Antibody Microarray services. These can be sourced from Kinexus or supplied by you;
- Custom Lysate Macroarrays – we can print custom nitrocellulose or glass slide arrays with 10 to 100 or more cell/tissue lysates selected from our library or supplied by you; and
- Kinase and phosphatase substrate or compound inhibitor profiling services with more than 400 active protein kinases and phosphatases to choose from.

Kinexus also offers free services and open access on-line databases to clients which include the following:

- KiNET™ Antibody Microarray (KiNET-AM) DataBase (www.kinet-am.ca) – clients can directly compare their Kinex™ Antibody Microarray results with lysates from thousands of other experimental model systems analysed with the same methodology;
- PhosphoNET KnowledgeBase (www.phosphonet.ca) – clients can compare interesting phosphosites identified by our microarrays with over 180,000 confirmed and 790,000 additional predicted human phosphosites to learn about their evolutionary conservation in up to 20 different species as well as the top 50 kinases predicted to phosphorylate these sites;
- KinaseNET KnowledgeBase (www.kinasenet.ca) – clients can retrieve comprehensive information on over 536 human protein kinase.
- DrugKiNET KnowledgeBase (www.drugkinet.ca) – clients can identify the most potent inhibitors experimentally verified for all of the human protein kinases tracked on our microarrays as well as predicted inhibitors for off target kinases.
- OncoNET KnowledgeBase (www.onconet.ca) – clients can obtain information about the expression and mutation of many of the proteins tracked on our microarrays in diverse types of human cancers.
- TranscriptoNET KnowledgeBase (www.transcriptonet.ca) – clients can compare expression levels identified by our microarrays with the mRNA levels for over 20,000 human genes in 600 different human organs, tissues and cell lines.
- KinATLAS (www.kinatlas.ca) - clients can identify protein-protein interactions in a cell and tissue specific manner with this graphic mapping website that also tracks kinase-drug interactions.
- KiNector (www.kinector.ca) - clients can identify direct kinase-substrate interactions and indirect kinase-phosphoprotein interactions in pathways in this graphic mapping site.

Sample Preparation

12. QUANTITY OF LYSATE

The amount of protein recommended for submission for the Kinex™ KAM-2025 Antibody Microarray services is 200 µg per sample at an approximate concentration of 2-3 mg/ml. If your samples have a higher concentration, we recommend sending it without further dilution and Kinexus will adjust the concentration as required during processing. In this case, we prefer a minimum volume of approximately 50 µl. If your samples have a lower concentrations, there are alternate steps that can be undertaken for ensuring optimum results. This includes concentrating your samples or providing additional dye-labeling reactions to your samples. We have been able to successfully use 40 µg or less with our microarrays where the amount of sample has been limiting. Please contact a Kinexus Technical Service Representative for more information on how to proceed and the additional costs involved if your sample concentrations are too low.

13. LYSIS BUFFER

The standard ingredients for our lysis buffer are listed below, however other lysis buffers commonly used for protein lysate preparation with non-ionic detergents should be compatible with the service. **However any lysis buffers containing Tris or reagents carrying reactive amine groups are not acceptable alternatives.** These will interfere with lysate protein labelling. Please contact Kinexus for more information on the appropriate types of lysis buffers to use or email info@kinexus.ca to request an aliquot of our lysis buffer to be sent at no cost. We only require a courier account number to cover the shipping expenses. Your cell pellets or tissues should be homogenized in ice-cold lysis buffer.

The reagents in the Kinexus Lysis Buffer (pH 7.2) include:

1. 20 mM MOPS (pH 7.0)
2. 2 mM EGTA (to bind calcium);
3. 5 mM EDTA (to bind magnesium and manganese);
4. 50 mM sodium fluoride (to inhibit protein-serine phosphatases);
5. 60 mM β-glycerophosphate, pH 7.2 (to inhibit protein-serine phosphatases);
6. 25 mM sodium pyrophosphate (to inhibit protein-serine phosphatases);
7. 5 mM sodium orthovanadate (to inhibit protein-tyrosine phosphatases);
8. 50 nM phenylarsine oxide
9. 1% Triton X-100 * (can be substituted with 1% Nonidet P-40)
10. 0.05% sodium dodecylsulphate (SDS)

NOTE: Detergents (Triton X-100 and SDS) are required for preparing total detergent-solubilized lysates. The detergents should be omitted from the lysis buffer if a subcellular fractionation is to be performed.

For chemical cleavage harvesting only:

11. 10 mM TCEP (Tris(2-carboxyethyl)phosphine hydrochloride)
12. 100 mM NTCEB (2-nitro-5-thiocyanatobenzoic acid) (added after sonication)

Protease Inhibitors and Dithiothreitol

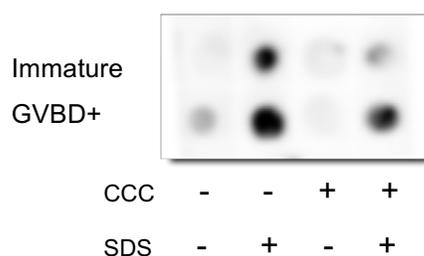
13. 0.5 µM aprotinin (to inhibit proteases);
14. 3 mM benzamidine (to inhibit proteases);
15. 1 mM Petabloc (to inhibit proteases);

16. 10 μ M leupeptin (to inhibit proteases); and
17. 1 mM dithiothreitol (to disrupt disulphate bonds).

The protease inhibitors and dithiothreitol (DTT) must be added to lysis buffer immediately before use and samples should be processed as quickly as possible. Not all protease inhibitors are required, but it is optimal to use as many as available. For convenience, the Roche Complete Mini Inhibitor Cocktail tablet can be used to replace the individual protease inhibitors. If the lysate proteins are to remain in their native structure and not denatured, the chemical cleavage step should not be used, and the samples must be frozen and shipped to Kinexus on dry ice. Samples that have been subjected to chemical cleavage or homogenized directly into 1X SDS-PAGE sample buffer can be sent to Kinexus without the need for refrigeration or freezing during shipping.

Note that if the samples are only subjected to chemical cleavage at the time of lysate preparation, it is still feasible for us to perform dot blotting with the chemical cleaved lysates to evaluate whether a treatment was effective in producing a change in the expression or phosphorylation of a marker protein such as ERK2 MAP kinase. Chemically-cleaved lysate samples are unsuitable for SDS-PAGE and Western blotting. However, they can be used for Bradford Protein assays, provided that the carry over of detergent is compensated for in derivation of the protein standard curve for bovine serum albumin, since these components can interfere with this protein assay. Figure 10 below shows the stimulation of ERK1 phosphorylation during meiotic maturation of sea star oocytes on a dot blot.

Figure 10. ERK2 pT185+pY187 phosphosite-specific antibody dot blot of lysates from sea star oocytes that have been induced to undergo meiotic maturation. Lysates from immature oocytes (blocked at prophase) and maturing oocytes (treated with 10 μ M 1-methyladenine for 60 minutes) were spotted onto a nitrocellulose membrane following incubations with and without cysteine chemical cleavage (CCC) for 30 min at 45°C, and with and without the addition of 1% sodium dodecylsulphate (SDS) prior to deposition. This antibody (Cat. No. AB-PK621) cross-reacts with ERK1, which undergoes increased phosphorylation during oocyte maturation at the time of germinal vesicle breakdown (GVBD).



Important points to remember

1. The cells or tissues should be processed quickly at 4°C or less if the samples are not subjected to cysteine chemical cleavage at the time of homogenization. This is especially critical for detection of protein-tyrosine phosphorylation with the KAM-2025-pY analyses.
2. Add the protease inhibitors and DTT to the lysis buffer just before processing samples.
3. Ensure the contents are completely dissolved and store on ice.
4. Homogenization should be performed in small volumes of lysis buffer to obtain protein lysates at high concentrations, ideally at 2-3 mg/ml or higher. The concentrations can be diluted later if required.
5. The detergent-soluble fraction should be obtained as quickly as possible after the cells or tissues are homogenized.
6. Sonication is required for optimal results (do not over sonicate).
7. The highest centrifugal forces available should be used to generate the detergent-soluble fraction.
8. The supernatants should be frozen as quickly as possible if a protein assay cannot be performed immediately. Lysates should be stored at -70°C, unless these have been subjected to chemical cleavage or processed in SDS-PAGE sample buffer.
9. We recommend harvesting cells and tissues with the chemical cleavage reagents (TCEP and NTCB) to help reduce the number of false positives that can arise from the use of non-denatured proteins on the antibody microarray. If you choose to prepare samples without the chemical cleavage method, then omit the sections below outlined in red. However, you should let us know and we can include the chemical cleavage step for you prior to probing your lysates on the microarray. Note that the best results are obtained if the chemical cleavage is performed during initial lysate preparation.

14. FRACTIONATIONS

There are many different types of fractionations that can be performed, and the choice of lysis buffer used will vary depending on the type of fractionation you are considering to prepare. The simplest type of lysate preparation is the total cellular extract obtained as a total detergent-solubilized fraction. To obtain just the soluble cytoplasmic proteins, detergent should not be included in the homogenizing buffer. The remaining microsomal pellet obtained following ultracentrifugation after removal of the cytoplasmic supernatant fraction can be re-sonicated in homogenizing buffer with detergent and re-ultracentrifuged to obtain the detergent-soluble membrane fraction.

Total Cellular Extract:

For quantitation of total cellular levels of cell signalling proteins, lysis and homogenization should be performed in the presence of a non-ionic detergent and a low concentration (0.05%) of an anionic detergent such as SDS. We recommend the use of 1% Triton X-100 or 1% Nonidet P40, but comparable detergents are acceptable. This is the most common type of fractionation prepared by clients and is optimal for monitoring changes in total protein expression. However, if proteins are re-distributed between cellular compartments as a consequence of a perturbation of an experimental model system, this will not be evident.

Subcellular Fractionation:

Detergents should be omitted from the homogenization buffer if the subcellular distribution of cell signalling proteins is to be examined. If a particulate-solubilized fraction is to be analyzed, a microsomal pellet should be obtained following the initial homogenization and ultracentrifugation in the absence of detergent and subsequent removal of the cytosolic supernatant. In this instance, the cytosolic extract should be removed and the microsomal pellet should then be resuspended in the homogenization buffer with 0.05% SDS containing 1% Triton X-100 or 1% Nonidet P-40 and subjected to homogenization and ultracentrifugation once again. The resulting detergent-solubilized microsomal fraction should be removed and immediately assayed for its protein concentration.

Other Fractionations:

At this time, we do not recommend you send samples from immunoprecipitation or antibody affinity pull-down experiments for the Kinex™ KAM Antibody Microarray Services unless you consult with us first.

15. PROTEIN LYSATE PREPARATION WITH AND WITHOUT CHEMICAL CLEAVAGE

The optimum amount of protein recommended for the Kinex™ KAM-2025 Antibody Microarray is 200 µg per sample at a concentration of 3.0 mg/ml or higher. We recommend preparing extra lysate, if possible, for follow-up studies. If the concentration of the lysate is below 2.0 mg/ml concentration, the sample can be concentrated using an Amicon Ultra-0.5 Ultracel-3 Membrane Centrifugal Filter with a M.W. cut-off of 3,000 (Catalog Number: UFC500308, Millipore, Billerica, MA). For more information about how to concentrate samples, please contact a Kinexus Technical Services representative at info@kinexus.ca or call 1-866-546-3987. It is possible to obtain reliable results with as little as 40 µg of lysate protein sample if the tissue or cell extract is limiting.

It is highly recommended to use the Kinexus Lysis Buffer included with this kit for protein lysate preparation, as it has been optimized for the use with KAM Antibody Microarray as well as any follow-up services. Other lysis buffers commonly used for protein lysate preparation containing detergents may be compatible with the KAM-Antibody Microarray. **However, no lysis buffer containing Tris or reagents carrying reactive amine groups such as glycine and ammonia should be used to prepare lysates for the KAM Antibody Microarray as these may interfere with the protein labelling.** The Kinexus Lysis Buffer contains phosphatase inhibitors and the Lysis Buffer Cocktail contains protease inhibitors and DTT. Immediately prior to use, transfer the content of the Kinexus Lysis Buffer into the Lysis Buffer Cocktail. Invert the tube several times to make sure the contents are completely dissolved and store on ice. Prepare the cell or tissue lysates according to protocols listed below. The resulting protein lysate samples prepared must be frozen at -70°C or below after protein quantification unless they are to be immediately subjected to protein labelling and purification.

It is also highly recommended to harvest cells and tissues at the time of homogenization with the chemical cleavage reagents (TCEP and NTCB) to help reduce the number of false positives that can arise from the use of non-denatured proteins on the antibody microarray. Samples prepared with the cysteine chemical cleavage (CCC) method are stable at room temperature for at least 2 weeks. Use the appropriate set of instructions that follow depending on the type of cells or tissues to be analyzed and whether the CCC method is desired or not.

A) Preparation of Lysates from Cells with Chemical Cleavage

i) Adherent Cells

1. Remove medium from culture dishes containing approximately 1×10^6 to 2×10^6 cells for each sample to be analyzed using the KAM-2025 microarray.
2. Rinse the cells in the dishes twice with ice-cold Phosphate Buffered Saline (PBS) to remove medium residue (serum must be completely removed) and aspirate as much PBS as possible after the last rinse.
3. Mix the components in the **Kinexus Lysis Buffer** as listed in Section 11. Invert the tube several times to ensure the contents are completely dissolved and store on ice. Add 200 μL of the ice-cold Kinexus Lysis Buffer to a 150-mm culture dish, or add 100 μL ice-cold Kinexus Lysis Buffer to a 100-mm culture dish. Also, add 25 μL of 10 mM TCEP to 500 μL of lysis buffer for a final concentration of 0.5 mM TCEP. Adjust the pH of the lysis buffer containing 0.5 mM TCEP to pH 9 (approximately 2 μL of 10 N NaOH per 1 mL buffer).
4. Scrape the cells in Kinexus Lysis Buffer, collect the resulting cell suspension from dishes and transfer it into a 1.5-mL microcentrifuge tube. Check to make sure that the pH is 9.0.
5. Sonicate using a microprobe sonicator 4 times for 10 seconds each with 10-second intervals on ice to rupture the cells and to shear nuclear DNA. Alternatively, passing the cell suspension through a 26-gauge needle until the sample is no longer viscous is also acceptable if a sonicator is not accessible. This step is crucial and cannot be omitted. Add 6 μL of 100 mM NTCB per 100 μL cell homogenate for a final concentration of 6 mM NTCB, and make sure that the pH is 9.0 and adjust with 10 N NaOH if necessary). Incubate the homogenate at 45°C in a water bath for 30 minutes.
6. Centrifuge the resulting lysate homogenate at 90,000 x g or above for 30 minutes at room temperature in a Beckman Table Top TL-100 ultracentrifuge, Beckman Airfuge or equivalent. Alternatively, clearing homogenates at maximum speed (15,000-17,000 rpm) on a benchtop microcentrifuge for 30 minutes at room temperature is also acceptable.
7. Transfer the resulting supernatant to a new 1.5-mL microcentrifuge tube.
8. Remove a small aliquot and determine its protein concentration using a commercial Bradford assay reagent (available from Bio-Rad, catalogue number 500-0201) or following the standard protocol of Bradford (Bradford, M.M. (1976) A rapid and sensitive method for quantitation of microgram quantities of protein utilizing the principle of protein-dye binding. *Anal. Biochem.* 72:248-254). Bovine serum albumin (BSA) is used as the protein standard. The protein concentration obtained should be approximately 3.0 mg/mL or higher. If the concentration obtained is less than 1.0 mg/mL, samples should be concentrated using an Amicon Ultra-0.5 Centrifugal Filter (Millipore).
9. Check the pH of the lysates and adjust to pH 7.0-7.4 with 1 M HCl if necessary. Aliquot and set aside 200 μg for each lysate to be analyzed with the KAM-2025 chip.
10. If you wish to have Kinexus perform the custom immunoblotting follow-up analysis, aliquot 350-500 μg of cell lysate for each 18 antibodies to be tested, and boil in SDS-Sample Buffer following the protocols specified on our website. **Note that such lysates must be from cells that are not subjected to cysteine chemical cleavage**

during homogenization and sample preparation. Chemically cleaved lysates are stable at ambient temperature for more than 2 weeks. Store any remaining lysates at -70°C for subsequent validation studies.

ii) Suspension Cells

1. Transfer cells with medium from cell culture flasks into appropriate sized tubes and centrifuge at 500 x g for 2 minutes at 4°C in a swinging bucket benchtop centrifuge. Remove as much medium from the cell pellet as possible without disrupting cells.
2. Wash the pellet by gently resuspending the cells in ice-cold PBS, followed by centrifugation as above. Repeat this step once to ensure complete removal of serum. Remove as much PBS as possible after the final wash.
3. Mix the components in the **Kinexus Lysis Buffer** as listed in Section 11. Invert the tube several times until dissolved and store on ice. Add 25 µL of 10 mM TCEP to 500 µl of lysis buffer for a final concentration of 0.5 mM TCEP, and adjust the pH to 9 (which is approximately 2 µL of 10 N NaOH per 1 mL buffer). Add an adequate amount of the ice-cold Kinexus Lysis Buffer to the sample based on the number and type of cells to achieve a final total protein concentration of approximately 3.0 mg/mL.
4. Follow Steps # 5 through 10 as described in the Adherent Cells Section above.

B) Preparation of Lysates from Cells without Chemical Cleavage

i) Adherent Cells

1. Remove medium from culture dishes containing approximately 1×10^6 to 2×10^6 cells for each sample to be analyzed using the KAM-2025-pY microarray.
2. Rinse the cells in the dishes twice with ice-cold Phosphate Buffered Saline (PBS) to remove medium residue (serum must be completely removed) and aspirate as much PBS as possible after the last rinse.
3. Mix the components in the **Kinexus Lysis Buffer** as listed in Section 11. Invert the tube several times to ensure the contents are completely dissolved and store on ice. Add 200 µL of the ice-cold Kinexus Lysis Buffer to a 150-mm culture dish, or add 100 µL ice-cold Kinexus Lysis Buffer to a 100-mm culture dish.
4. Scrape the cells in Kinexus Lysis Buffer, collect the resulting cell suspension from dishes and transfer it into a 1.5-mL microcentrifuge tube.
5. Sonicate using a microprobe sonicator 4 times for 10 seconds each with 10-second intervals on ice to rupture the cells and to shear nuclear DNA. Alternatively, passing the cell suspension through a 26-gauge needle until the sample is no longer viscous is also acceptable if a sonicator is not accessible. This step is crucial and cannot be omitted.
6. Centrifuge the resulting lysate homogenate at 90,000 x g or above for 30 minutes at 4°C in a Beckman Table Top TL-100 ultracentrifuge, Beckman Airfuge or equivalent. Alternatively, clearing homogenates at maximum speed (15,000-17,000 rpm) on a benchtop microcentrifuge for 30 minutes at 4°C is also acceptable.
7. Transfer the resulting supernatant to a new 1.5-mL microcentrifuge tube. The following steps should be performed as quickly as possible with the supernatant fraction kept in an ice bath.
8. Remove a small aliquot and determine its protein concentration using a commercial Bradford assay reagent (available from Bio-Rad, catalogue number 500-0201) or following the standard protocol of Bradford (Bradford, M.M. (1976) A rapid and sensitive method for quantitation of microgram quantities of protein utilizing the principle of protein-dye binding. *Anal. Biochem.* 72:248-254). Bovine serum albumin (BSA) is used as the protein

standard. The protein concentration obtained should be approximately 3.0 mg/mL or higher. If the concentration obtained is less than 1.0 mg/mL, samples should be concentrated using an Amicon Ultra-0.5 Centrifugal Filter (Millipore).

9. Aliquot and set aside 200 μ g for each lysate to be analyzed with the KAM-2025-pY chip.
10. Store any remaining lysates at -70°C for subsequent validation studies. If you wish to have Kinexus perform the custom immunoblotting follow-up analysis, aliquot 350-500 μ g for each 18 antibodies to be tested, and boil in SDS-Sample Buffer following the protocols specified on our website. Label and freeze remaining lysates.

ii) Suspension Cells

1. Transfer cells with medium from cell culture flasks into appropriate sized tubes and centrifuge at 500 x g for 2 minutes at 4°C in a swinging bucket benchtop centrifuge. Remove as much medium from the cell pellet as possible without disrupting cells.
2. Wash the pellet by gently resuspending the cells in ice-cold PBS, followed by centrifugation as above. Repeat this step once to ensure complete removal of serum. Remove as much PBS as possible after the final wash.
3. Mix the components in the **Kinexus Lysis Buffer** as listed in Section 11. Invert the tube several times until dissolved and store on ice. Add an adequate amount of the ice-cold Kinexus Lysis Buffer to the sample based on the number and type of cells to achieve a final total protein concentration of approximately 3.0 mg/mL.
4. Follow Steps # 5 through 10 as described in the Adherent Cells Section above.

C) Preparation of Lysates from Tissues with Chemical Cleavage

1. Mix the components in the **Kinexus Lysis Buffer** as listed in Section 11. Add 25 μ L of 10 mM TCEP to 500 μ L of lysis buffer for a final concentration of 0.5 mM TCEP. Invert the tube several times until dissolved and adjust the pH of the lysis buffer containing 0.5 mM to pH 9 (which is approximately 2 μ L of 10 N NaOH per 1 mL buffer) and store on ice. Use approximately 1 mL of the Kinexus Lysis Buffer per 250 mg wet tissue.
2. Cut the tissue into smaller pieces and rinse them in ice-cold PBS three times to remove any blood contaminants.
3. Homogenize the tissue on ice with 15 strokes of a glass douncer (or 3 times for 15 seconds each time with a Brinkman Polytron Homogenizer or with a French Press as alternative).
4. Sonicate the homogenate 4 times for 10 seconds on ice each time to shear nuclear DNA.
5. Add 6 μ L of 100 mM NTCB per 100 μ L cell homogenate for a final concentration of 6 mM NTCB, and adjust the pH to 9.0 with 10 N NaOH if necessary. Incubate the homogenate at 45°C water bath for 30 minutes.
6. Centrifuge the homogenate at 90,000 x g or higher for 30 minutes at room temperature in a Beckman Table Top TL-100 ultracentrifuge, Beckman Airfuge or equivalent. Alternatively, clients can also centrifuge at maximum speed (15,000 – 17,000 rpm) on a benchtop microcentrifuge for 30 minutes at room temperature.
7. The following steps should be performed as quickly as possible once the supernatant fraction is obtained. Check that the pH of the lysates, which should be close to neutral (pH 7.0-7.4) and adjust with 1 M HCl if necessary.
8. Transfer the resulting supernatant fraction to a new tube and subject it to a protein assay using a commercial Bradford assay reagent or using the standard protocol of Bradford. BSA should be used as the protein standard. The protein concentration obtained should be approximately 15-20 mg/mL or higher, but a final concentration

of only 3 mg/mL for the antibody microarray is needed. If the concentration obtained is less than 1.0 mg/mL, samples should be concentrated using an Amicon Ultra-0.5 Centrifugal Filter (Millipore).

8. Aliquot 200 µg for each lysate to be analyzed with the KAM-2025 antibody microarray.
9. Chemically cleaved lysates are stable at ambient temperature for at least 2 weeks. Store any remaining lysates at -70°C for subsequent validation studies.

D) Preparation of Lysates from Tissues without Chemical Cleavage

1. Mix the components in the **Kinexus Lysis Buffer** as listed in Section 11. Invert the tube several times until dissolved and store on ice. Use approximately 1 mL of the Kinexus Lysis Buffer per 250 mg wet tissue.
2. Cut the tissue into smaller pieces and rinse them in ice-cold PBS three times to remove any blood contaminants.
3. Homogenize the tissue on ice with 15 strokes of a glass douncer (or 3 times for 15 seconds each time with a Brinkman Polytron Homogenizer or with a French Press as alternative).
4. Sonicate the homogenate 4 times for 10 seconds on ice each time to shear nuclear DNA.
5. Centrifuge the homogenate at 90,000 x g or higher for 30 minutes at 4°C in a Beckman Table Top TL-100 ultracentrifuge, Beckman Airfuge or equivalent. Alternatively, clients can also centrifuge at maximum speed (15,000 – 17,000 rpm) on a benchtop microcentrifuge for 30 minutes at 4°C. The following steps should be performed as quickly as possible once the supernatant fraction is obtained.
6. Transfer the resulting supernatant fraction to a new tube, which is kept in an ice bath, and subject it to a protein assay using a commercial Bradford assay reagent or using the standard protocol of Bradford. BSA should be used as the protein standard. The protein concentration obtained should be approximately 15-20 mg/mL or higher. If the concentration obtained is less than 1.0 mg/mL, samples should be concentrated using an Amicon Ultra-0.5 Centrifugal Filter (Millipore).
7. Aliquot 200 µg for each lysate to be analyzed with KAM-2025 and keep it on ice if it is to be used immediately.
8. Store any remaining lysates at -70°C for subsequent validation studies. Label the microcentrifuge tubes and freeze them immediately.

E) Additional Notes for KAM-2025 Lysate Preparation

1. Note all cell lines are different so the suggested number of 1×10^6 to 2×10^6 cells for each sample is an estimate based on commonly used cell lines. For the validation immunoblotting service, you will need to prepare about 10 times more cells (1×10^7 to 2×10^7 cells).
2. Cells or tissues should be processed in a timely fashion at 4°C or below if the chemical cleavage step is not used.
3. The Kinexus Lysis Buffer with its phosphatase and protease inhibitors should be completely dissolved and kept over ice just prior to use.
4. Protein concentration of each sample should preferably be at or above 3.0 mg/ml.
5. 200 µg of lysate is recommended to be used, especially with the KAM-2025-pY chip, since the phosphorylation of target proteins at specific sites is often found with very low stoichiometry. However, if sample material is difficult to obtain, as little as 40 µg of lysate has been successfully used. (Note: The same amount of protein

from each sample to be analyzed together must be applied to each microarray for optimal comparison purposes).

6. To minimize the volume and maximize the protein concentration of lysates, the lysis buffer used to recover the scraped cells from a culture dish can be transferred to the next dish if multiple dishes of cells for the same sample are to be used for lysate preparation. It is advised to use the *minimal amount* of lysis buffer for lysate preparation to achieve the protein concentration required for the KAM-2025 antibody microarray analysis.
7. Nuclear DNA shearing by sonication or needle passing is necessary and cannot be omitted.
8. The highest centrifugal forces achievable on a microcentrifuge should be used to prepare the detergent-soluble fraction.
9. Detergents should be initially omitted from the lysis buffer if a particulate-solubilized fraction is to be prepared and analyzed.
10. Supernatants should be separated from pelleted precipitates and frozen as quickly as possible if the chemical cleavage is not performed. Removal of an aliquot for the protein assay is suggested so that the bulk of the lysate sample can be frozen quickly to preserve the phosphorylation state of the proteins in the extract.

Once we have received your lysate samples at Kinexus, they will undergo extensive processing according to your specifications. To get a sense of how they might be handled, demonstration videos are also available for viewing on our company's You-Tube Channel at https://www.youtube.com/channel/UC_GL-BCsGRrnKiQ_6qV1jeA

16. PREPARATION OF CELL AND TISSUE PELLETS

An additional charge of \$200 per sample will apply for submission of cell pellets to be processed at Kinexus. A sufficient number of cells ($>2 \times 10^6$ cells) should be provided for each sample to be subjected to KAM-2025 analysis. If Kinetworks™ multi-immunoblotting is desired for validation of the KAM-2025 results, the number of cells required is ten-fold higher ($>2 \times 10^7$ cells).

A) Adherent Cells

1. Remove the medium and rinse the cells in dish with ice-cold PBS once;
2. Detach cells with trypsin as one does in passaging cells or scrape the cells with a rubber policeman, followed by the addition of equal volume of medium;
3. Collect cells in a 15-ml conical tube and centrifuge at $500 \times g$ for 2 minutes at 4°C in a swinging bucket benchtop centrifuge;
4. Wash the pellet twice with ice-cold PBS thoroughly, (the presence of serum from medium could skew the protein assay) and remove as much PBS as possible (the presence of liquid residue dilutes the sample and may also result in the damage of cells during freezing process); and
5. Freeze the pellets for shipping. Pellets must be shipped on dry ice.

B) Suspended Cells

Simply follow Steps 3-5 above for “A) *Adherent Cells*” and freeze the cell pellet immediately. Pellets must be shipped on dry ice.

C) Tissues

An additional charge of \$200 per sample will apply for submission of tissue samples to be processed at Kinexus. Freshly harvested tissues are preferred if possible. When harvesting, the tissues should be cut into small pieces on the surface. Wrap the tissues individually in tinfoil and snap freeze them in liquid nitrogen for 10 minutes before storing them at -80 °C. The tissues should be shipped on dry ice.

Shipping Information

17. STORAGE OF SAMPLES

The final protein concentration of the cell/tissue samples should be approximately 3 mg/mL. Please record the actual concentration and volume of each sample on the Sample Description Form (KAM-NSDF or KAM-CSDF). We request ideally **200 µg** of cell or tissue lysate for each sample submitted for analysis with the Kinex™ Antibody Microarray. (If possible, it is also recommended to send an additional 10-15 µL aliquot of each sample specifically for the Bradford assay). It is possible to use as little as 50 µg of lysate protein for our analyses.

If any of our custom validation immunoblotting studies are to be performed based on the analysis of your Kinex™ results, we recommend sending additional lysate at this time to save on future shipping costs. We need ~350-500 µg of additional material for every 18 antibodies selected for validation Western blotting.

Samples should be stored in screw cap vials. The vials should be clearly labelled with an indelible marker with a unique identification number, parafilm to protect against leakage, and put into another support structure such as a small box or a 50-ml conical or centrifuge tube to provide extra protection during shipping. **All samples that have not been subjected to chemical cleavage at the time of homogenization or prepared in SDS-PAGE sample buffer must be shipped on dry ice.** Approximately 5% of the time, it has been necessary for clients to re-send samples to Kinexus due to thawed samples at the time of arrival. This is most often due to insufficient dry ice for shipping or inadequate completion of shipping documentation. If the lysate samples have been prepared with chemical cleavage reagents at the time of cell or tissue lysis, they are stable for over 2 weeks at room temperature and special refrigeration or freezing is not necessary during shipping.

18. DRY ICE SHIPMENTS

Shipments sent within North America normally arrive at our facility the following day. Therefore, we recommend shipping from Monday to Wednesday to allow sufficient time to arrive safely at our facility in case of delays due to Customs or weather. For shipments from outside of North America, we recommend sending your package on Monday as shipments can take up to 5 days to arrive depending on location. You should pack enough dry ice to last a minimum of 3 days in transit (for within North America) or 5 days (for outside of North America) and preferably use large dry ice chunks mixed with nuggets to fill in the extra spaces. Dry ice sublimates at a rate of 10 to 30% (or 5-10 pounds) every 24 hours depending on the thickness of the Styrofoam container used and the size and weight of the

dry ice. Pack the dry ice just before shipping to help preserve its shelf-life. Appropriate dry ice labels must be placed on the outside of the box and the weight of dry ice in kilograms written inside the label.

19. SHIPPING DETAILS

The aforementioned procedure has been designed to reduce the use of shipping materials and courier costs, and to ensure that your precious samples arrive in a safe and stable form at our laboratory facilities. Note that clients are responsible for payment of courier costs. Frozen sample vials should be sent to the address listed below by any express courier that accepts dry ice shipments. We recommend Federal Express for shipments originating in North America, and World Express is the preferred courier choice outside of North America. Ship the samples to the following address and e-mail info@kinexus.ca with the courier details so we can track your package for you while it is in transit:

Kinex™ Screening Services
Kinexus Bioinformatics Corporation
Suite 1, 8755 Ash Street
Vancouver, B.C. Canada V6P 6T3

Telephone: 604-323-2547
Facsimile: 604-323-2548
Email: info@kinexus.ca

FORMS REQUIRED

20. FORMS TO BE COMPLETED

Fillable MS-Word versions of our forms are directly downloadable from the Kinexus website or by request. Customers are required to complete the following forms for each order placed. The forms can be printed and included with your samples.

A. Service Order Form (KAM-2025-SOF)

Please ensure:

- Address and contact name and numbers are specified
- Billing or accounting information is completed
- Any quotations are listed in the billing sections
- Include a Purchase Order, Visa or MasterCard number for payment
- The form is signed and dated

B. Service Identification Form (KAM-2025-SIF)

For each sample submitted, please ensure the following:

- At least 200 µg of protein is provided for each sample to be analyzed, 1 sample per screen
- In Section A, the customer must assign a unique Client Screen Identification Name to correlate the proteins to be analyzed for each sample submitted
- In Section B, the type of analysis (Kinex™ Screen Name) for each sample is specified.
- For Section C, your sample(s) are identified by completion of Client Supplied Non-Confidential (NSDF-LY) or Confidential (CSDF-LY) Sample Description Forms. Make sure that the Client Screen ID Name in Box A of these forms, matched the Client Screen ID Name in Box A of the KABM-SIF form
- In Section D, the level of confidentiality is indicated for correct pricing
- The form is certified correct and signed and dated

C. Sample Description Forms

Customers should choose which type of Sample Description Form is applicable to their lysate samples. The Non-Confidential Sample Description Form (NSDF-LY) is required to obtain the lower, non-confidential price. One form is required to be completed in full for every cell or tissue lysate submitted at this pricing level. If your samples are confidential, the the Confidential Sample Description Form (CSDF-LY) should be used.

For each lysate submitted, please ensure the following:

- Each sample tube is labelled and properly identified on the form in Section B, including the final concentration and volume
- A minimum of 200 µg of protein is provided for each sample submitted
- Please be as accurate as possible in completing the Non-Confidential Form. A Technical Service Representative may contact you for additional information regarding any sample details that are unclear
- The form is certified correct and signed and dated

D. Proteomics Services Agreement

A Proteomics Services Agreement is required to be signed before the first order can be processed. This Agreement is required to be signed and dated by an authorized representative, typically a Senior Officer, Senior Scientist, Principal Investigator, or Director of Research, before the first order can be processed, but does not have to be signed again for repeat orders. The Proteomics Service Agreement is typically valid for 10 years. If you require changes or modifications to be made to our standard service agreement, please email sales@kinexus.ca to request a Microsoft Word version of the document so your requested changes can be made directly into the agreement and emailed back to us for our final approval.

E. Courier Airway Bill

Airway bill for Federal Express or any courier that accepts dry ice shipments if the samples must be sent frozen.

Complete the airway bill and specify:

- Priority overnight delivery
- Bill transportation charges to your institute
- If chemical cleavage of the samples is not performed and samples must be sent frozen, use sufficient dry ice to last several days into a large Styrofoam shipping container
- Dry ice is a “hazardous” item, so ensure proper labels are attached to the outside of the box
- Do not specify Saturday delivery or hold at courier location
- Contact the courier to pick up the samples from you institute before the cut off time.
- For shipments coming from within Canada or the United States, it is preferable to ship any day from Monday to Wednesday. Do not ship on a Thursday or Friday.
- For international shipments coming from outside of North America, the best day to ship is on a Monday to ensure arrival in Canada for delivery later the same week
- Customers should e-mail the date of shipment and the courier airway bill number with number of samples to Kinexus at info@kinexus.ca to ensure we can track and monitor your package in transit
- For customers located outside of Canada, 3 copies of a commercial invoice are required to accompany your shipment (see below)

FOR U.S AND INTERNATIONAL CUSTOMER ONLY

F. Commercial Invoice (not required by Canadian clients)

Please complete one of the two attached commercial invoices (one for regular shipping and the other with dry ice) as applicable with the following information:

- Date of exportation
- Shipper name, address, and telephone number
- Country of export and country of origin
- Name of courier and the airway bill number
- Number, type and total weight of package(s)
- Total declared value of shipment (number of samples x \$1.00 per sample) and please specify currency
- Date, name, signature, and title of authorized person
- Include three (3) copies of the commercial invoice on the outside of the package along with the airway bill

The regular Shipping Commercial Invoice should be used if the lysate samples are obtained from cells and tissues that have been subjected to chemical cleavage and/or homogenized in SDS-PAGE sample buffer (for immunoblotting validation studies). For lysate samples or cell/tissue pellets that must be shipped frozen, use the Shipping Commercial Invoice that corresponds to a dry ice shipment.

Please ensure 3 copies of a signed commercial invoice accompany your shipment which specifies your samples are “non-hazardous, non-infectious, and non-toxic and for research purposes only”. Since the samples are not for resale, the value of your shipment should be priced low, we recommend \$1.00 per sample, to avoid paying additional duties and taxes on entry into Canada. It is also highly recommended that customers e-mail their courier airway bill number and the date of departure to info@kinexus.ca so we can track your shipment in transit and ensure it arrives in a timely manner. If we know your package tracking number, we can often pick up your package if it misses the cut off time for the courier delivery. We will send an e-mail confirmation once your shipment arrives safely at our facility.

The international air waybill is required for all international shipments. It is your customs declaration, which can possibly be used to clear your shipment through customs at the destination. If the description on your commercial invoice is too vague or missing information, customs authorities may select the shipment for further inspection. All customs paperwork, such as the commercial invoice, must have detailed commodity descriptions. A detailed description on the air waybill and other customs documentation will help speed up the clearance time and reduce your delivery time.



KINEXUS

Form: KAM-2025-SOF

KINEX™ ANTIBODY MICROARRAY SERVICES SERVICE ORDER FORM Subject to terms of the Kinexus Proteomics Services Agreement

KINEXUS ORDER NUMBER For Kinexus internal use only.

CUSTOMER INFORMATION [] REPEAT CUSTOMER OR [] NEW CUSTOMER

Name of Authorized Representative or Principal Investigator Title/Position Company Name or Institute Department Street Address City State or Province Country Zip or Postal Code Email Address (Area Code) Telephone Number (Area Code) Facsimile Number Contact Person (if different from Authorized Representative) Email Address (Area Code) Telephone Number

KINEX™ KAM-2025 REPORTS

RESULTS SENT BY EMAIL TO: [] AUTHORIZED REPRESENTATIVE/INVESTIGATOR AND/OR [] CONTACT PERSON

BILLING INFORMATION

Kinex™ Antibody Microarray KAM-2025 Services offered for the detection with over 2000 pan- and phosphosite-specific antibodies for cell signalling proteins in one (1) sample with two replicate measurements: KAM-2025 – Expression and specific phosphosite profiling; KAM-2025-pY – Phosphotyrosine profiling.

PRICE PER SAMPLE ON EACH MICROARRAY - Refer to Section E of the Sample Identification Forms: All prices in U.S. Funds NOTE: EACH MICROARRAY ORDERED INCLUDES THE ANALYSIS OF ONE (1) SAMPLE Sample Analysis Options KAM-2025-N Ab microarrays (1 non-confidential sample/array) @ US \$1250 per microarray x # arrays \$ KAM-2025-C Ab microarrays (1 full confidential sample/array) @ US \$1650 per microarray x # arrays + \$ KAM-2025-pY-N Ab microarrays (1 non-confidential sample/array) @ US \$1350 per microarray x # arrays + \$ KAM-2025-pY-C Ab microarrays (1 full confidential sample/array) @ US \$1750 per microarray x # arrays + \$ Total # of samples submitted: Total # of Kinex™ antibody microarrays: Subtotal = \$ Quotation or Reference Number: Quotation Price \$ TOTAL COST FOR THIS ORDER = \$ FOR CANADIAN CUSTOMERS ONLY: Add applicable GST to the above total (No. 893907329 RT0001): + \$ = \$ TOTAL AMOUNT PAYABLE IN U.S FUNDS

PAYMENT METHOD

[] PURCHASE ORDER ACCEPTED FROM COMPANIES AND INSTITUTES WITH APPROVED CREDIT. P.O. NUMBER: [] VISA OR [] MASTERCARD

Print Cardholder Name Card Number Expires (M/Y) CVV Cardholder Signature

BILLING INFORMATION [] SEND INVOICE TO CUSTOMER AT ABOVE ADDRESS OR [] SEND INVOICE TO ACCOUNTS PAYABLE CONTACT:

[] Dr [] Mr [] Ms Accounts Payable Contact Name Company Name or Institute Street Address City State or Province Country Zip or Postal Code (Area Code) Telephone Number

AUTHORIZATION

CUSTOMER HAS READ THE KINEXUS PROTEOMICS SERVICES AGREEMENT AND AGREES TO BE BOUND BY THE TERMS AND CONDITIONS:

Print Name of Authorized Representative or Principal Investigator Authorized Signature Date y/m/d

How did you originally hear about the KAM Services? [] Direct Mail [] Email [] Web Site [] Ad [] Referral [] Conference or Trade Show [] Other



Form: NSDF-LY

FOR LYSATES CLIENT SUPPLIED NON-CONFIDENTIAL SAMPLE DESCRIPTION FORM Subject to terms of the Kinexus Service Agreement

KINEXUS ORDER NUMBER

NAME: COMPANY/INSTITUTE: (Authorized Representative or Principal Investigator)

Non-Confidential Service Requested and Lysate Sample Details:

Please refer to the Customer Information Package for the particular Kinexus proteomics service that you are requesting for details on how to prepare and ship your lysates to Kinexus for testing. Clients are required to complete all Sections A-K to qualify for the Non-Confidential pricing level for the Kinexus' Proteomics Services if they provide their own lysates for analysis.

Form sections: A. CLIENT SCREEN ID NAME + KINEXUS SERVICES NAME; B. SAMPLE IDENTIFICATION; C. SPECIES; D. SAMPLE SOURCE; E. TISSUES; F. CELLS; G. CELL STATE; H. FRACTIONATION; I. PERTURBATION; J. TREATMENTS; K. ADDITIONAL SAMPLE INFORMATION

I hereby certify that all the sample information provided in this order is correct and accurate to the best of my knowledge. To qualify for the non-confidential pricing level, I agree that all Sections A-K must be completed in full otherwise the confidential pricing level will be applied.

Name of person completing this form Signature Date (y/m/d)



PROTEOMICS SERVICES AGREEMENT

SERVICE AGREEMENT NO.

2025-

This Proteomics Services Agreement (the "Agreement") is entered into effective as of the Effective Date by and between Kinexus Bioinformatics Corporation ("Kinexus"), a Canadian corporation with a principal place of business at Suite 1, 8755 Ash Street, Vancouver, British Columbia, Canada, V6P 6T3 **AND** the corporation or other entity ("**Customer**") having the following name and business or institution address:

RECITALS

WHEREAS Kinexus is a bioinformatics company employing proprietary proteomics and bioinformatics services to create and interpret data to map protein signalling networks and compile databases with this knowledge to enable disease biomarker and therapeutics discovery.

WHEREAS the Customer desires to have Kinexus perform standard and/or customized proteomics services with materials and/or information provided by the Customer.

WHEREAS Kinexus is willing to provide these proteomics services under the terms and conditions set forth herein.

THEREFORE, in consideration of the premises and covenants and agreements contained herein, and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, Kinexus and the Customer agree as follows:

1. DEFINITIONS

1.1 "Academic Collaborator" means a principal investigator, employed at a university or other not-for-profit academic research institution.

1.2 "Affiliate" means any corporation or other entity that directly or indirectly controls, is controlled by or is under common control with a party to this Agreement. A corporation or other entity shall be regarded as in control of another corporation or entity if it owns or directly or indirectly controls more than fifty percent (50%) of the outstanding voting stock or other ownership interest of the other corporation or entity.

1.3 "Corporate Partner" means any Third Party which enters into an agreement with the Customer or its Affiliates involving the grant to such Third Party of rights for the development or commercialization of a

product that was discovered, identified, selected, characterized or determined to have therapeutic or diagnostic use through use of the Proteomics Analyses provided to the Customer pursuant to this Agreement.

1.4 "Confidential Information" means any information or data received by a party (the "Receiving Party") from the other party (the "Disclosing Party") in connection with the performance of this Agreement that, if disclosed in writing, is marked or otherwise identified by the Disclosing Party as confidential or, if disclosed orally is identified in writing by the Disclosing Party as confidential within ten (10) days following the disclosure. Confidential Information shall not include any information or data that the Receiving Party can demonstrate:

- (a) was generally available to the public before its disclosure to the Receiving Party or became generally available to the public after its disclosure to the Receiving Party, provided that such information or data did not become generally available to the public by means of an unauthorized act or omission of the Receiving Party;
- (b) was already in the possession of the Receiving Party before its disclosure under this Agreement, as demonstrated by Receiving Party's written records, provided that such information or data was not obtained directly or indirectly from the Disclosing Party under an obligation of confidentiality;
- (c) was disclosed to the Receiving Party, whether before or after its disclosure under this Agreement, by a Third Party, provided that such information or data was not obtained directly or indirectly from the Disclosing Party under an obligation of confidentiality; or
- (d) was independently developed or discovered by employees or agents of the Receiving Party without any use of Confidential Information of the Disclosing Party as demonstrated by Receiving Party's written records.

All of the Proteomics Services technologies provided by Kinexus will be deemed to have been identified as proprietary and considered the Confidential Information of Kinexus.

1.5 "Contact" means the contact person of the Customer that is designated on the Service Order Forms, who is deemed to have the authority to deliver Samples, Service Order Forms, Service Information Forms, and Sample Description Forms to Kinexus, on behalf of the Customer, under this Agreement.

1.6 "Proteomics Analyses" means one or more of the custom and standard proteomics services offered by Kinexus that may permit the identification and/or quantification of proteins, their phosphorylation states, their interactions with proteins, peptides, and other compounds, and the regulation of their functional activities by these agents.

1.7 "Proteomics Products" means the products of the custom proteomics services offered by Kinexus to biologically manufacture one or more proteins or designer peptides by chemical synthesis.

1.8 "Sample" means a lysate or semi-purified fraction from cells and tissues, a protein, and/or a compound provided to Kinexus by the Customer, which the Customer has prepared and shipped in a manner that it can be properly used by Kinexus for the Proteomics Analyses. Samples for Proteomics Analyses may also be provided by Kinexus at the request of the Customer.

1.9 "Sample Description Form" means the Kinexus form to be completed by the Customer to provide information on the nature of each Sample submitted for the Proteomics Analyses. It is included in the Proteomics

Services Customer Information Package that is incorporated into this Agreement by reference, and may be amended from time to time as updated on the Kinexus website.

1.10 "Antibody" means the immunoglobulin reagent that permits detection of a target protein or phosphorylation site.

1.11 "Antibody Description Form" means the Kinexus form to be completed by the Customer to provide information on the nature of each Antibody submitted by the Customer for the Proteomics Analyses. It is included in the Proteomics Services Customer Information Package with this Agreement, and may be amended from time to time as updated on the Kinexus website.

1.12 "Service Order Form" means the Kinexus form to be completed by the Customer to provide Kinexus with the Customer's contact and billing information for the Proteomics Analyses or Proteomics Products. This form indicates the level of confidentiality requested by the Customer. It is included in the Proteomics Services Customer Information Package with this Agreement, and may be amended from time to time as updated on the Kinexus website.

1.13 "Service Information Form" means the Kinexus form to be completed by the Customer to provide Kinexus with a specific listing of the Samples to be tested for the Proteomics Analysis or a specific description of the Proteomics Products that are requested. It is included in the Proteomics Services Customer Information Package with this Agreement, and may be amended from time to time as updated on the Kinexus website.

1.14 "Report" means the underlying raw data and the report provided to the Customer hereunder consisting of the Proteomic Analyses of Samples, including, but not limited to tables of the experimental results. For Proteomics Products, the Report may include raw data confirming the composition and purity of the Proteomics Products.

1.15 "Field of Use" means use by Kinexus and its Affiliates and Academic Collaborators of data from the Report for research and commercial purposes relating to the creation and interpretation of knowledge about the composition, architecture and operation of cell signalling networks, improving its Proteomics Services, and the compilation of databases that may become accessible to Third Parties on-line over the Internet.

1.16 "Third Party" means any entity other than Kinexus', Kinexus' Affiliates, the Customer and the Customer's Affiliates.

1.17 "Effective Date" means the date of the last signature on this Agreement.

2. REQUEST FOR AND DELIVERY OF PROTEOMICS SERVICES

2.1 Request for Proteomics Services. From time to time, over the Term of this Agreement (as defined in Section 6.1 herein), the Customer can engage Kinexus to provide its Proteomics Analyses or Proteomics Products. After submission of a quotation from Kinexus to the Customer, by delivery to Kinexus of a Service Order Form, a Service Information Form and a Sample Description Form with Samples as appropriate, the Customer hereby requests and authorizes Kinexus to perform those Proteomics Services stated in the Services Order Form and deliver the results of these services to the Customer, pursuant to the terms and conditions in this Agreement. In the case of Customer requested Proteomics Analyses, this would include the delivery of a Report. In the case of

Customer requested Proteomics Products, this would include the delivery of the Proteomics Products and a Report.

2.2 Representation and Warranty. The Customer represents and warrants that: (a) it has all right and authority to provide the Sample to Kinexus for analysis under the terms and conditions of this Agreement, (b) it collected the Sample lawfully and with all necessary consents and approvals, and (c) that the collection, use and disclosure of the Sample to Kinexus pursuant to this Agreement will not violate the rights of any Third Party.

2.3 Delivery Conditions for Customer Sample. The Customer shall be responsible for making shipping arrangements to deliver Samples to Kinexus. The Customer shall also be responsible for complying with all applicable laws and regulations (including but not limited to customs requirements and relevant handling procedures and protocols) and obtaining any and all permits, forms or permissions that may be required by all regulatory authorities to ship and deliver the Sample; to Kinexus and for Kinexus to accept delivery of the Sample.

2.4 Processing and Delivery of Report and Proteomics Products. Subject to the terms of this Agreement, Kinexus shall analyze Samples with the Customer-specified Proteomics Services or produce Customer-specified Proteomics Products, and deliver a Report to the Customer as requested on the Service Order Form and Service Information Form.

2.5 Quality of Samples for Proteomics Analyses. Kinexus shall not deliver a Report on any Sample that Kinexus, in its sole discretion, reasonably believes has been prepared and delivered in a manner that would compromise its ability to provide a reliable result. Under such a circumstance, the Sample will be destroyed by Kinexus after fourteen (14) days notification by e-mail to the Customer or at the request of the Customer prior to the scheduled destruction of the Sample, it will be returned to the Customer provided that the Customer agrees to reimburse Kinexus for the courier costs for its delivery.

3. PAYMENTS

3.1 Payments for Proteomics Services. For each Proteomics Analyses and Proteomics Product requested under this Agreement, the Customer shall pay to Kinexus a fee in accordance with the amount specified on the Service Order Form and the Service Identification Form for the requested service, which may be amended from time to time as updated on Kinexus' website. This amount will be the same amount that was specified on the formal quotation issued by Kinexus to the Customer. In the absence of a formal quotation, the pricing will be based on the pricing specified in the latest versions of the Customer Information Packages for Proteomics Services that are downloadable from the Kinexus website (www.kinexus.ca). The category of pricing depends on the level of requested confidentiality for analysis:

- (a) Non-Confidential Proteomics Analyses. If the Samples are provided by the Customer, then all of the Sample information on the Client Supplied **Non-Confidential** Sample Description Form is completed and **is not** designated as Confidential Information on the Service Identification Form. If Antibodies are supplied by the Customer, then all of the Antibody information on the Client Supplied Antibody Description Form (see example in Appendix) must be completed and **is not** designated as Confidential Information on the Service Identification Form.
- (b) Confidential Proteomics Analyses. If the Samples are provided by the Customer, then all of the Sample information on the Client Supplied **Confidential** Sample Description Form must be completed and **is** designated as Confidential Information on the Service Identification Form.

3.2 The Customer shall issue a purchase order or provide a charge account at the time the Customer sample arrives at Kinexus' offices at Suite 1, 8755 Ash Street, Vancouver, British Columbia, Canada, V6P 6T3. Kinexus will invoice Customer when the Proteomics Analyses or Proteomics Products are complete and delivered to Customer. Payment terms are net 30 days from date of invoice.

3.3 Interest on Late Payments. Any overdue payments by the Customer to Kinexus under this Agreement shall bear interest, to the extent permitted by applicable law at 18% per annum, calculated on the total number of days payment is delinquent; provided, however, that interest shall not accrue pursuant to this Section 3.3 on any amounts payable under this Agreement with respect to which payment is disputed in good faith; provided, further that interest shall accrue pursuant to this Section 3.3 once such dispute has been resolved if payment is not made promptly thereafter.

4. INTELLECTUAL PROPERTY RIGHTS

4.1 Ownership of Sample Information. The Customer owns all rights to the Sample information provided to Kinexus. For Non-Confidential Proteomics Analyses and after 1 year from completion of the contracted work, the Customer grants Kinexus a non-exclusive, royalty-free fully paid up worldwide perpetual license to use, copy, publish, compile, display, communicate, modify, translate and otherwise exploit (and authorize Third Parties to do any of the foregoing) to use the information on the Client Supplied **Non-Confidential** Sample Description Form in the Field of Use, provided that the Customer's identity is not linked to, or otherwise disclosed with respect to, such data.

4.2 Ownership of Report. The Customer shall own the data in the Report. For Non-Confidential Proteomics Analyses and after 1 year from completion of the contracted work, the Customer grants Kinexus a non-exclusive, royalty-free fully paid up worldwide perpetual license to use, copy, publish, compile, display, communicate, modify, translate and otherwise exploit (and authorize Third Parties to do any of the foregoing) data from the Report in the Field of Use.

4.3 Confidentiality of Sample Information. Kinexus will have no rights with respect to the Confidential Sample information until the Sample information is published or otherwise enters the public domain. Thereafter, Kinexus can use the results of the Proteomics Analyses of the Customer Samples for its internal research and development programs.

4.4 Ownership of Proteomics Products. The Customer owns the Proteomics Products that have been delivered to the Customer in the amounts specified in the Service Order Form and the Service Information Form. Kinexus owns any excess Proteomics Products and may dispose of these in its best interests.

4.5 Ownership of New Intellectual Property.

- (a) The Customer shall own and have rights to all inventions, discoveries, improvements, know-how, technical information, data or other technology discovered, conceived, made, developed and/or reduced to practice through the use of the data in the Report and Proteomics Products solely by employees of the Customer or jointly with its Affiliates;

- (b) Kinexus shall own and have rights to all inventions, discoveries, improvements, know-how, technical information, data or other technology discovered, conceived, made, developed and/or reduced to practice through the use of the data in the Report and Proteomics Products solely by employees of Kinexus or jointly with its Affiliates.

4.6 Non-Exclusive License to Preserve Kinexus Proteomics Services Freedom of Operation. In the event one or more claims of an issued patent arising from the use of a Report by the Customer, its Affiliates, Academic Collaborators or Corporate Partners, which would, absent a license from the Customer or its Affiliates, prevent Kinexus from using or permitting others to use the standard Kinexus Proteomics Services or any data therein, then the Customer and/or its Affiliates (as applicable) shall grant to Kinexus a non-exclusive, royalty-free fully-paid up perpetual license, including the right to grant sublicenses, under any such patent claim to use and permit others to use the Proteomics Services.

5. CONFIDENTIALITY

5.1 Confidentiality. Each Receiving Party shall treat the Confidential Information of the Disclosing Party as strictly confidential and (a) take reasonable precautions to protect such Confidential Information (including, without limitation, all precautions such as the Receiving Party employs with respect to its own confidential information), (b) not disclose or make available to any Third Party such Confidential Information without the express prior written consent of the Disclosing Party and (c) use such Confidential Information only for purposes specifically authorized under this Agreement. Each Receiving Party may disclose Confidential Information of the Disclosing Party to its officers, directors, employees, consultants, Affiliates and agents, and to licensees or prospective licensees of its rights to any invention, on a need-to-know basis and on the condition that such employees, Affiliates, agents, licensees and prospective licensees are obligated to maintain the confidentiality of the Confidential Information in a manner no less restrictive than the terms and conditions of this Section 5. Each Receiving Party may disclose Confidential Information of the Disclosing Party pursuant to a demand issued by a court or governmental agency or as otherwise required by law, provided, however, that the Receiving Party notifies the Disclosing Party promptly upon receipt thereof, giving the Disclosing Party sufficient advance notice to permit it to seek a protective order or other similar order with respect to such Confidential Information, and provided, further, that the Receiving Party furnishes only that portion of the Confidential Information of the Disclosing Party that it is advised by counsel is legally required whether or not a protective order or other similar order is obtained by the Disclosing Party.

5.2 Publication. The Customer may publish and/or present the Report, abstracts or manuscripts generated utilizing the Report, and any data and/or results generated by the Customer utilizing the Report. The Customer is encouraged to disclose in scientific publications any Proteomics Analyses that were performed by Kinexus and any Proteomics Products were produced by Kinexus that meaningfully contributed to the described work. Please refer to “Kinexus Bioinformatics Corporation (Vancouver, Canada).” For all Samples submitted for analysis and identified as Non-Confidential by the Customer, Kinexus will not use, copy, publish, compile, display, communicate, modify, or translate the Sample Information or the data from the Report for a period of 365 days (12 months) following the return of the Report to the Customer. At any time, the Customer may opt to pay the difference in price between the Non-Confidential pricing level to the Confidential pricing level for each applicable Sample, to ensure the confidentiality status of such sample is changed.

5.3 Confidential Sample Information. All parties agree that the term of confidentiality pertaining to that Sample information will expire when the Sample information is published or otherwise enters public domain through no fault of Kinexus.

5.4 Use of Customer Name. Except as expressly provided in Section 9.5, no right or license is granted hereunder by Customer for Kinexus to use the Customer's name in relation to data from a Report to a Third Party.

6. TERM AND TERMINATION

6.1 Term. The term of this Agreement ("Term") shall commence on the Effective Date and shall remain in effect for ten (10) years or until the termination of this Agreement pursuant to the terms hereof.

6.2 Early Termination. Each party shall have the right to terminate this Agreement at any time prior to Kinexus' delivery of a Report or Proteomics Product to the Customer hereunder, upon ten (10) business days written notice to the other party, if such party reasonably determines that the production, or use of such Sample infringes intellectual property rights of any Third Party, and the Customer elects not to obtain a license under the necessary Third Party intellectual property rights at its sole expense. If this Agreement is terminated by either party pursuant to this Section 6.2, neither party shall have any obligation to the other with respect to payments under this Agreement regarding the Sample or Proteomics Product at issue.

Kinexus shall have the right to terminate any Service Order Form for any Proteomics Services upon ten (10) business days written notice to the Customer, upon the identification of a technical difficulty related to the Sample or Proteomics Product which would prevent it from delivering the Report or Proteomics Product using reasonable efforts. If Kinexus terminates a work order as a result of a technical difficulty related to a Customer Sample that is the fault of Kinexus, Kinexus shall provide for the reanalysis of the same number of problematic Customer Samples for the Proteomics Analyses at the original agreed upon price without any additional expenses incurred by the Customer, or Kinexus shall repay any prepayment fee paid by the Customer for such a Customer Sample and neither party shall have any further obligation to the other with respect to that Customer Sample.

If Kinexus terminates a Service Order Form for Proteomics Analyses as a result of a technical difficulty related to the Customer Sample (including insufficient material or other problems associated with the quality of the Sample) that is the fault of the Customer, then Kinexus shall provide for the reanalysis of the problematic Customer Samples at the original agreed upon price without any additional expenses incurred by the Customer, provided Kinexus completes the full Proteomics Analyses for all Samples. For any subsequent resubmission of Customer Samples for Proteomics Analyses due to technical difficulty that is again the fault of the Customer, Kinexus shall provide for the reanalysis of the problematic Customer Samples at an additional charge per sample at a price mutually agreed by the Customer and Kinexus. If the Customer elects not to resubmit Samples for Proteomics Analyses, then the Customer will pay Kinexus an amount equivalent to 50% of the quoted price for the work performed by Kinexus to this point.

6.3 Events of Default. An event of default (an "Event of Default") shall be deemed to occur upon a material breach of this Agreement by a party (including, without limitation, any breach of the provisions of Section 5) if the breaching party fails to remedy such breach within thirty (30) days after written notice thereof by the non-breaching party.

6.4 Effect of an Event of Default.

- (a) Remedies Available to Kinexus. If an Event of Default occurs relating to a material breach by the Customer, then Kinexus shall have the right, at its option exercisable in its sole discretion, in addition to any other rights or remedies available to it at law or in equity, to immediately terminate this Agreement upon notice thereof to the Customer, in which case the Customer shall return to Kinexus, or, upon Kinexus' written instruction, destroy any Report, Proteomics Products, and all information, other materials

or documentation provided or made available by Kinexus pursuant to this Agreement, and any copies thereof (including electronic copies).

- (b) Remedies Available to the Customer. If an Event of Default occurs relating to a material breach by Kinexus, then the Customer shall have the right, at its option exercisable in its sole discretion, in addition to any other rights or remedies available to it at law or in equity and subject to the limitations set forth in Section 7, to terminate this Agreement upon notice thereof to Kinexus.

6.5 Effect of Expiration or Termination of Agreement. The expiration or termination of this Agreement shall not relieve the parties of any obligation accruing prior to such expiration or termination. Kinexus will not be required to continue custom proteomics analyses on a Sample after termination, and the Customer will be required to pay for work done prior to termination. The provisions of Sections 4, 5, 6, 7, 8, and 9 hereof shall survive any expiration or termination of this Agreement.

7. DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

7.1 Disclaimer of Warranties. THE PROTEOMICS SERVICES ARE BEING SUPPLIED TO CUSTOMER WITH NO EXPRESS, IMPLIED, STATUTORY OR OTHER WARRANTIES, REPRESENTATIONS, CONDITIONS OR GUARANTEES, INCLUDING THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND DURABILITY. WITHOUT LIMITING THE FOREGOING, KINEXUS MAKES NO REPRESENTATION OR WARRANTY THAT THE USE OF THE REPORT, ANY PROTEOMICS PRODUCTS OR THE DATA THEREIN OR THE PERFORMANCE OF THIS AGREEMENT WILL NOT INFRINGE ANY INTELLECTUAL PROPERTY OR OTHER RIGHTS OF ANY THIRD PARTY.

7.2 Limitation of Liability. Kinexus shall not be liable for any use by the Customer, its Affiliates, Corporate Partners, or Academic Collaborators of the Report and any Proteomics Products or any loss, claim, damage or liability, of whatever kind or nature, which may arise from or in connection with the use of the Report or the data therein, and any Proteomics Products. NOTWITHSTANDING ANYTHING ELSE IN THIS AGREEMENT OR OTHERWISE TO THE CONTRARY, NEITHER KINEXUS NOR CUSTOMER WILL BE LIABLE TO EACH OTHER WITH RESPECT TO ANY MATTER ARISING UNDER THIS AGREEMENT UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR (I) ANY PUNITIVE, EXEMPLARY, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOST PROFITS OR (II) COST OF PROCUREMENT OF SUBSTITUTE GOODS, TECHNOLOGY OR SERVICES. WITHOUT IN ANY WAY LIMITING THE FOREGOING, KINEXUS SHALL NOT, IN ANY EVENT, HAVE ANY LIABILITY WHATSOEVER IN CONNECTION WITH THIS AGREEMENT IN EXCESS OF AN AMOUNT EQUAL TO THE FEES PAID TO KINEXUS BY CUSTOMER HEREUNDER IN RESPECT OF THE PROTEOMICS SERVICES AT ISSUE.

8. INDEMNIFICATION

Except to the extent prohibited by law, the Customer shall assume all liability for, and shall defend, indemnify and hold Kinexus, its Affiliates and their respective directors, officers, employees and agents harmless from, all claims, losses, damages or expenses (including reasonable attorneys' fees) arising directly or indirectly as a result of: (a) the use of the Report or the data therein and any Proteomics Products by the Customer or its Affiliates, Corporate Partners or Academic Collaborators, or (b) the breach, untruthfulness or inaccuracy of any of the Customer's representations and warranties in this Agreement.

9. MISCELLANEOUS

9.1 Entire Agreement. The Appendices to this Agreement, together with all terms and conditions contained within this Agreement constitute the entire understanding between the parties with respect to the subject matter hereof and, with respect to any conflicting terms from prior agreements between the parties, supersedes and cancels such conflicting sections from all previous registrations, agreements, commitments and writings in respect thereof. This Agreement may be amended, or any term hereof modified, only by a written instrument duly executed by both parties hereto.

9.2 Assignment and Waiver. This Agreement may not be assigned or otherwise transferred by either party without the written consent of the other party, such consent will not be unreasonably withheld. Notwithstanding the foregoing, Kinexus may, without such consent, assign its rights and obligations under this Agreement (a) to any Affiliate or (b) to a Third Party in connection with a merger, consolidation or sale of such portion of its assets that includes rights under this Agreement provided, however, that Kinexus' rights and obligations under this Agreement shall be assumed by its successor in interest in any such transaction. In the event of such a transaction with Third Party, notwithstanding the other provisions of this Agreement, the intellectual property rights of such Third Party shall not be subject to the licenses granted by Kinexus under this Agreement. Any purported assignment in violation of the provisions of this Section 9.2 shall be void. Any permitted assignee shall assume all obligations of its assignor under this Agreement. The waiver by either party hereto of any right hereunder or the failure to perform or of a breach by the other party shall not be deemed a waiver of any other right hereunder or of any other breach or failure by said other party whether of a similar nature or otherwise.

9.3 Force Majeure. Neither party shall be held liable or responsible to the other party nor be deemed to have defaulted under or breached this Agreement for failure or delay in fulfilling or performing any obligation under this Agreement when such failure or delay is caused by or results from causes beyond the reasonable control of the affected party, including but not limited to fire, floods, embargoes, war, acts of war (whether war is declared or not), insurrections, riots, civil commotions, strikes, lockouts or other labor or supply disturbances, acts of God or acts, omissions or delays in acting by any governmental authority or the other party; provided, however, that the party so affected shall use reasonable commercial efforts to avoid or remove such causes of nonperformance, and shall continue performance hereunder with reasonable dispatch whenever such causes are removed. Either party shall provide the other party with prompt written notice of any delay or failure to perform that occurs by reason of force majeure. The parties shall mutually seek a resolution of the delay or the failure to perform as noted above.

9.4 Notices. Any consent, notice, or report required or permitted to be given or made under this Agreement by one of the notification parties hereto to the other shall be in writing, delivered personally, by email or by facsimile (and promptly confirmed by telephone, personal delivery or courier) or courier, postage prepaid (where applicable), addressed to such other party at its address indicated below, or to such other address as the addressee shall have last furnished in writing to the addressor and shall be effective upon receipt by the addressee.

If to Kinexus:

Kinexus Bioinformatics Corporation
Suite 1, 8755 Ash Street
Vancouver, British Columbia, Canada V6P 6T3
Attention: Dr. Steven Pelech
President & C.S.O.

Telephone: (604) 323-2547 extension 10
Facsimile: (604) 323-2548

If to the Customer:

To the Customer at the address designated at the front of this Agreement and to the attention of the duly authorized representative signing this Agreement.

9.5 Publicity. Except as required by law, the terms of this Agreement shall be treated as Confidential Information and shall not be disclosed to anyone (except for the parties' respective directors, officers, employees, consultants, agents and attorneys assisting in the review and negotiation of this Agreement and/or who have a need to know the terms of this Agreement) without the written consent of the other party, such consent which will not be unreasonably withheld. Notwithstanding the foregoing, (a) Kinexus may, without such consent, publicly announce the execution of this Agreement with the Customer and may reference the Customer as a Kinexus client.

9.6 No Partnership. It is expressly agreed that the relationship between Kinexus and the Customer shall not constitute a partnership, joint venture or agency. Neither Kinexus nor the Customer shall have the authority to make any statements, representations or commitments of any kind, or to take any action, which shall be binding on the other, without the prior consent of the other party to do so.

9.7 Applicable Law. This Agreement shall be governed by, construed, interpreted and enforced in accordance with, the laws of the province of British Columbia and the laws of Canada, without reference to conflict of laws principles.

9.8 Dispute Resolution.

- (a) The parties hereby agree that they will attempt in good faith to resolve any controversy or claim arising out of or relating to this Agreement promptly by negotiations. If a controversy or claim should arise hereunder, the matter shall be referred to an individual designated by the Chief Executive Officer or President of Kinexus and an individual designated by the Chief Executive Officer (or the equivalent position) of the Customer (the "Representatives"). If the matter has not been resolved within twenty-one (21) days of the first meeting of the Representatives of the parties (which period may be extended by mutual agreement) concerning such matter, subject to rights to injunctive relief and specific performance, and unless otherwise specifically provided for herein, any controversy or claim arising out of or relating to this Agreement, or the breach thereof, will be settled as set forth in Section 9.8(b).
- (b) All disputes arising in connection with this Agreement that are not resolved pursuant to Section 9.8(a) above shall be finally settled in Vancouver, British Columbia, by a single arbitrator appointed pursuant to the provisions of the *Commercial Arbitration Act* (British Columbia). Notwithstanding the above, either party has the right to bring an action in a court of competent jurisdiction against the other party for (i) any breach of such other party's duties of confidentiality pursuant to Section 5 of this Agreement; (ii) any infringement of its proprietary rights by the other party; and (iii) for interim protection such as, by way of example, an interim injunction. Judgment upon the arbitrator's award may be entered in any court of competent jurisdiction. The award of the arbitrator may include compensatory damages against either party, but under no circumstances will the arbitrator be authorized to, nor shall he/she, award punitive, consequential or incidental damages against either party. The parties agree not to institute any litigation or proceedings against each other in connection with this Agreement except as provided in this Section 9.8.

9.9 Severability. Each party hereby agrees that it does not intend to violate any public policy, statutory or common laws, rules, regulations, treaty or decision of any government agency or executive body thereof of any country or community or association of countries. Should one or more provisions of this Agreement be or become invalid, the parties hereto shall substitute, by mutual consent, valid provisions for such invalid provisions which valid provisions in their economic effect are sufficiently similar to the invalid provisions that it can be reasonably assumed that the parties would have entered into this Agreement with such valid provisions. In case such valid provisions cannot be agreed upon, the invalidity of one or several provisions of this Agreement shall not affect the validity of this Agreement as a whole, unless the invalid provisions are of such essential importance to this Agreement that it is to be reasonably assumed that the parties would not have entered into this Agreement without the invalid provisions.

9.10 Counterparts. This Agreement may be executed in counterparts, each of which when executed and delivered is an original, but both of which together shall constitute one and the same instrument.

9.11 Fax Delivery. This Agreement may be executed by the parties and transmitted by facsimile or electronically as a portable document format (pdf) file or similar electronic file and if so executed and transmitted this Agreement will be for all purposes as effective as if the parties had delivered an executed original Agreement.

IN WITNESS WHEREOF, the parties have caused their duly authorized officer to execute and deliver this Agreement as of the Effective Date.

Printed Name of Institute or Company

Per: _____
Signature of Authorized Representative

Name: _____
Printed Name of Authorized Representative

Title: _____
Printed Title of Authorized Representative

Date signed: _____

KINEXUS BIOINFORMATICS CORPORATION

Per: _____
Signature of Dr. Steven Pelech

Dr. Steven Pelech

President and Chief Scientific Officer

Date signed: _____

COMMERCIAL INVOICE

DATE OF EXPORTATION	EXPORT REFERENCES
SHIPPER/EXPORTER	CONSIGNEE Kinexus Bioinformatics Corporation Suite 1 8755 Ash Street Vancouver, B.C. Canada V6P 6T3 Telephone: (604) 323-2547 Facsimile: (604) 232-2548 Email: info@kinexus.ca
COUNTRY OF EXPORT	TERMS OF SALE Not for resale, sample for analysis
COUNTRY OF ORIGIN	PURPOSE Research and development
COUNTRY OF ULTIMATE DESTINATION Canada	EXPORTING CARRIER
INTERNATIONAL AIR WAYBILL NUMBER	
Courier Name: _____ Number: _____	

NO. OF PKGS	TYPE OF PACKAGING	QUANTITY OF SAMPLES	COMPLETE AND ACCURATE COMMODITY DESCRIPTION	UNIT VALUE
	<input type="checkbox"/> FedEx Letter <input type="checkbox"/> FedEx Pak <input type="checkbox"/> Box <input type="checkbox"/> Other	<i>Total number of 1.5 ml Eppendorf tubes:</i>	Non-hazardous, non-infectious degraded protein lysate for research and development diagnostic purposes. Samples are not for resale and there is no commercial value.	\$1.00 <i>per sample</i>
TOTAL NO. OF PACKAGES		TOTAL WEIGHT OF PACKAGES		TOTAL DECLARED VALUE \$

These commodities were exported from the Country indicated above in accordance with the Export Administration Regulations and are licensed for the ultimate designation shown. It is hereby certified that this commercial invoice shows the actual price of the goods described, that no other invoice has been or will be issued for these goods, and that all particulars are true and correct.

SIGNATURE AND STATUS OF AUTHORIZED PERSON

Print Name	Title
Authorized Signature	Date (month/day/year)

INCLUDE THREE (3) COPIES OF THIS INVOICE WITH YOUR SHIPMENT

COMMERCIAL INVOICE

DATE OF EXPORTATION	EXPORT REFERENCES
SHIPPER/EXPORTER	CONSIGNEE Kinexus Bioinformatics Corporation Suite 1 8755 Ash Street Vancouver, B.C. Canada V6P 6T3 Telephone: (604) 323-2547 Facsimile: (604) 232-2548 Email: info@kinexus.ca
COUNTRY OF EXPORT	TERMS OF SALE Not for resale, frozen sample for analysis
COUNTRY OF ORIGIN	PURPOSE Research and development
COUNTRY OF ULTIMATE DESTINATION Canada	EXPORTING CARRIER
INTERNATIONAL AIR WAYBILL NUMBER	
Courier Name: _____ Number: _____	

NO. OF PKGS	TYPE OF PACKAGING	QUANTITY OF SAMPLES	COMPLETE AND ACCURATE COMMODITY DESCRIPTION	UNIT VALUE
	<input type="checkbox"/> FedEx Letter <input type="checkbox"/> FedEx Pak <input type="checkbox"/> Box <input type="checkbox"/> Other	<i>Total number of 1.5 ml Eppendorf tubes:</i>	Non-hazardous, non-infectious protein lysate for research and development diagnostic purposes. Samples are not for resale and there is no commercial value. Samples are packaged on Dry Ice, Class 9, UN 1845, Group 3 (____ X ____ kgs).	\$1.00 <i>per sample</i>
TOTAL NO. OF PACKAGES		TOTAL WEIGHT OF PACKAGES		TOTAL DECLARED VALUE
				\$

These commodities were exported from the Country indicated above in accordance with the Export Administration Regulations and are licensed for the ultimate designation shown. It is hereby certified that this commercial invoice shows the actual price of the goods described, that no other invoice has been or will be issued for these goods, and that all particulars are true and correct.

SIGNATURE AND STATUS OF AUTHORIZED PERSON

Print Name	Title
Authorized Signature	Date (month/day/year)

INCLUDE THREE (3) COPIES OF THIS INVOICE WITH YOUR SHIPMENT

Listing of antibodies printed on the Kinex™ KAM-2025 antibody microarray.



Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/ Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
14-3-3 (KCIP-1)	Pan	P31946											●					Kinexus	NN441-3	RpAb
14-3-3 (KCIP-1)	Pan	P31946											●					Kinexus	NN441-2	RpAb
14-3-3 (KCIP-1)	Pan	P31946											●					No	sc-1657	MmAb
14-3-3-F (YWHAH)	Pan	Q04917											●					Kinexus	NN450-1	RpAb
14-3-3-G (YWHAG)	Pan	P61981											●					Kinexus	NN453-2	RpAb
14-3-3-S (YWHAS; SFN)	Pan	P31947											●					Kinexus	NN454-2	RpAb
14-3-3-S (YWHAS; SFN)	Pan	P31947											●					Kinexus	NN454-1	RpAb
14-3-3-T (YWHAQ)	Pan	P27348											●					Kinexus	NN455-2	RpAb
14-3-3-T (YWHAQ)	Pan	P27348											●					Kinexus	NN455-1	RpAb
14-3-3-Z (YWHAZ)	Pan	P63104											●					Kinexus	NN001-3	RpAb
14-3-3-Z (YWHAZ)	Pan	P63104											●					Kinexus	NN001-2	RpAb
14-3-3b (YWHAB)	Pan	P31946											●					Kinexus	NN452-2	RpAb
14-3-3b (YWHAB)	Pan	P31946											●					Kinexus	NN452-1	RpAb
14-3-3e (YWHAE)	Pan	P62258											●					Kinexus	NN451-3	RpAb
14-3-3e (YWHAE)	Pan	P62258											●					Kinexus	NN451-1	RpAb
4E-BP1 (PHAS1)	Pan	Q13541						●										No	Y021215	RpAb
4E-BP1 (PHAS1)	Pan	Q13541						●										No	sc-6024	GpAb
4E-BP1 (PHAS1)	T37+T46	Q13541						●										Kinexus	PN550	RpAb
A6 (Twinfilin-1)	Y309	Q12792	• DSK										●					Kinexus	PK501	RpAb
A6r (Twinfilin-2)	Y309	Q61BS0	• DSK										●					Kinexus	PK502	RpAb
AAK1	S637+Pan	Q2M218	• PSTK															Kinexus	PK503	RpAb
Abl (Abl1)	Pan	P00519	• PYK															Kinexus	NK001-4	RpAb
Abl (Abl1)	Pan	P00519	• PYK															Kinexus	NK001-6	RpAb
Abl (Abl1)	Pan	P00519	• PYK															No	sc-887	RpAb
Abl (Abl1)	Pan	P00519	• PYK															No	sc-131	RpAb
Abl (Abl1)	Y139	P00519	• PYK															Kinexus	PK504	RpAb
Abl (Abl1)	Y226	P00519	• PYK															Kinexus	PK505	RpAb
Abl (Abl1)	Y257	P00519	• PYK															Kinexus	PK506	RpAb
Abl (Abl1)	Y264	P00519	• PYK															Kinexus	PK507	RpAb
Abl (Abl1)	Y393+T394	P00519	• PYK															Kinexus	PK873	RpAb
Abl (Abl1)	Y413	P00519	• PYK															Kinexus	PK896	RpAb
Abl (Abl1)	Y469	P00519	• PYK															Kinexus	PK508	RpAb
ACACA (ACC1; ACCA)	S29	Q13085								●								Kinexus	PN733	RpAb
ACACA (ACC1; ACCA)	S80	Q13085								●								Kinexus	PN863	RpAb
ACACA (ACC1; ACCA)	S80	Q13085								●								No	07-303	RpAb
ACACB (ACC2)	T1342	O00763								●								Kinexus	PN734	RpAb
AChE	Y164	P22303								●								Kinexus	PN931	RpAb
ACK1 (TNK2)	Pan	Q07912	• PYK															No	sc-323	RpAb
ACK1 (TNK2)	Y284	Q07912	• PYK															Kinexus	PK511	RpAb
ACK1 (TNK2)	Y518	Q07912	• PYK															Kinexus	PK512	RpAb
ACK1 (TNK2)	Y859+Y860	Q07912	• PYK															Kinexus	PK513	RpAb
ACLY	S455	P53396								●								Kinexus	PN735	RpAb
ACLY	Y682	P53396								●								Kinexus	PN686	RpAb
ACO1 IREB1)	S711+Pan	P21399								●								Kinexus	PN736	RpAb
ACO1 IREB1)	S806	P21399								●								Kinexus	PN737	RpAb
ACP1	Y132+Y133	P24666	• PSTP															Kinexus	PN687	RpAb
ACS1 (ACSL1)	Y567	P33121								●								Kinexus	PN688	RpAb
ACTA1 (alpha-actin)/ACTB	Pan	P68133												●				No	sc-8432	MmAb
ACTB (beta-actin)	Y53	P60709												●				Kinexus	PN501	RpAb
ACTB (beta-actin)	Y294	P60709												●				Kinexus	PN500	RpAb
ACTN1	Y246	P12814												●				Kinexus	PN502	RpAb
ADAM22	Pan	Q9P0K1				●												No	NN189-2	MmAb
ADD1 (Adducin-a)	Y35	Q9UEY8												●				Kinexus	PN867	RpAb
ADD1 (Adducin-a)	Y550	Q9UEY8												●				Kinexus	PN868	RpAb
ADD1 (Adducin-a)	T724+S726	Q9UEY8												●				Kinexus	PN866	RpAb
ADD1 (Adducin-a)	S726	Q9UEY8												●				Kinexus	PN807	RpAb
ADK	S86	P55263								●								Kinexus	PN689	RpAb
ADRA2C (ADRA2L2;	Pan	P18825				●												No	NN190-2	MmAb
ADRA2C (ADRA2L2;	Pan	P18825				●												No	NN190-1	MmAb
ADRB2	S355+S356	P07550				●												Kinexus	PN784	RpAb

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AGTR1 (AT1)	S335+T336+S338	P30556				●												Kinexus	PN785	RpAb
AHSA1 (AHA1)	Pan	O95433									●							No	NN191-2	RatmAb
AIF	Pan	O95831										●						No	sc-9416	GpAb
AKAP12	S627+S629	Q02952											●					Kinexus	PN1009	RpAb
AKAP12	S696	Q02952											●					Kinexus	PN933	RpAb
Akt1 (PKBa)	Pan	P31749	• PSTK															Kinexus	NK129-4	RpAb
Akt1 (PKBa)	Pan	P31749	• PSTK															Kinexus	NK129-5	RpAb
Akt1 (PKBa)	Pan	P31749	• PSTK															Kinexus	NK129-3	RpAb
Akt1 (PKBa)	Pan	P31749	• PSTK															No	sc-5298	MmAb
Akt1 (PKBa)	T308	P31749	• PSTK															Kinexus	PK515	RpAb
Akt1 (PKBa)	Y315	P31749	• PSTK															Kinexus	PK516	RpAb
Akt1 (PKBa)	Y326	P31749	• PSTK															Kinexus	PK517	RpAb
Akt1 (PKBa)	S473	P31749	• PSTK															Kinexus	PK869	RpAb
Akt1 (PKBa)	S473	P31749	• PSTK															Kinexus	PK958	RpAb
Akt1 (PKBa)	Y474	P31749	• PSTK															No	06-0020	RpAb
Akt2 (PKBb)	Pan	P31751	• PSTK															Kinexus	NK130-4	RpAb
Akt2 (PKBb)	Pan	P31751	• PSTK															Kinexus	NK130-8	RpAb
Akt2 (PKBb)	Pan	P31751	• PSTK															Kinexus	NK130-9	RpAb
Akt2 (PKBb)	Pan	P31751	• PSTK															Kinexus	NK130-5	RpAb
Akt2 (PKBb)	Pan	P31751	• PSTK															No	sc-7125	GpAb
Akt2 (PKBb)	Pan	P31751	• PSTK															No	sc-7127	GpAb
Akt3 (PKBg)	Pan	Q9Y243	• PSTK															Kinexus	NK131-3	RpAb
ALK	Pan	Q9UM73	• PYK			●												Kinexus	NK003-2	RpAb
ALK	Pan	Q9UM73	• PYK			●												Kinexus	NK003-3	RpAb
ALK	Pan	Q9UM73	• PYK			●												No	18-0266	RpAb
ALK	Y1092	Q9UM73	• PYK			●												Kinexus	PK518	RpAb
ALK	Y1096	Q9UM73	• PYK			●												Kinexus	PK519	RpAb
ALK	Y1507	Q9UM73	• PYK			●												Kinexus	PK520	RpAb
ALOX5 (5-LO)	S272	P09917								●								Kinexus	PN738	RpAb
ALS2 (ALS2CR6)	S483	Q96Q42																Kinexus	PN869	RpAb
ALS2 (ALS2CR6)	S492	Q96Q42																Kinexus	PN870	RpAb
AML1 (RUNX1)	T273	Q01196			●													Kinexus	PN568	RpAb
AML2 (RUNX3)	T231	Q13761			●													Kinexus	PN569	RpAb
AMPKa1 (PRKAA1)	Pan	Q13131	• PSTK															Kinexus	NK259-2	RpAb
AMPKa1 (PRKAA1)	Pan	Q13131	• PSTK															Kinexus	NK259-1	RpAb
AMPKa1 (PRKAA1)	T172	Q13131	• PSTK															Kinexus	PK897	RpAb
AMPKa1 (PRKAA1)	T183+S184	Q13131	• PSTK															Kinexus	PK521	RpAb
AMPKa1 (PRKAA1)	T490	Q13131	• PSTK															Kinexus	PK918	RpAb
AMPKa2 (PRKAA2)	Pan	P54646	• PSTK															Kinexus	NK260-1	RpAb
AMPKa2 (PRKAA2)	Pan	P54646	• PSTK															Kinexus	NK260-2	RpAb
AMPKa2 (PRKAA2)	S377	P54646	• PSTK															Kinexus	PK522	RpAb
AMPKa2 (PRKAA2)	Y436	P54646	• PSTK															Kinexus	PK919	RpAb
ANAX11	Y482	P50995													●			Kinexus	PN871	RpAb
ANKRD3 (RIPK4)	Pan	P57078	• PSTK															No	AP7808b	RpAb
ANKRD3 (RIPK4)	S438+Pan	P57078	• PSTK															Kinexus	PK523	RpAb
Ankyrin (ANK1)	Pan	P16157											●					No	NN195-2	MmAb
Ankyrin B (ANK2)	Pan	Q01484											●					No	NN196-1	MmAb
ANXA1	Y207	P04083													●			Kinexus	PN551	RpAb
ANXA1	Y207	P04083													●			Kinexus	PN503	RpAb
ANXA2	Y238	P07355													●			Kinexus	PN504	RpAb
AP2B1 (ADTB2)	Y276	P63010															●	Kinexus	PN934	RpAb
AP2M1 (AP-2 mu 2)	T156	Q96CW1											●				●	Kinexus	PN935	RpAb
AP3B1	S276	O00203															●	Kinexus	PN936	RpAb
AP3B2	S272	Q13367															●	Kinexus	PN937	RpAb
APC	S2129	P25054											●					Kinexus	PN739	RpAb
APG1	Pan	O95757									●							No	sc-6242	RpAb
APG2	Pan	P34932									●							No	sc-6240	RpAb
APP (A4; ABPP; Amyloid)	Pan	P05067			●	●					●							Kinexus	NN192-2	RpAb
APP (A4; ABPP; Amyloid)	Pan	P05067			●	●					●							Kinexus	NN192-3	RpAb
APP (A4; ABPP; Amyloid)	Pan	P05067			●	●					●							Kinexus	NN192-4	RpAb
APP (A4; ABPP; Amyloid)	Pan	P05067			●	●					●							No	NN194-1	RpAb
APP (A4; ABPP; Amyloid)	T743	P05067			●	●					●							Kinexus	PN808	RpAb

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APP (A4; ABPP; Amyloid)	Y757	P05067			●	●					●							Kinexus	PN809	RpAb
Aquaporin 3 (AQP3)	Pan	Q92482					●											No	NN201-1	RpAb
AR	S96	P10275			●	●												Kinexus	PN570	RpAb
AR	S310	P10275			●	●												Kinexus	PN571	RpAb
Arg (Abl2)	Pan	P42684	• PYK															Kinexus	NK238-1	RpAb
Arg (Abl2)	Y439	P42684	• PYK															Kinexus	PK509	RpAb
Arg (Abl2)	Y439+T440	P42684	• PYK															Kinexus	PK510	RpAb
ARID1A	S363	O14497			●													Kinexus	PN740	RpAb
ARRB1	Pan	P49407											●					No	610551	MmAb
ARRB1	S412	P49407											●					No	44-200	RpAb
ASK1 (MAP3K5)	Pan	Q99683	• PSTK															No	sc-6368	GpAb
ASK1 (MAP3K5)	Pan	Q99683	• PSTK															No	sc-7931	RpAb
ASK1 (MAP3K5)	T838	Q99683	• PSTK															Kinexus	PK525	RpAb
ASK1 (MAP3K5)	S1033	Q99683	• PSTK															Kinexus	PK524	RpAb
ASK1 (MAP3K5)	T1326	Q99683	• PSTK															Kinexus	PK920	RpAb
ASS1	T174+S180	P00966								●								Kinexus	PN741	RpAb
ATAD1 ATPase	Pan	Q8NBU5																No	NN204-1	MmAb
ATASE (PPAT)	T356	Q06203								●								Kinexus	PN742	RpAb
ATF2 (CRE-BP1)	T69+T71	P15336			●													Kinexus	PN572	RpAb
ATF2 (CRE-BP1)	T69+T71	P15336			●													Kinexus	PN552	RpAb
ATF2 (CRE-BP1)	T71	P15336			●													No	sc-8398	MmAb
ATG2A	Pan	Q2TAZ0							●									No	NN209-1	RpAb
ATG4B	Pan	Q9Y4P1							●									No	NN374-1	RpAb
ATG4C (APG4C; AURL1;	Pan	Q96DT6							●									No	NN210-2	RpAb
ATG4C (APG4C; AURL1;	Pan	Q96DT7							●									No	NN210-1	RpAb
ATG4D (PG4D; AURL4)	Pan	Q86TL0							●									No	NN211-2	RpAb
ATG5 (APG5L; ASP)	Pan	Q9H1Y0							●									No	NN212-1	RpAb
ATG12 (APG12; APG12L)	Pan	O94817							●									No	NN213-1	RpAb
ATG13	Pan	O75143							●									No	NN214-1	RpAb
ATM	Pan	Q13315	• PSTK															Kinexus	NK230-2	RpAb
ATM	Pan	Q13315	• PSTK															Kinexus	NK230-1	RpAb
ATM	Pan	Q13315	• PSTK															Kinexus	NK230-3	RpAb
ATM	Pan	Q13315	• PSTK															Kinexus	NK230	RpAb
ATM	Pan	Q13315	• PSTK															No	sc-7230	RpAb
ATM	Pan	Q13315	• PSTK															No	sc-1214	GpAb
ATM	S1981	Q13315	• PSTK															Kinexus	PK526	RpAb
ATM	Y2969	Q13315	• PSTK															Kinexus	PK527	RpAb
ATP7B	Pan	P35670													●			No	NN215-2	MmAb
ATR	Pan	Q13535	• PSTK															Kinexus	NK237-2	RpAb
ATR	Pan	Q13535	• PSTK															Kinexus	NK237-3	RpAb
ATR	Pan	Q13535	• PSTK															Kinexus	NK237-1	RpAb
ATR	S435+S436	Q13535	• PSTK															Kinexus	PK528	RpAb
AurKA (Aurora A; ARK-1; AIK;	Pan	O14965	• PSTK															Kinexus	NK008-4	RpAb
AurKA (Aurora A; ARK-1; AIK;	Pan	O14965	• PSTK															Kinexus	NK008-5	RpAb
AurKA (Aurora A; ARK-1; AIK;	Pan	O14965	• PSTK															Kinexus	NK008-3	RpAb
AurKA (Aurora A; ARK-1; AIK;	T287+T288	O14965	• PSTK															Kinexus	PK529	RpAb
AurKB (AurB; AIK2)	Pan	Q96GD4	• PSTK															Kinexus	NK193-3	RpAb
AurKB (AurB; AIK2)	Pan	Q96GD4	• PSTK															Kinexus	NK193-4	RpAb
AurKB (AurB; AIK2)	Pan	Q96GD4	• PSTK															Kinexus	NK193-2	RpAb
AurKB (AurB; AIK2)	S227	Q96GD4	• PSTK															Kinexus	PK530	RpAb
AurKB (AurB; AIK2)	T232	Q96GD4	• PSTK															Kinexus	PK531	RpAb
AurKC (Aurora C; AurC; AIK3)	Pan	Q9UQB9	• PSTK															Kinexus	NK009-3	RpAb
AurKC (Aurora C; AurC; AIK3)	Pan	Q9UQB9	• PSTK															Kinexus	NK009-4	RpAb
AurKC (Aurora C; AurC; AIK3)	Pan	Q9UQB9	• PSTK															Kinexus	NK009-2	RpAb
AurKC (Aurora C; AurC; AIK3)	S193	Q9UQB9	• PSTK															Kinexus	PK532	RpAb
AVPR1A	T378+S380	P37288				●												Kinexus	PN787	RpAb
Axl (UFO)	Pan	P30530	• PYK			●												Kinexus	NK010-3	RpAb
Axl (UFO)	Pan	P30530	• PYK			●												Kinexus	NK010-2	RpAb
Axl (UFO)	Y702+Y703	P30530	• PYK			●												Kinexus	PK533	RpAb
Axl (UFO)	Y779	P30530	• PYK			●												Kinexus	PK898	RpAb
B-Myb (MYBL2)	T487	P10244			●													Kinexus	PN573	RpAb
B23 (Nucleophosmin; NPM)	Pan	P06748																No	sc-6013-R	RpAb
Bad	S99	Q92934										●						No	07-007	RpAb

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Bad	S99	Q92934										●						No	AB10424	RpAb
Bak	Pan	Q16611										●						No	sc-832	RpAb
BCKD (BCKDK)	Pan	O14874	• PSTK															Kinexus	NK257-2	RpAb
BCKD (BCKDK)	Pan	O14874	• PSTK															Kinexus	NK257-3	RpAb
BCKD (BCKDK)	Pan	O14874	• PSTK															Kinexus	NK257-1	RpAb
BCKDHA	S337+Pan	P12694								●								Kinexus	PN810	RpAb
Bcl-xL	Pan	Q07817										●						No	DB002	RpAb
Bcl2	S70	P10415										●						No	sc-293128	MmAb
Bcl2	S70+Pan	P10415										●						Kinexus	PN811	RpAb
BCLAF1	S512	Q9NYF8			●													Kinexus	PN574	RpAb
Bcr	Y177	P11274	• PSTK															Kinexus	PK538	RpAb
Bcr	Y591	P11274	• PSTK															Kinexus	PK539	RpAb
Bcr	Y644	P11274	• PSTK															Kinexus	PK540	RpAb
BDNF (Abrineurin)	Pan	P23560																No	NN216-1	RpAb
Beclin 1 (BECN1; GT197)	Pan	Q14457											●					No	NN217-1	RpAb
Beclin 2 (BECN1L1)	Pan	A8MW95											●					No	NN372-1	RpAb
Bid	Pan	P55957										●						No	sc-6539	GpAb
BK Beta2 (KCNMB2)	Pan	Q9Y691					●											No	NN219-1	MmAb
BKR2	S366+T369	P30411				●												Kinexus	PN788	RpAb
BLK	Pan	P51451	• PYK															No	AP7697a	RpAb
BLK	Y187	P51451	• PYK															Kinexus	PK541	RpAb
BLK	Y188	P51451	• PYK															Kinexus	PK542	RpAb
BLK	Y389	P51451	• PYK															Kinexus	PK543	RpAb
BLVRA (Billiverdin-IX alpha-	Pan	P53004								●								No	NN220-1	RpAb
BMPR2 (BMPR-II)	S375	Q13873				●												Kinexus	PK544	RpAb
Bmx (Etk)	Pan	P51813	• PYK															No	B63620	RpAb
Bmx (Etk)	Y40	P51813	• PYK															Kinexus	PK545	RpAb
BRCA1	T509	P38398			●													Kinexus	PN690	RpAb
BRCA2	S70	P51587											●					Kinexus	PN789	RpAb
BRD2	S37	P25440	• PSTK															Kinexus	PK546	RpAb
BRK	Y342	Q13882	• PYK															Kinexus	PK548	RpAb
BRK	S446+Y447	Q13882	• PYK															Kinexus	PK547	RpAb
BRSK1	T205	Q8TDC3	• PSTK															Kinexus	PK549	RpAb
Btk	Pan	Q06187	• PYK															No	sc-1696	RpAb
Btk	Pan	Q06187	• PYK															No	sc-1107	GpAb
Btk	Y223+Y225	Q06187	• PYK															Kinexus	PK550	RpAb
Btk	Y551	Q06187	• PYK															Kinexus	PK551	RpAb
BUB1 (BUB1A)	Pan	Q43683	• PSTK															No	AP8058b	RpAb
BUBR1 (BUB1B)	S670+Pan	O60566	• PSTK															Kinexus	PK552	RpAb
C-EBP-alpha	T226+T230	P49715			●													Kinexus	PN575	RpAb
CACNB1 (CACB1)	T499	Q02641					●											Kinexus	PN938	RpAb
CACNG2 (Stargazin; TARP	Pan	Q9Y698					●											No	NN224-2	MmAb
CACNG2 (Stargazin; TARP	Pan	Q9Y699					●											No	NN224-1	MmAb
CACNG3 (TARP3)	Pan	O60359					●											Kinexus	NN456	RpAb
CAD	S1859	P27708								●								Kinexus	PN691	RpAb
Calnexin (CANX)	Pan	P27824														●		No	NN136-2	RpAb
Calnexin (CANX)	Pan	P27824														●		No	NN136-5	RpAb
CaMK1a (CAMK1)	T177	Q14012	• PSTK															Kinexus	PK553	RpAb
CaMK1a (CAMK1)	Y235	Q14012	• PSTK															Kinexus	PK874	RpAb
CaMK1a/d (CaMKI)	Pan	Q8IU85	• PSTK															No	sc-1544	GpAb
CaMK1d	Pan	Q8IU85	• PSTK															No	sc-1543	GpAb
CaMK1d	T180	Q8IU85	• PSTK															Kinexus	PK554	RpAb
CaMK2a (CaMKII)	Pan	Q9UQM7	• PSTK															No	sc-9035	RpAb
CaMK2a (CaMKII)	Pan	Q9UQM7	• PSTK															No	sc-5390	GpAb
CaMK2a (CaMKII)	Pan	Q9UQM7	• PSTK															No	NK302-2	MmAb
CaMK2a (CaMKII)	Pan	Q9UQM7	• PSTK															No	NK302-1	MmAb
CaMK2a (CaMKII)	Y230	Q9UQM7	• PSTK															Kinexus	PK875	RpAb
CaMK2a (CaMKII)	T286	Q9UQM7	• PSTK															Kinexus	PK555	RpAb
CAMK2b	Pan	Q13554	• PSTK															Kinexus	NK018-3	RpAb
CAMK2d	Pan	Q13557	• PSTK															Kinexus	NK019-3	RpAb
CaMK2g	Pan	Q13555	• PSTK															Kinexus	NK020-1	RpAb
CaMK4 (CaMPK4)	Pan	Q16566	• PSTK															Kinexus	NK021-1	RpAb
CaMK4 (CaMPK4)	Pan	Q16566	• PSTK															Kinexus	NK021-2	RpAb

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CaMK4 (CaMPK4)	T200	Q16566	• PSTK															Kinexus	PK556	RpAb
CaMKK1 (CaMKK)	Pan	Q8N5S9	• PSTK															Kinexus	NK022-2	RpAb
CaMKK1 (CaMKK)	Pan	Q8N5S9	• PSTK															Kinexus	NK022	RpAb
CaMKK1 (CaMKK)	S74	Q8N5S9	• PSTK															Kinexus	PK557	RpAb
Cas-L	Y166+Pan	Q14511											●					Kinexus	PN505	RpAb
CASP1 (Caspase-1)	Pan	P29466										●						No	sc-622	RpAb
CASP3 (Caspase-3; Yama)	Pan	P42574										●						No	160745	RpAb
CAV1	Pan	Q03135											●					No	Y021112	RpAb
Cav1.2 (CACNA1C)	Pan	Q13936					●											No	NN225-1	MmAb
Cav1.3 (CACNA1D; CACH3)	Pan	Q01668					●											No	NN226-1	MmAb
CavBeta2 (CACNB2; CAB2)	Pan	Q08289					●											No	NN228-1	MmAb
Cbl	Y674	P22681											●					Kinexus	PN743	RpAb
CBS	S227+Pan	P35520								●								Kinexus	PN744	RpAb
CD45 (PTPRC)	Y1216	P08575		• PYP		●												Kinexus	PP527	RpAb
CD74	Pan	P04233																No	NN229-1	MmAb
CDC25A	Pan	P30304		• DSP														Kinexus	NP038-2	RpAb
CDC25A	Pan	P30304		• DSP														Kinexus	NP038-3	RpAb
CDC25A	Pan	P30304		• DSP														Kinexus	NP038-1	RpAb
CDC25B	Pan	P30305		• DSP														Kinexus	NP002-2	RpAb
CDC25B	Pan	P30305		• DSP														Kinexus	NP002-3	RpAb
CDC25C	Pan	P30307		• DSP														Kinexus	NP003-2	RpAb
CDC25C	Pan	P30307		• DSP														Kinexus	NP003-3	RpAb
CDC25C	Pan	P30307		• DSP														No	sc-5620	RpAb
CDC2L5 (CHED; CDK13)	Pan	Q14004	• PSTK															No	AP7514a	RpAb
CDC2L5 (CHED; CDK13)	Pan	Q14004	• PSTK															Kinexus	NK024-2	RpAb
CDC37	Pan	Q16543											●					No	NN230-1	RpAb
CDC5L	T385	Q99459			●													Kinexus	PN576	RpAb
CDC7	Pan	O00311	• PSTK															No	sc-7519	GpAb
CDC7	Pan	O00311	• PSTK															No	sc-7518	GpAb
CDC7	T376	O00311	• PSTK															Kinexus	PK558	RpAb
CDK1 (CDC2)	Pan	P06493	• PSTK															No	AHZ0122	MmAb
CDK1 (CDC2)	Pan	P06493	• PSTK															Kinexus	NK025-4	RpAb
CDK1 (CDC2)	Pan	P06493	• PSTK															Kinexus	NK025-7	RpAb
CDK1 (CDC2)	Pan	P06493	• PSTK															No	sc-954	RpAb
CDK1 (CDC2)	Pan	P06493	• PSTK															No	sc-54	MmAb
CDK1 (CDC2)	T14	P06493	• PSTK															No	2543	RpAb
CDK1 (CDC2)	T14	P06493	• PSTK															Kinexus	PK559	RpAb
CDK1 (CDC2)	T14+Y15	P06493	• PSTK															Kinexus	PK560	RpAb
CDK1 (CDC2)	Y15	P06493	• PSTK															Kinexus	PK562	RpAb
CDK1 (CDC2)	Y19	P06493	• PSTK															Kinexus	PK563	RpAb
CDK1 (CDC2)	T161	P06493	• PSTK															Kinexus	PK561	RpAb
CDK1 (CDC2)	T161	P06493	• PSTK															No	11134	RpAb
CDK2	Pan	P24941	• PSTK															No	AP7518b	RpAb
CDK2	Pan	P24941	• PSTK															No	sc-163	RpAb
CDK2	Pan	P24941	• PSTK															No	sc-748	RpAb
CDK2	Pan	P24941	• PSTK															No	sc-6248	MmAb
CDK2	Pan	P24941	• PSTK															No	610145	MmAb
CDK2	T160	P24941	• PSTK															Kinexus	PK568	RpAb
CDK4	Pan	P11802	• PSTK															No	sc-260	RpAb
CDK4	Pan	P11802	• PSTK															No	sc-601	RpAb
CDK4	T172	P11802	• PSTK															Kinexus	PK569	RpAb
CDK5	Pan	Q00535	• PSTK															Kinexus	NK028-2	RpAb
CDK5	Pan	Q00535	• PSTK															No	sc-6247	MmAb
CDK5	Y15	Q00535	• PSTK															Kinexus	PK570	RpAb
CDK5	S159+Pan	Q00535	• PSTK															Kinexus	PK899	RpAb
CDK6	Pan	Q00534	• PSTK															No	C150M	MmAb
CDK6	Pan	Q00534	• PSTK															No	sc-7961	MmAb
CDK6	Pan	Q00534	• PSTK															No	sc-177	RpAb
CDK6	Pan	Q00534	• PSTK															No	AP-CC006	RpAb
CDK6	Y13	Q00534	• PSTK															Kinexus	PK571	RpAb
CDK6	Y24	Q00534	• PSTK															Kinexus	PK572	RpAb
CDK7 (MO15)	Pan	P50613	• PSTK															Kinexus	NK030-1	RpAb
CDK7 (MO15)	Pan	P50613	• PSTK															No	sc-7344	MmAb

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CDK7 (MO15)	Pan	P50613	• PSTK															No	13-8700	RpAb
CDK7 (MO15)	T170	P50613	• PSTK															Kinexus	PK573	RpAb
CDK8	Pan	P49336	• PSTK															No	AP7524a	RpAb
CDK8	Pan	P49336	• PSTK															Kinexus	NK031-4	RpAb
CDK8	Pan	P49336	• PSTK															No	sc-1521	GpAb
CDK9	Pan	P50750	• PSTK															No	sc-7331	GpAb
CDK9	Pan	P50750	• PSTK															No	sc-484	RpAb
CDK9	T186	P50750	• PSTK															Kinexus	PK575	RpAb
CDK9	S347	P50750	• PSTK															Kinexus	PK574	RpAb
CDK10 (PISSLRE)	Pan	Q15131	• PSTK															Kinexus	NK033-3	RpAb
CDK10 (PISSLRE)	Pan	Q15131	• PSTK															Kinexus	NK033-2	RpAb
CDK10 (PISSLRE)	T196	Q15131	• PSTK															Kinexus	PK564	RpAb
CDK11A (Cdc2L2; PITSLRE)	T583	Q9UQ88	• PSTK															Kinexus	PK565	RpAb
CDK11B (PITSLRE; p58/GTA;)	Pan	P21127	• PSTK															No	sc-928	RpAb
CDK12 (Cdc2L7; CRK7)	S383+S385	Q9NYV4	• PSTK															Kinexus	PK566	RpAb
CDK12 (Cdc2L7; CRK7)	T893	Q9NYV4	• PSTK															Kinexus	PK567	RpAb
CDK14 (PFTAIRE1)	Pan	O94921	• PSTK															Kinexus	NK287-1	RpAb
CDK15 (PFTAIRE2;	Pan	Q96Q40	• PSTK															No	AP7512a	RpAb
CDK15 (PFTAIRE2;	Pan	Q96Q40	• PSTK															Kinexus	NK004-2	RpAb
CDK15 (PFTAIRE2;	Pan	Q96Q40	• PSTK															Kinexus	NK004-3	RpAb
CDK15 (PFTAIRE2;	Y114	Q96Q40	• PSTK															Kinexus	PK957	RpAb
CDKL1 (KKIALRE)	Pan	Q00532	• PSTK															Kinexus	NK199	RpAb
CDKL1 (KKIALRE)	Pan	Q00532	• PSTK															No	sc-7588	GpAb
CDKL1 (KKIALRE)	Pan	Q00532	• PSTK															No	sc-7589	GpAb
CDKL2 (KKIAMRE)	Pan	Q92772	• PSTK															Kinexus	NK261-1	RpAb
CDKL2 (KKIAMRE)	Pan	Q92772	• PSTK															No	sc-6287	GpAb
CDKL2 (KKIAMRE)	Pan	Q92772	• PSTK															No	sc-6286	GpAb
CDKL3	Pan	Q8IVW4	• PSTK															Kinexus	NK262-1	RpAb
CDKL5	Y171	O76039	• PSTK															Kinexus	PK576	RpAb
CDKN1A (p21; WAF1; Cip1;	Pan	P38936	• PSTK-															No	sc-397	RpAb
CDKN1B (p27; Kip1)	Pan	P46527	• PSTK-															No	sc-528	RpAb
CDKN2A (p14ARF; p19ARF)	Pan	P42771	• PSTK-															Kinexus	PN693	RpAb
CDKN2A (p16; p16-INK4a)	Pan	P42771	• PSTK-															Kinexus	PN694	RpAb
CDKN2A (p16; p16-INK4a)	Pan	P42771	• PSTK-															No	sc-9968	MmAb
CDKN2C (p18; p18 INK4c;	Pan	P42773	• PSTK-															No	sc-865	RpAb
CDKN2C (p18; p18 INK4c)	Pan	P42773	• PSTK-															No	AHZ0352	RpAb
CDKN2D (p19; p19 INK4d)	Pan	P55273	• PSTK-															No	sc-1063-G	GpAb
CENPA	Pan	P49450																No	NN231-1	MmAb
CHAK1 (TRPM7)	Pan	Q96QT4				●	●											No	AP8052b	RpAb
CHAK1 (TRPM7)	Pan	Q96QT4				●	●											No	AP8052a	RpAb
CHAK1 (TRPM7)	S1504	Q96QT4				●	●											Kinexus	PK921	RpAb
CHAK2 (TRPM6)	Pan	Q9BX84				●	●											No	AP8053c	RpAb
CHAK2 (TRPM6)	Pan	Q9BX84				●	●											No	AP8053b	RpAb
Chapsyn-110 (DLG2; PSD-93)	Pan	Q15700											●					No	NN232-1	MmAb
CHAT (Choline acetylase)	Pan	P28329								●								No	NN233-1	RpAb
Chk1 (CHEK1)	Pan	O14757	• PSTK															No	sc-7898	RpAb
Chk1 (CHEK1)	Pan	O14757	• PSTK															No	sc-8408	MmAb
Chk1 (CHEK1)	Pan	O14757	• PSTK															No	sc-7235	GpAb
Chk1 (CHEK1)	S280	O14757	• PSTK															Kinexus	PK577	RpAb
Chk1 (CHEK1)	S317	O14757	• PSTK															Kinexus	PK578	RpAb
Chk1 (CHEK1)	S345	O14757	• PSTK															Kinexus	PK579	RpAb
Chk2 (CHEK2)	Pan	O96017	• PSTK															No	sc-8812	GpAb
Chk2 (CHEK2)	Pan	O96017	• PSTK															No	sc-9064	RpAb
Chk2 (CHEK2)	T68	O96017	• PSTK															Kinexus	PK581	RpAb
Chk2 (CHEK2)	T383	O96017	• PSTK															Kinexus	PK580	RpAb
CHMP2B	S199	Q9UQN3																Kinexus	PN872	RpAb
CHRM1	S451+T455+	P11229				●												Kinexus	PN790	RpAb
CHRNA9	Y374	Q9UGM1				●												Kinexus	PN939	RpAb
CHRNA9	Y430	Q9UGM1				●												Kinexus	PN940	RpAb
CK1a (CSNK1A1)	Pan	P48729	• PSTK															No	AP7400a	RpAb
CK1a (CSNK1A1)	Pan	P48729	• PSTK															No	sc-6478	GpAb
CK1d (CSNK1D)	Pan	P48730	• PSTK															No	AP7402a	RpAb
CK1d (CSNK1D)	Pan	P48730	• PSTK															No	sc-6474	GpAb

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CK1d (CSNK1D)	Pan	P48730	• PSTK															No	sc-6475	GpAb
CK1d (CSNK1D)	T176	P48730	• PSTK															Kinexus	PK923	RpAb
CK1d (CSNK1D)	T347	P48730	• PSTK															Kinexus	PK924	RpAb
CK1d (CSNK1D)	S370	P48730	• PSTK															Kinexus	PK922	RpAb
CK1e (CSNK1E)	Pan	P49674	• PSTK															No	AP7403a	RpAb
CK1e (CSNK1E)	Pan	P49674	• PSTK															No	sc-6472	GpAb
CK1g3 (CSNK1G3)	Pan	Q9Y6M4	• PSTK															No	AP7406a	RpAb
CK2a1 (CSNK2A1)	Pan	P68400	• PSTK															Kinexus	NK041-2	RpAb
CK2a1 (CSNK2A1)	Pan	P68400	• PSTK															No	sc-373894	MmAb
CK2a1 (CSNK2A1)	Y255	P68400	• PSTK															Kinexus	PK582	RpAb
CK2a1 (CSNK2A1)	T360+S362	P68400	• PSTK															No	11572	RpAb
CK2b1 (Casein Kinase IIb)	Pan	P67870	• PSTK-															No	sc-6483	GpAb
CICN3 (CIC-3; Clcn3)	Pan	P51790					●											No	NN234-1	MmAb
CLK1	Pan	P49759	• PSTK															No	AP7529a	RpAb
CLK1	S337	P49759	• PSTK															Kinexus	PK583	RpAb
CLK1	S337+T338	P49759	• PSTK															Kinexus	PK584	RpAb
CLK2	Pan	P49760	• PSTK															No	AP7530a	RpAb
CLK3	Pan	P49761	• PSTK															No	AP7531a	RpAb
CLK4	Pan	Q9HAZ1	• PSTK															No	AP7532a	RpAb
CLTC	Y634	Q00610															●	Kinexus	PN941	RpAb
CNR2	S335+S336+	P34972				●												Kinexus	PN792	RpAb
CNTN1	Y742	Q12860																Kinexus	PN942	RpAb
Cofilin 1 (CFL1)	S3	P23528												●				Kinexus	PN812	RpAb
Cofilin 1 (CFL1)	Y140	P23529												●				Kinexus	PN813	RpAb
Cofilin 1 (CFL1)	Y140	P23529												●				Kinexus	PN506	RpAb
COT (MAP3K8; TPL2)	Pan	P41279	• PSTK															Kinexus	NK042-2	RpAb
COT (MAP3K8; TPL2)	Pan	P41279	• PSTK															Kinexus	NK042-1	RpAb
COT (MAP3K8; TPL2)	T290	P41279	• PSTK															Kinexus	PK956	RpAb
COT (MAP3K8; TPL2)	S334	P41279	• PSTK															Kinexus	PK585	RpAb
COX1 (PTGS1)	Pan	P23219								●								No	NN381-1	RpAb
COX2	Pan	P35354								●								No	610204	MmAb
COX2	Y446	P35354								●								Kinexus	PN695	RpAb
COX4/COX4I1	Pan	P13073								●								No	NN379-1	RpAb
CPD	Pan	O75976								●								Kinexus	NN462-3	RpAb
CPD	Pan	O75976								●								Kinexus	NN462-2	RpAb
Cpn10 (HSPE1)	Pan	P61604									●							No	NN235-1	RpAb
CPR (POR)	Pan	P16435																No	NN236-1	RpAb
CREB1	S133	P16220			●													Kinexus	PN553	RpAb
CREB1	S133	P16220			●													No	06-519	RpAb
CREB1	S129+S133	P16220			●													Kinexus	PN577	RpAb
CREBBP	S121+S124	Q92793			●													Kinexus	PN793	RpAb
CRMP2 (DPYSL2)	Y499	Q16555												●				Kinexus	PN944	RpAb
CRMP2 (DPYSL2)	T509	Q16555												●				Kinexus	PN814	RpAb
CRMP2 (DPYSL2)	T514	Q16555												●				Kinexus	PN943	RpAb
CRMP2 (DPYSL2)	S522	Q16555												●				Kinexus	PN815	RpAb
CSF1R (Fms)	Pan	P07333	• PYK			●												Kinexus	NK234-3	RpAb
CSF1R (Fms)	Pan	P07333	• PYK			●												Kinexus	NK234-4	RpAb
CSF1R (Fms)	Pan	P07333	• PYK			●												Kinexus	NK234-2	RpAb
CSF1R (Fms)	Y699	P07333	• PYK			●												Kinexus	PK587	RpAb
CSF1R (Fms)	S807+Y809	P07333	• PYK			●												Kinexus	PK586	RpAb
CSF1R (Fms)	Y809	P07333	• PYK			●												Kinexus	PK588	RpAb
Csk	Pan	P41240	• PYK															No	sc-9898	GpAb
Csk	Pan	P41240	• PYK															No	sc-286	RpAb
Csk	Y184	P41240	• PYK															Kinexus	PK589	RpAb
CTNNA1	S641	P35221												●				No	11330	RpAb
CTNNB1 (Catenin-b)	Pan	P35222			●									●				No	DB077	RpAb
CTNNB1 (Catenin-b)	Pan	P35222			●									●				No	KalCTNB5	RpAb
CTNNB1 (Catenin-b)	S33	P35222			●									●				No	11218	RpAb
CTNNB1 (Catenin-b)	S33+S37	P35222			●									●				Kinexus	PN816	RpAb
CTNNB1 (Catenin-b)	S33+S37+T4	P35222			●									●				Kinexus	PN578	RpAb
CTNNB1 (Catenin-b)	Y333	P35222			●									●				No	11574	RpAb
CTNNB1 (Catenin-b)	Y489	P35222			●									●				Kinexus	PN745	RpAb
CTNNB1 (Catenin-b)	S552	P35222			●									●				Kinexus	PN945	RpAb

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CTNNB1 (Catenin-b)	Y654	P35222			●									●				Kinexus	PN579	RpAb
CTNNB1 (Catenin-b)	S675	P35222			●									●				Kinexus	PN946	RpAb
CTSS	Pan	P25774							●									Kinexus	NN461-2	RpAb
CTSS	Pan	P25774							●									Kinexus	NN461-3	RpAb
CTSS	Pan	P25774							●									Kinexus	NN461-1	RpAb
CUX1 (CUTL1)	S1270	P39880			●													Kinexus	PN580	RpAb
Cyclin A1 (CCNA; CCN1)	Pan	P20248	• PSTK-															No	100-401-15	RpAb
Cyclin B1 (CCNB1; CLNB1)	Pan	P14635	• PSTK-															No	sc-245	MmAb
Cyclin C (CCNC)	Pan	P24863	• PSTK-															No	sc-1061	RpAb
Cyclin D1 (CCND1; CLND1)	Pan	P24385	• PSTK-															No	sc-753	RpAb
Cyclin D2 (CCND2; CLND2)	Pan	P30279	• PSTK-															No	sc-754	RpAb
Cyclin G1 (CCNG1; CLNG1)	Pan	P51959	• PSTK-															No	sc-7865	RpAb
DAG1	T790	Q14118												●				Kinexus	PN947	RpAb
DAPK2	Pan	Q9UIK4	• PSTK															No	AP7218a	RpAb
DARPP32 (PPP1R1B)	Y74	Q9UD71		• PSTP-														Kinexus	PN794	RpAb
DARPP32 (PPP1R1B)	T75	Q9UD71		• PSTP-														Kinexus	PN818	RpAb
DCAMLK1 (DCLK1)	Pan	O15075	• PSTK															No	AP7219a	RpAb
DCK (dCK)	S74+Pan	P27707							●									Kinexus	PN696	RpAb
DCTN1	S105+T108	Q14203																Kinexus	PN873	RpAb
DCTN1	S541	Q14203																Kinexus	PN874	RpAb
DCTN1	T1152+S115	Q14203																Kinexus	PN875	RpAb
DDR1	Pan	Q08345	• PYK			●												Kinexus	NK263-1	RpAb
DDR1	Y796+Y797	Q08345	• PYK			●												Kinexus	PK591	RpAb
DDR1	Y797	Q08345	• PYK			●												Kinexus	PK592	RpAb
DDR2 (Tyro10)	Y736	Q16832	• PYK			●												Kinexus	PK593	RpAb
DDR2 (Tyro10)	Y740	Q16832	• PYK			●												Kinexus	PK594	RpAb
DFF45	Pan	O00273																No	M037-3	MmAb
DGKd (DGK-D)	Pan	Q16760							●									No	AP8126a	RpAb
DGKd (DGK-D)	Pan	Q16760							●									No	AP8126b	RpAb
DGKz (DGK-Z)	Pan	Q13574							●									No	AP8060b	RpAb
DICER1 (Dicer; HERNA;	Pan	Q9UPY3																No	NN237-1	MmAb
DLG1 (SAP97)	Y760	Q12959											●					Kinexus	PN948	RpAb
DLG1 (SAP97)	Y784	Q12959											●					Kinexus	PN949	RpAb
DLG3 (SAP102; Synapse-	Pan	Q92796											●					No	NN238-1	MmAb
DLG4 (PSD95)	Pan	P78352											●					No	NN239-1	MmAb
DLG4 (PSD95)	Pan	P78352											●					No	NN142	MmAb
DLG4 (PSD95)	Pan	P78352											●					No	NN239-2	MmAb
DLG4 (PSD95)	S73	P78352											●					Kinexus	PN900	RpAb
DLG4 (PSD95)	Y240	P78352											●					Kinexus	PN901	RpAb
DLG4 (PSD95)	S295	P78352											●					Kinexus	PN846	RpAb
DLG4 (PSD95)	S561	P78352											●					Kinexus	PN899	RpAb
DLK (DAK; ZPK; MAP3K12;	Pan	Q12852	• PSTK															No	AP7217b	RpAb
DLK (DAK; ZPK; MAP3K12;	Pan	Q12852	• PSTK															No	AP7214a	RpAb
DLK (DAK; ZPK; MAP3K12;	Pan	Q12852	• PSTK															No	sc-8124	GpAb
DLK (DAK; ZPK; MAP3K12;	Pan	Q12852	• PSTK															No	sc-8125	GpAb
DLK (DAK; ZPK; MAP3K12;	Pan	Q12852	• PSTK															No	sc-10805	RpAb
DLK (DAK; ZPK; MAP3K12;	S269	Q12852	• PSTK															Kinexus	PK590	RpAb
DLK (DAK; ZPK; MAP3K12;	S308+Pan	Q12852	• PSTK															Kinexus	PK900	RpAb
DMPK1 (DMPK)	Pan	Q09013	• PSTK															No	AP7034b	RpAb
DMPK1 (DMPK)	Pan	Q09013	• PSTK															Kinexus	NK264-1	RpAb
DMPK2 (MRCK-g)	Pan	Q6DT37	• PSTK															Kinexus	NK265-1	RpAb
DNAPK (PRKDC)	Pan	P78527	• PSTK															Kinexus	NK048-4	RpAb
DNAPK (PRKDC)	Pan	P78527	• PSTK															Kinexus	NK048-4	RpAb
DNAPK (PRKDC)	Pan	P78527	• PSTK															Kinexus	NK048-6	RpAb
DNAPK (PRKDC)	Pan	P78527	• PSTK															Kinexus	NK048-7	RpAb
DNAPK (PRKDC)	Pan	P78527	• PSTK															Kinexus	NK048-5	RpAb
DNAPK (PRKDC)	Pan	P78527	• PSTK															No	sc-9051	RpAb
DNAPK (PRKDC)	Y883	P78527	• PSTK															Kinexus	PK596	RpAb
DNAPK (PRKDC)	S2056	P78527	• PSTK															Kinexus	PK925	RpAb
DNAPK (PRKDC)	T2609	P78527	• PSTK															Kinexus	PK595	RpAb
DNM2	Y597	P50570														●		Kinexus	PN951	RpAb
DNM2	S764	P50570														●		Kinexus	PN950	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
DNMT1 (AIM; CXXC9; DNMT;	Pan	P26358								●								No	NN241-2	MmAb
DNMT1 (AIM; CXXC9; DNMT;	Pan	P26358								●								No	NN241-3	MmAb
DNMT3A	S105	Q9Y6K1																Kinexus	PN746	RpAb
DOK1	Pan	Q99704											●					No	AP2001a	RpAb
DOK3	Y398	Q7L591											●					Kinexus	PN508	RpAb
DOK7	Y395	Q18PE1											●					Kinexus	PN952	RpAb
DOK7	Y405	Q18PE1											●					Kinexus	PN953	RpAb
DOR1	T358+T361+	P41143				●												Kinexus	PN795	RpAb
DPYD	S766+T768	Q12882								●								Kinexus	PN747	RpAb
DTNA	T504	Q9Y4J8																Kinexus	PN954	RpAb
DUSP1 (MKP1; CL100; VH1)	Pan	P28562		• DSP														Kinexus	NP006-3	RpAb
DUSP1 (MKP1; CL100; VH1)	Pan	P28562		• DSP														Kinexus	NP006-4	RpAb
DUSP1 (MKP1; CL100; VH1)	Pan	P28562		• DSP														No	sc-1199	RpAb
DUSP1 (MKP1)	Pan	P28562		• DSP														Kinexus	NP006-2	RpAb
DUSP2 (PAC1)	Pan	Q05923		• DSP														Kinexus	NP008-3	RpAb
DUSP2 (PAC1)	Pan	Q05923		• DSP														Kinexus	NP008-4	RpAb
DUSP2 (PAC1)	Pan	Q05923		• DSP														Kinexus	NP008-2	RpAb
DUSP2 (PAC1)	Pan	Q05923		• DSP														No	sc-1620	GpAb
DUSP2 (PAC1)	Pan	Q05923		• DSP														No	sc-1621	GpAb
DUSP3 (VHR)	Pan	P51452		• DSP														Kinexus	NP030-3	RpAb
DUSP3 (VHR)	Pan	P51452		• DSP														Kinexus	NP030-4	RpAb
DUSP3 (VHR)	Pan	P51452		• DSP														Kinexus	NP030-2	RpAb
DUSP3 (VHR)	Pan	P51452		• DSP														No	sc-8890	GpAb
DUSP3 (VHR)	Pan	P51452		• DSP														No	sc-8889	GpAb
DUSP3 (VHR)	Pan	P51452		• DSP														No	V47020	MmAb
DUSP4 (MKP2; VH2)	Pan	Q13115		• DSP														Kinexus	NP007-3	RpAb
DUSP4 (MKP2; VH2)	Pan	Q13115		• DSP														Kinexus	NP007-4	RpAb
DUSP4 (MKP2; VH2)	Pan	Q13115		• DSP														Kinexus	NP007-2	RpAb
DUSP5	Pan	Q16690		• DSP														Kinexus	NP039-2	RpAb
DUSP5	Pan	Q16690		• DSP														Kinexus	NP039-3	RpAb
DUSP5	Pan	Q16690		• DSP														Kinexus	NP039-1	RpAb
DUSP6	Pan	Q16828		• DSP														Kinexus	NP040-2	RpAb
DUSP6	Pan	Q16828		• DSP														Kinexus	NP040-1	RpAb
DUSP7	Pan	Q16829		• DSP														Kinexus	NP041-2	RpAb
DUSP7	Pan	Q16829		• DSP														Kinexus	NP041-3	RpAb
DUSP7	Pan	Q16829		• DSP														Kinexus	NP041-1	RpAb
DUSP8	Pan	Q13202		• DSP														Kinexus	NP042-3	RpAb
DUSP8	Pan	Q13202		• DSP														Kinexus	NP042-1	RpAb
DUSP9	Pan	Q99956		• DSP														Kinexus	NP043-3	RpAb
DUSP9	Pan	Q99956		• DSP														Kinexus	NP043-2	RpAb
DUSP10 (MKP5)	Pan	Q9Y6W6		• DSP														Kinexus	NP047-2	RpAb
DUSP10 (MKP5)	Pan	Q9Y6W6		• DSP														Kinexus	NP047-1	RpAb
DUSP11	Pan	O75319		• DSP														Kinexus	NP048-2	RpAb
DUSP11	Pan	O75319		• DSP														Kinexus	NP048-3	RpAb
DUSP11	Pan	O75319		• DSP														Kinexus	NP048-1	RpAb
DUSP12	Pan	Q9UNI6		• DSP														Kinexus	NP046-2	RpAb
DUSP12	Pan	Q9UNI6		• DSP														Kinexus	NP046-3	RpAb
DUSP12	Pan	Q9UNI6		• DSP														Kinexus	NP046-1	RpAb
DYRK1A	Y321	Q13627	• DSK															Kinexus	PK597	RpAb
DYRK2	Pan	Q92630	• DSK															No	AP7534a	RpAb
DYRK2	Pan	Q92630	• DSK															Kinexus	NK266-1	RpAb
DYRK2	Y382	Q92630	• DSK															Kinexus	PK598	RpAb
DYRK3	Pan	O43781	• DSK															No	AP7535a	RpAb
DYRK4	Pan	Q9NR20	• DSK															No	AP7536b	RpAb
EEF1A1	Y141	P68104						●										Kinexus	PN509	RpAb
EEF2	T57	P13639						●										Kinexus	PN555	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												No	AP7628b	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												No	AP7628a	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												Kinexus	NK052-5	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												Kinexus	NK052-6	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												Kinexus	NK052-4	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												Kinexus	NK052-7	RpAb
EGFR (ErbB1)	Pan	P00533	• PYK			●												Kinexus	NK052-8	RpAb

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EGFR (ErbB1)	Pan	P00533	• PYK			●												No	100-401-145	RpAb
EGFR (ErbB1)	Y869	P00533	• PYK			●												Kinexus	PK602	RpAb
EGFR (ErbB1)	Y998	P00533	• PYK			●												Kinexus	PK603	RpAb
EGFR (ErbB1)	Y1069	P00533	• PYK			●												Kinexus	PK599	RpAb
EGFR (ErbB1)	Y1110	P00533	• PYK			●												Kinexus	PK600	RpAb
EGFR (ErbB1)	Y1172	P00533	• PYK			●												Kinexus	PK601	RpAb
eIF2a	S52+Pan	Q9BY44						●										Kinexus	PN820	RpAb
EIF2AK3 (PERK; PEK; PKR)	S555	Q9NZJ5	• PSTK															Kinexus	PK926	RpAb
EIF2AK3 (PERK; PEK; PKR)	S715	Q9NZJ5	• PSTK															Kinexus	PK927	RpAb
EIF2AK3 (PERK; PEK; PKR)	T982	Q9NZJ5	• PSTK															Kinexus	PK604	RpAb
eIF4B	S422	P23588						●										No	11513	RpAb
eIF4B	S504	P23588						●										Kinexus	PN819	RpAb
eIF4E	Pan	P06730						●										No	610270	MmAb
eIF4E	S209	P06730						●										Kinexus	PN956	RpAb
eIF4G1	T205+T207	Q04637						●										Kinexus	PN1008	RpAb
eIF4G1	S1185+S118	Q04637						●										Kinexus	PN1004	RpAb
eIF4G1	S1231	Q04637						●										No	11514	RpAb
Elk1	S324+Pan	P19419			●													Kinexus	PN581	RpAb
EML4	Y226	Q9HC35												●				Kinexus	PN510	RpAb
ENO1 (NNE)	Y44	P06733								●								Kinexus	PN511	RpAb
ENO2 (ENOG)	Y25	P09104								●								Kinexus	PN512	RpAb
EP300 (p300)	S2279	Q09472																Kinexus	PN748	RpAb
EphA1	Pan	P21709	• PYK			●												No	AP7606b	RpAb
EphA1	Y599	P21709	• PYK			●												Kinexus	PK928	RpAb
EphA1	Y781	P21709	• PYK			●												Kinexus	PK605	RpAb
EphA2	Pan	P29317	• PYK			●												No	AP7607b	RpAb
EphA2	Pan	P29317	• PYK			●												No	AP7701a	RpAb
EphA2	Y588	P29317	• PYK			●												Kinexus	PK606	RpAb
EphA2	Y772	P29317	• PYK			●												Kinexus	PK607	RpAb
EphA3	Pan	P29320	• PYK			●												No	AP7608a	RpAb
EphA3	Pan	P29320	• PYK			●												No	AP7608b	RpAb
EphA3	Y779	P29320	• PYK			●												Kinexus	PK608	RpAb
EphA4	Pan	P54764	• PYK			●												No	AP7609a	RpAb
EphA4	Pan	P54764	• PYK			●												No	AP7609b	RpAb
EphA4	Y602	P54764	• PYK			●												Kinexus	PK930	RpAb
EphA4	Y779	P54764	• PYK			●												Kinexus	PK931	RpAb
EphA5	Pan	P54756	• PYK			●												No	AP7610a	RpAb
EphA5	Pan	P54756	• PYK			●												No	AP7610b	RpAb
EphA6	Pan	Q9UF33	• PYK			●												No	AP7611a	RpAb
EphA6	Pan	Q9UF33	• PYK			●												No	AP7611b	RpAb
EphA7	Pan	Q15375	• PYK			●												No	AP7612a	RpAb
EphA8	Pan	P29322	• PYK			●												No	AP7613a	RpAb
EphA8	Pan	P29322	• PYK			●												No	AP7613b	RpAb
EphB1	Pan	P54762	• PYK			●												No	AP7622a	RpAb
EphB1	Y594	P54762	• PYK			●												Kinexus	PK609	RpAb
EphB2	Pan	P29323	• PYK			●												No	AP7623a	RpAb
EphB2	Pan	P29323	• PYK			●												No	AP7623b	RpAb
EphB2	Pan	P29323	• PYK			●												Kinexus	NK267-1	RpAb
EphB2	Pan	P29323	• PYK			●												Kinexus	NK267-2	RpAb
EphB2	Y780	P29323	• PYK			●												Kinexus	PK610	RpAb
EphB3	Pan	P54753	• PYK			●												No	AP7624a	RpAb
EphB3	Y600	P54753	• PYK			●												Kinexus	PK611	RpAb
EphB4	Pan	P54760	• PYK			●												No	AP7625a	RpAb
EphB4	Y596	P54760	• PYK			●												Kinexus	PK612	RpAb
EphB6	Pan	Q15197	• PYK			●												No	AP7627a	RpAb
EphB6	Pan	Q15197	• PYK			●												No	AP7627b	RpAb
EPM2A (LAFPTase)	Pan	O95278		• DSP														No	NN245-1	MmAb
ERa (ESR1; ER-alpha)	S104	P03372			●	●												No	11070	RpAb
ERa (ESR1; ER-alpha)	S167	P03372			●	●												Kinexus	PN583	RpAb
ErbB2 (Neu; HER2)	Pan	P04626	• PYK			●												No	AP7629b	RpAb
ErbB2 (Neu; HER2)	Pan	P04626	• PYK			●												No	AP7629a	RpAb
ErbB2 (Neu; HER2)	Pan	P04626	• PYK			●												No	DB049	RpAb
ErbB2 (Neu; HER2)	Pan	P04626	• PYK			●												Kinexus	NK054-4	RpAb

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ErbB2 (Neu; HER2)	Pan	P04626	• PYK			●												Kinexus	NK054-6	RpAb
ErbB2 (Neu; HER2)	Pan	P04626	• PYK			●												Kinexus	NK054-7	RpAb
ErbB2 (Neu; HER2)	Y735	P04626	• PYK			●												Kinexus	PK614	RpAb
ErbB2 (Neu; HER2)	Y877	P04626	• PYK			●												Kinexus	PK615	RpAb
ErbB2 (Neu; HER2)	Y1248	P04626	• PYK			●												Kinexus	PK613	RpAb
ERBB2IP (Erbin)	Y1104	Q96RT1										●						Kinexus	PN513	RpAb
ErbB3 (HER3)	Pan	P21860	• PYK			●												Kinexus	NK231-2	RpAb
ErbB3 (HER3)	Pan	P21860	• PYK			●												Kinexus	NK231-3	RpAb
ErbB3 (HER3)	Pan	P21860	• PYK			●												Kinexus	NK231-4	RpAb
ErbB3 (HER3)	Pan	P21860	• PYK			●												Kinexus	NK231-2	RpAb
ErbB3 (HER3)	Y1289	P21860	• PYK			●												Kinexus	PK616	RpAb
ErbB3 (HER3)	Y1307	P21860	• PYK			●												Kinexus	PK617	RpAb
ErbB3 (HER3)	Y1328	P21860	• PYK			●												Kinexus	PK618	RpAb
ErbB4 (HER4)	Pan	Q15303	• PYK			●												No	AP7631a	RpAb
ErbB4 (HER4)	Pan	Q15303	• PYK			●												Kinexus	NK235-1	RpAb
ErbB4 (HER4)	Pan	Q15303	• PYK			●												Kinexus	NK235-3	RpAb
ErbB4 (HER4)	Y733	Q15303	• PYK			●												Kinexus	PK619	RpAb
ErbB4 (HER4)	Y875	Q15303	• PYK			●												Kinexus	PK620	RpAb
ERF	T526	P50548			●													Kinexus	PN584	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															No	AP7500a	RpAb
ERK1 (MAPK3)	Pan	P28482	• PSTK															No	AP7501a	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															Kinexus	NK055-1	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															Kinexus	NK055-2	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															Kinexus	NK055-3	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															Kinexus	NK055-5	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															Kinexus	NK055-4	RpAb
ERK1 (MAPK3)	Pan	P27361	• PSTK															Kinexus	NK055-6	RpAb
ERK1 (MAPK3)	Pan	P28482	• PSTK															Kinexus	NK056-2	RpAb
ERK1 (MAPK3)	Pan	P28482	• PSTK															Kinexus	NK056-3	RpAb
ERK1 (MAPK3)	Pan	P28482	• PSTK															Kinexus	NK056-4	RpAb
ERK1 (MAPK3)	Y204	P27361	• PSTK															Kinexus	PK864	RpAb
ERK1 (MAPK3)	Y204	P27361	• PSTK															No	sc-7383	MmAb
ERK1 (MAPK3)	T207	P27361	• PSTK															Kinexus	PK950	RpAb
ERK1 (MAPK3)	T207	P27361	• PSTK															Kinexus	PK865	RpAb
ERK1 (MAPK3)	S265	P27361	• PSTK															Kinexus	PK878	RpAb
ERK1 (MAPK3)	S283	P27361	• PSTK															Kinexus	PK879	RpAb
ERK1 (MAPK3)	T202+Y204	P27361	• PSTK															Kinexus	PK621	RpAb
ERK1 (MAPK3)	Y204+T207	P27361	• PSTK															Kinexus	PK866	RpAb
ERK1 (MAPK3)	Y263+S266	P28482	• PSTK															Kinexus	PK880	RpAb
ERK2 (MAPK1)	T185+Y187	P28482	• PSTK															Kinexus	PK622	RpAb
ERK3 (MAPK6)	Pan	Q16659	• PSTK															No	AP7502a	RpAb
ERK3 (MAPK6)	S189	Q16659	• PSTK															Kinexus	PK623	RpAb
ERK4 (MAPK4)	Pan	P31152	• PSTK															No	AP7503a	RpAb
ERK4 (MAPK4)	S186	P31152	• PSTK															Kinexus	PK624	RpAb
ERK5 (MAPK7; BMK)	Pan	Q13164	• PSTK															Kinexus	NK206-1	RpAb
ERK5 (MAPK7; BMK)	Pan	Q13164	• PSTK															Kinexus	NK206-4	RpAb
ERK5 (MAPK7; BMK)	Pan	Q13164	• PSTK															Kinexus	NK206-5	RpAb
ERK5 (MAPK7; BMK)	Pan	Q13164	• PSTK															No	sc-1285	GpAb
ERK5 (MAPK7; BMK)	Pan	Q13164	• PSTK															No	sc-1284	GpAb
ERK5 (MAPK7; BMK)	T219+Y221	Q13164	• PSTK															Kinexus	PK625	RpAb
ERK5 (MAPK7; BMK)	Y221	Q13164	• PSTK															Kinexus	PK626	RpAb
ESRRA (ERR1)	S19+S22	P11474			●	●												Kinexus	PN585	RpAb
ESYT1	Y822	Q9BSJ8														●		Kinexus	PN514	RpAb
Ets-1	S282	P14921			●													Kinexus	PN586	RpAb
ETV6 (Tel)	S22	P41212			●													Kinexus	PN587	RpAb
EZH2	T487	Q15910																Kinexus	PN697	RpAb
Ezrin (EZR; Cytovillin)	Y354	P15311												●				No	11063	RpAb
FADD	Pan	Q13158										●						No	sc-6035	GpAb
FAK (PTK2)	Pan	Q05397	• PYK															No	610087	MmAb
FAK (PTK2)	Pan	Q05397	• PYK															No	sc-558	RpAb
FAK (PTK2)	Pan	Q05397	• PYK															No	sc-932	RpAb
FAK (PTK2)	Y397	Q05397	• PYK															Kinexus	PK627	RpAb
FAK (PTK2)	Y576+Y577	Q05397	• PYK															Kinexus	PK628	RpAb

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FAK (PTK2)	Y577	Q05397	• PYK															Kinexus	PK629	RpAb
FAK (PTK2)	S722	Q05397	• PYK															No	sc-16662-R	RpAb
FAS (Apo1; CD95)	Pan	P25445				●												No	sc-7886	RpAb
FasL (FasLG)	Pan	P48023										●						No	F37720	MmAb
FASN (FAS)	Y45	P49327								●								Kinexus	PN749	RpAb
FASN (FAS)	S207	P49327								●								Kinexus	PN698	RpAb
FBPase (FBP1)	S88	P09467								●								Kinexus	PN750	RpAb
FBPase (FBP1)	Y265	P09467								●								Kinexus	PN699	RpAb
FBPase 2 (FBP2)	Y216	O00757								●								Kinexus	PN700	RpAb
FBPase 2 (FBP2)	Y259	O00757								●								Kinexus	PN751	RpAb
Fer (TYK3)	Pan	P16591	• PYK															No	AP7704b	RpAb
Fer (TYK3)	Y402	P16591	• PYK															Kinexus	PK630	RpAb
β	Y714	P16591	• PYK															Kinexus	PK631	RpAb
Fes	Pan	P07332	• PYK															No	sc-7670	GpAb
Fes	Y713	P07332	• PYK															Kinexus	PK632	RpAb
Fes	Y713+S716	P07332	• PYK															Kinexus	PK633	RpAb
FGF13 (FHF2)	Pan	Q92913																No	NN246-1	MmAb
FGFR1 (FLT2)	Pan	P11362	• PYK			●												No	AP7643a	RpAb
FGFR1 (FLT2)	Pan	P11362	• PYK			●												No	AP7636a	RpAb
FGFR1 (FLT2)	Pan	P11362	• PYK			●												Kinexus	NK062-2	RpAb
FGFR1 (FLT2)	Pan	P11362	• PYK			●												Kinexus	NK062-3	RpAb
FGFR1 (FLT2)	Y653+Y654	P11362	• PYK			●												Kinexus	PK634	RpAb
FGFR2 (BEK)	Pan	P21802	• PYK			●												No	AP7637b	RpAb
FGFR2 (BEK)	Pan	P21802	• PYK			●												Kinexus	NK063-3	RpAb
FGFR2 (BEK)	Pan	P21802	• PYK			●												Kinexus	NK063-4	RpAb
FGFR2 (BEK)	Pan	P21802	• PYK			●												Kinexus	NK063-2	RpAb
FGFR2 (BEK)	Y656+Y657	P21802	• PYK			●												Kinexus	PK635	RpAb
FGFR3	Pan	P22607	• PYK			●												No	AP7638a	RpAb
FGFR3	Pan	P22607	• PYK			●												Kinexus	NK236-1	RpAb
FGFR3	Pan	P22607	• PYK			●												Kinexus	NK236-2	RpAb
FGFR3	Pan	P22607	• PYK			●												Kinexus	NK236-3	RpAb
FGFR3	Y647+Y648	P22607	• PYK			●												Kinexus	PK637	RpAb
FGFR3	Y647+Y648	P22607	• PYK			●												Kinexus	PK636	RpAb
FGFR4	Pan	P22455	• PYK			●												No	AP7639a	RpAb
FGFR4	Pan	P22455	• PYK			●												Kinexus	NK239-1	RpAb
FGFR4	Pan	P22455	• PYK			●												Kinexus	NK239-3	RpAb
Fgr	Pan	P09769	• PYK															Kinexus	NK268-1	RpAb
Fgr	Y208+Y209	P09769	• PYK															Kinexus	PK638	RpAb
Fgr	Y412	P09769	• PYK															Kinexus	PK639	RpAb
FIH (HIF1; HIF1AN)	Pan	Q9NWT6									●							No	NN248-1	MmAb
FKBP52 (FKBP4; FKBP51;	Pan	Q02790																No	NN127-2	MmAb
FLT3 (STK1; CD135)	Pan	P36888	• PYK			●												No	AP7644b	RpAb
FLT3 (STK1; CD135)	Pan	P36888	• PYK			●												No	AP7644a	RpAb
FLT3 (STK1; CD135)	Pan	P36888	• PYK			●												Kinexus	NK240-1	RpAb
FLT3 (STK1; CD135)	Pan	P36888	• PYK			●												Kinexus	NK240-2	RpAb
FLT3 (STK1; CD135)	Y842	P36888	• PYK			●												Kinexus	PK640	RpAb
Fos	Pan	P01100			●													No	DB025	RpAb
Fos	T232	P01100			●													No	44-280G	RpAb
Fos	T232	P01100			●													Kinexus	PN588	RpAb
Fos	S362+S363	P01100			●													Kinexus	PN589	RpAb
FOXK1	S441+S445	P85037			●													Kinexus	PN590	RpAb
FOXK2	S424+S428	Q01167			●													Kinexus	PN591	RpAb
FOXM1	T611	Q08050			●													Kinexus	PN592	RpAb
FOXO1A (FKHR; FKHL1)	S256	Q12778			●													Kinexus	PN593	RpAb
FOXO1A (FKHR; FKHL1)	S256	Q12778			●													No	11115	RpAb
FOXO1A (FKHR; FKHL1)	S319	Q12778			●													No	11136	RpAb
FOXO1A (FKHR; FKHL1)	S329	Q12778			●													Kinexus	PN595	RpAb
FOXO1A (FKHR; FKHL1)	S319+Pan	Q12778			●													Kinexus	PN594	RpAb
FOXO3 (FKHRL1)	T32	O43524			●													Kinexus	PN596	RpAb
FOXO3 (FKHRL1)	S253	O43524			●													Kinexus	PN821	RpAb
FOXO3 (FKHRL1)	S294	O43524			●													Kinexus	PN597	RpAb
FRA1	S265	P15407			●													Kinexus	PN599	RpAb
Frk	Pan	P42685	• PYK															No	AP7708a	RpAb

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Frk	Pan	P42685	• PYK															Kinexus	NK269-1	RpAb
Frk	Pan	P42685	• PYK															Kinexus	NK269-2	RpAb
Frk	Y387	P42685	• PYK															Kinexus	PK641	RpAb
Frk	Y497	P42685	• PYK															Kinexus	PK642	RpAb
FUS	S277	P35637																Kinexus	PN876	RpAb
FUS	S340	P35637																Kinexus	PN877	RpAb
FUS	Y468	P35637																Kinexus	PN878	RpAb
Fused (STK36)	S159	Q9NRP7	• PSTK															Kinexus	PK643	RpAb
FXR (NR1H4)	Pan	Q96R11				●												No	sc-13063	RpAb
Fyn	Pan	P06241	• PYK															No	AP7709a	RpAb
Fyn	Pan	P06241	• PYK															Kinexus	NK065-2	RpAb
Fyn	Pan	P06241	• PYK															No	sc-161	RpAb
Fyn	T12	P06241	• PYK															Kinexus	PK901	RpAb
Fyn	Y213+Y214	P06241	• PYK															Kinexus	PK644	RpAb
Fyn	Y420	P06241	• PYK															Kinexus	PK881	RpAb
Fyn	Y531	P06241	• PYK															Kinexus	PK645	RpAb
G6PD	Y401	P11413								●								Kinexus	PN515	RpAb
G6PD	Y503+Y507	P11413								●								Kinexus	PN701	RpAb
Gab1	Y406	Q13480											●					Kinexus	PN516	RpAb
GABA A Receptor (GABRA2)	Pan	Q9UBS5				●												No	NN250-1	MmAb
GABA A Receptor (GABRB3)	Pan	Q9UBS5				●												No	NN254-1	MmAb
GABA B Receptor 2	Pan	O75899				●												No	NN256-2	MmAb
GABARAP (FLC3B)	Pan	O95166				●												No	NN257-1	RpAb
GABBR1 (GABA B Receptor	Pan	Q9UBS5				●												No	NN259-1	MmAb
GABBR1 (GABA B Receptor	T873	Q9UBS5				●												Kinexus	PN796	RpAb
GABPA	S303	Q06546			●													Kinexus	PN957	RpAb
GABPA	Y380+Y381	Q06546			●													Kinexus	PN958	RpAb
GABPB1	Y364	Q06547			●													Kinexus	PN959	RpAb
GADD153 (DDIT3; CHOP)	Pan	P35638									●							No	sc-7351	MmAb
GALNT7	Pan	Q86SF2								●								Kinexus	NN463-1	RpAb
GATA1	S142	P15976			●													No	11041	RpAb
GATA3	S369	P23771			●													Kinexus	PN702	RpAb
GATAD2B	T120+S122	Q8WXI9			●													Kinexus	PN600	RpAb
GCK (Glucokinase)	S411+Pan	P35557								●								Kinexus	PK893	RpAb
GCK (MAP4K2)	Pan	Q12851	• PSTK															No	AP7901a	RpAb
GCK (MAP4K2)	Pan	Q12851	• PSTK															No	sc-6161	GpAb
GCK (MAP4K2)	S170	Q12851	• PSTK															Kinexus	PK646	RpAb
GCLC	S5+S8	P48506																Kinexus	PN752	RpAb
GCN2 (EIF2AK4)	Pan	Q9P2K8	• PSTK															No	AP8062a	RpAb
GCN2 (EIF2AK4)	T667	Q9P2K8	• PSTK															Kinexus	PK877	RpAb
GFAP	Pan	P14136												●				Kinexus	NN260-3	RpAb
GFAP	Pan	P14136												●				No	NN260-2	MmAb
GFAP	Pan	P14136												●				No	NN260-1	MmAb
GFAP	S133	P14136												●				Kinexus	PN932	RpAb
GIT1	Y545	Q9Y2X7																Kinexus	PN517	RpAb
GluR1	S849	P42261				●												Kinexus	PN822	RpAb
GluR2	Y876	P42262				●												Kinexus	PN823	RpAb
GLUT2 (SLC2A2)	Pan	P11168														●		No	NN262-1	RpAb
GPAT3 (LPAAT-THETA)	S68	Q53EU6								●								Kinexus	PN753	RoAb
GR (NR3C1)	S226+Pan	P04150			●	●												Kinexus	PN601	RpAb
GRK1 (Rhodopsin kinase)	Pan	Q15835	• PSTK															No	AP7003a	RpAb
GRK1 (Rhodopsin kinase)	Pan	Q15835	• PSTK															No	sc-561	MmAb
GRK1 (Rhodopsin kinase)	Pan	Q15835	• PSTK															No	sc-8004	MmAb
GRK2 (BARK1; ADRBK1)	Y356	P25098	• PSTK															Kinexus	PK537	RpAb
GRK2 (BARK1; ADRBK1)	S670	P25098	• PSTK															Kinexus	PK536	RpAb
GRK5 (GPRK5)	Pan	P34947	• PSTK															No	AP7007a	RpAb
Grp75 (HspA9)	Pan	P38646									●							No	NN047-2	MmAb
Grp78 (Hspa5; BiP)	Pan	P11021									●							No	NN048-4	MmAb
Grp78 (Hspa5; BiP)	Pan	P11021									●							No	NN048-5	MmAb
Grp94 (HSP90B1)	Pan	P14625									●							No	NN049-3	RatmAb
Grp94 (HSP90B1)	Pan	P14625									●							No	NN049-4	RpAb
Grp170 (HYOU1; ORP-150)	Pan	Q9Y4L1									●							Kinexus	NN265-3	RpAb
Grp170 (HYOU1; ORP-150)	Pan	Q9Y4L1									●							Kinexus	NN265-4	RpAb

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Grp170 (HYOU1; ORP-150)	Pan	Q9Y4L1									●							Kinexus	NN265-5	RpAb
Grp170 (HYOU1; ORP-150)	Pan	Q9Y4L1									●							No	NN265-1	MmAb
GSK3a	Pan	P49840	• PSTK															Kinexus	NK069-3	RpAb
GSK3a	T19+S21	P49840	• PSTK															Kinexus	PK648	RpAb
GSK3a	S278+Y279	P49840	• PSTK															Kinexus	PK647	RpAb
GSK3a	Y279	P49840	• PSTK															Kinexus	PK649	RpAb
GSK3a	Y279	P49840	• PSTK															Kinexus	PK882	RpAb
GSK3a	Y284+Y285	P49840	• PSTK															Kinexus	PK650	RpAb
GSK3b	Pan	P49841	• PSTK															Kinexus	NK270-3	RpAb
GSK3b	Pan	P49841	• PSTK															Kinexus	NK070	RpAb
GSK3b	Pan	P49841	• PSTK															No	sc-7291	MmAb
GSK3b	Pan	P49841	• PSTK															No	NK070-4	RpAb
GSK3b	T43	P49841	• PSTK															Kinexus	PK933	RpAb
GSK3b	T275+T277	P49841	• PSTK															Kinexus	PK883	RpAb
GSK3b	T390	P49841	• PSTK															Kinexus	PK932	RpAb
GTF2F1	S385+T389	P35269			●													Kinexus	PK651	RpAb
GTF2I	S412	P78347			●													Kinexus	PN602	RpAb
GUK1	Y53	Q16774								●								Kinexus	PK652	RpAb
GYS1	S641+S645	P13807								●								Kinexus	PN703	RpAb
GYS2	Y45	P54840								●								Kinexus	PN704	RpAb
H2AFX (H2AX; Histone	S140	P16104																Kinexus	PN824	RpAb
H3F3A (HIST1H3A; Histone	T4	P84243																No	05-746	RpAb
H3F3A (HIST1H3A; Histone	S10	P84243																Kinexus	PN826	RpAb
H3F3A (HIST1H3A; Histone	S10	P84243																No	06-570	RpAb
Haspin (GSG2)	Pan	Q8TF76	• PSTK															No	AP8064c	RpAb
HBS1L	Y56+Y58	Q9Y450			●													Kinexus	PN603	RpAb
HCA59	Y147	Q9NZ63																Kinexus	PN518	RpAb
HCFC1	S1507	P51610			●													Kinexus	PN604	RpAb
Hck	Pan	P08631	• PYK															Kinexus	NK271-1	RpAb
HDAC4	S632	P56524																Kinexus	PN825	RpAb
HDAC4/5/9	S246/259/220	P56524																No	11517	RpAb
HePTP (PTPN7)	S44	P35236	• PYP															Kinexus	PP500	RpAb
HePTP (PTPN7)	T66	P35236	• PYP															Kinexus	PP501	RpAb
HePTP (PTPN7)	S143	P35236	• PYP															Kinexus	PP528	RpAb
HGK (MAP4K4; NIK; ZC1)	Pan	O95819	• PSTK															Kinexus	NK300-1	RpAb
HGK (MAP4K4; NIK; ZC1)	T187	O95819	• PSTK															Kinexus	PK653	RpAb
HGS (Hrs)	Y216	O14964	• PYK															Kinexus	PN519	RpAb
HIF1A (HIF1 alpha)	Pan	Q16665									●							No	sc-13515	MmAb
HIF1A (HIF1 alpha)	Pan	Q16665									●							No	NN267-1	MmAb
HIPK1	Y352	Q86Z02	• PSTK															Kinexus	PK654	RpAb
HIPK2	Pan	Q9H2X6	• PSTK															Kinexus	NK272-1	RpAb
Histone H2B (HIST1H2BN)	S14	Q99877																No	07-191	RpAb
HMGA1	S36+T39	P17096			●													Kinexus	PN605	RpAb
HMGA1	T53	P17096			●													Kinexus	PN606	RpAb
HMGB1	S35+S39	P09429			●													Kinexus	PN607	RpAb
HMGCR	S872	P04035								●								Kinexus	PN705	RpAb
HMGCS1	S495	Q01581								●								Kinexus	PN754	RpAb
HNF4A	S167	P41235			●													Kinexus	PN608	RpAb
HNRNPA1	S4+S6	P09651																Kinexus	PN879	RpAb
HNRNPA1	Y347	P09651																Kinexus	PN880	RpAb
HO1 (HO; HMOX1)	Pan	P09601									●							No	NN052-6	RpAb
HO2 (HMOX2)	Pan	P30519								●								No	OSA-200	RpAb
Hpk1	Pan	Q92918	• PSTK															No	sc-6230	GpAb
HRAS (H-Ras)	Pan	P01112																Kinexus	NN281-3	RpAb
HRAS (H-Ras)	Y157	P01112																Kinexus	PN755	RpAb
HRI (HCR; EIF2AK1)	S258	Q9BQI3	• PSTK															Kinexus	PK876	RpAb
Hsc70 (HSPA8; Hsc70;	Pan	P11142									●							No	sc-7298	MmAb
Hsc70 (HSPA8; Hsc70;	Pan	P11142									●							No	NN060-12	MmAb
Hsc70 (HSPA8; Hsc70;	Pan	P11142									●							No	NN054-4	MmAb
HSF1	Pan	Q00613			●													No	NN268-2	RatmAb
HSF1	Pan	Q00613			●													No	NN268-1	RatmAb
HSF1	S303+S307	Q00613			●													Kinexus	PN609	RpAb
HSF4 (HSTF4)	Pan	Q9ULV5			●						●							No	H65520	MmAb

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HSP27 (HSP28; HSPB1)	Pan	P04792									●							No	NN152-2	RpAb
HSP27 (HSP28; HSPB1)	S15	P04792									●							No	SPA-525	RpAb
HSP40 (DNAJB1; DNAJ1;	Pan	P25685									●							No	NN057-2	MmAb
HSP60 (HSPD1; CPN60;	Pan	P10809									●							No	sc-13115	MmAb
HSP60 (HSPD1; CPN60;	Pan	P10809									●							No	SPA-875	RpAb
HSP60 (HSPD1; CPN60;	Pan	P10809									●							No	NN059-4	MmAb
HSP60 (HSPD1; CPN60;	Pan	P10809									●							No	NN059-3	MmAb
HSP70 (Hsc70; Hsp71;	Pan	P0DMV8									●							No	SPA-810	MmAb
HSP70 (Hsc70; Hsp71;	Pan	P0DMV8									●							No	NN060-11	MmAb
HSP70 (Hsc70; Hsp71;	Pan	P0DMV8									●							No	NN060-7	MmAb
HSP70 (Hsc70; Hsp71;	Pan	P0DMV8									●							No	NN060-9	MmAb
HSP90a (HSP90AA1; HSP90;	Pan	P07900									●							No	sc-13119	MmAb
HSP90a (HSP90AA1; HSP90;	Pan	P07900									●							No	NN061-4	MmAb
HSP90a (HSP90AA1; HSP90;	Pan	P07900									●							No	NN061-2	MmAb
HSP86; HSPC; HSPCA;											●							No	NN061-2	MmAb
HSP90AB1 (HSP90; HSP84;	Pan	P08238									●							No	NN061-3	MmAb
HSP90AB1 (HSP90; HSP84;	Pan	P08238									●							No	NN061-16	RpAb
HSP90AB1 (HSP90; HSP84;	Y484	P08238									●							Kinexus	PN520	RpAb
HSP105 (HSPH1; HSP110)	Pan	Q92598									●							No	sc-6241	RpAb
HSP105 (HSPH1; HSP110)	Pan	Q92598									●							No	NN269-1	RpAb
HspBP1	Pan	Q9NZL4									●							No	H98620	MmAb
HSPC121	S114	Q9P035								●								Kinexus	PN756	RpAb
Huntingtin (HTT)	S13+S16+Pa	P42858												●				Kinexus	PN827	RpAb
Huntingtin (HTT)	S417+S419+	P42858												●				Kinexus	PN828	RpAb
Huntingtin (HTT)	S421	P42858												●				Kinexus	PN829	RpAb
IAP1 (BIRC2; API2)	Pan	Q13490										●						No	sc-7943	RpAb
ICK	Pan	Q9UPZ9	• PSTK															Kinexus	NK073-5	RpAb
ICK	Pan	Q9UPZ9	• PSTK															Kinexus	NK073-3	RpAb
ICK	Pan	Q9UPZ9	• PSTK															Kinexus	NK073-4	RpAb
ICK	Y159	Q9UPZ9	• PSTK															Kinexus	PK656	RpAb
ICK	Y156+T157	Q9UPZ9	• PSTK															Kinexus	PK656	RpAb
IDH1	T75+T77	O75874								●								Kinexus	PN706	RpAb
IDH1	Y391	O75874								●								Kinexus	PN757	RpAb
IGF1R	Pan	P08069	• PYK			●												No	AP7649a	RpAb
IGF1R	Pan	P08069	• PYK			●												Kinexus	NK074-2	RpAb
IGF1R	Pan	P08069	• PYK			●												Kinexus	NK074-3	RpAb
IGF1R	Y1161+T116	P08069	• PYK			●												Kinexus	PK657	RpAb
IGF1R	Y1165+Y116	P08069	• PYK			●												No	11088	RpAb
IGF1R	Y1280	P08069	• PYK			●												No	11302	RpAb
IGF1R	Y1346	P08069	• PYK			●												Kinexus	PK658	RpAb
IkBα (MAD3; IκBa)	Pan	P25963	• PSTK-															No	DB075	RpAb
IkBα (MAD3; IκBa)	Pan	P25963	• PSTK-															No	sc-371	RpAb
IkBα (MAD3; IκBa)	Pan	P25963	• PSTK-															No	sc-8404	MmAb
IκBβ (NFKBIB)	Pan	Q15653																No	DB076	RpAb
IκBε (NFKBIE)	S161	H3BNC2																No	11213	RpAb
IKKa (IκBKA; CHUK)	Pan	O15111	• PSTK															No	AHO0352	MmAb
IKKa (IκBKA; CHUK)	Pan	O15111	• PSTK															No	sc-7606	MmAb
IKKa (IκBKA; CHUK)	Pan	O15111	• PSTK															No	sc-7190	GpAb
IKKa (IκBKA; CHUK)	Pan	O15111	• PSTK															No	sc-7218	RpAb
IKKa (IκBKA; CHUK)	Pan	O15111	• PSTK															No	KAP-TF115	RpAb
IKKa (IκBKA; CHUK)	Pan	O15111	• PSTK															No	71-2300	RpAb
IKKa (IκBKA; CHUK)	T179+S180	O15111	• PSTK															Kinexus	PK659	RpAb
IKKb (IκBKB; IKKB)	Pan	O14920	• PSTK															Kinexus	NK076-6	RpAb
IKKb (IκBKB; IKKB)	Pan	O14920	• PSTK															Kinexus	NK076-5	RpAb
IKKb (IκBKB; IKKB)	Pan	O14920	• PSTK															No	KAP-TF118	RpAb
IKKe (IκBKE)	S172	Q14164	• PSTK															Kinexus	PK660	RpAb
IKKg (NEMO)	S377	Q9Y6K9	• PSTK															Kinexus	PN758	RpAb
IKZF1	S361+S364	Q13422			●													Kinexus	PN797	RpAb
IKZF1	Y413	Q13422			●													Kinexus	PN707	RpAb
ILK1 (ILK)	Pan	Q13418	• PSTK															No	AP7651b	RpAb
ILK1 (ILK)	Pan	Q13418	• PSTK															No	sc-7516	GpAb
ILK1 (ILK)	Pan	Q13418	• PSTK															No	KAP-ST203	RpAb
ILK1 (ILK)	S343	Q13418	• PSTK															Kinexus	PK661	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
ILK1 (ILK)	Y351	Q13418	• PSTK															Kinexus	PK662	RpAb
InsR (IR)	Pan	P06213	• PYK			●												Kinexus	NK079-2	RpAb
InsR (IR)	Y1185	P06213	• PYK			●												Kinexus	PK951	RpAb
InsR (IR)	Y1189	P06213	• PYK			●												Kinexus	PK663	RpAb
InsR (IR)	Y1361	P06213	• PYK			●												Kinexus	PK952	RpAb
Integrin b1 (ITGB1; CD29)	Pan	P05556				●												No	sc-9970	MmAb
IRAK1	Pan	P51617	• PSTK															No	sc-7883	RpAb
IRAK1	T387	P51617	• PSTK															Kinexus	PK664	RpAb
IRAK2	Pan	O43187	• PSTK															No	KAP-ST20E	RpAb
IRAK3 (IRAK-M)	Pan	Q9Y616	• PSTK															No	AP7804b	RpAb
IRAK4	T345+S346	Q9NWZ3	• PSTK															Kinexus	PK665	RpAb
IRF3	T135	Q14653			●													Kinexus	PN610	RpAb
IRR (INSRR)	Pan	P14616	• PYK			●												Kinexus	NK273-1	RpAb
IRS1	Y612	P35568											●					Kinexus	PN960	RpAb
IRS1	S636+S639	P35568											●					Kinexus	PN831	RpAb
ITGA4 (Integrin a4)	S1021	P13612												●				No	44-864	RpAb
ITK	Pan	Q08881	• PYK															Kinexus	NK274-1	RpAb
ITK	Pan	Q08881	• PYK															Kinexus	NK274-3	RpAb
ITK	Y512	Q08881	• PYK															Kinexus	PK666	RpAb
ITSN2	Y968	Q9NZM3											●					Kinexus	PN521	RpAb
IWS1	S720+T721+	Q96ST2			●													Kinexus	PN611	RpAb
JAK1	Pan	P23458	• PYK															Kinexus	NK084-3	RpAb
JAK1	Pan	P23458	• PYK															Kinexus	NK084-5	RpAb
JAK1	Pan	P23458	• PYK															No	sc-1677	MmAb
JAK1	Pan	P23458	• PYK															No	sc-295	RpAb
JAK1	Y1034+Y103	P23458	• PYK															Kinexus	PK884	RpAb
JAK1	T1107	P23458	• PYK															Kinexus	PK895	RpAb
JAK2	Pan	O60674	• PYK															Kinexus	NK085-3	RpAb
JAK2	Pan	O60674	• PYK															Kinexus	NK085-4	RpAb
JAK2	Pan	O60674	• PYK															Kinexus	NK085-2	RpAb
JAK2	Y570	O60674	• PYK															Kinexus	PK668	RpAb
JAK2	Y1007+Y100	O60674	• PYK															No	ab68268	RpAb
JAK2	Y1007+Y100	O60674	• PYK															Kinexus	PK667	RpAb
JAK2	Pan	O60674	• PYK															No	sc-7229	RpAb
JAK2	Pan	O60674	• PYK															No	sc-294	RpAb
JAK3	Pan	P52333	• PYK															Kinexus	NK086-3	RpAb
JAK3	Pan	P52333	• PYK															Kinexus	NK086-4	RpAb
JAK3	Pan	P52333	• PYK															Kinexus	NK086-2	RpAb
JAK3	Pan	P52333	• PYK															No	sc-1078	GpAb
JAK3	Pan	P52333	• PYK															No	sc-6932	MmAb
JAK3	Y785	P52333	• PYK															Kinexus	PK934	RpAb
JAK3	Y980+Y981	P52333	• PYK															Kinexus	PK669	RpAb
JIP2 (Mapk8ip2)	Pan	Q13387											●					No	NN272-1	MmAb
JNK1 (MAPK8; SAPK1)	Pan	P45983	• PSTK															Kinexus	NK217-2	RpAb
JNK1 (MAPK8; SAPK1)	Pan	P45983	• PSTK															Kinexus	NK217-3	RpAb
JNK1 (MAPK8; SAPK1)	Pan	P45983	• PSTK															No	sc-571	RpAb
JNK1 (MAPK8; SAPK1)	Pan	P45983	• PSTK															No	sc-474-G	GpAb
JNK1 (MAPK8; SAPK1)	Y185	P45983	• PSTK															Kinexus	PK670	RpAb
JNK2 (MAPK9)	Pan	P45984	• PSTK															Kinexus	NK189-2	RpAb
JNK2 (MAPK9)	Pan	P45984	• PSTK															Kinexus	NK189-3	RpAb
JNK2 (MAPK9)	Pan	P45984	• PSTK															Kinexus	NK189-4	RpAb
JNK2 (MAPK9)	Pan	P45984	• PSTK															Kinexus	NK196	RpAb
JNK2 (MAPK9)	Pan	P45984	• PSTK															No	sc-7345	MmAb
JNK2 (MAPK9)	T183+Y185	P45984	• PSTK															Kinexus	PK902	RpAb
JNK3 (MAPK10)	Pan	P53779	• PSTK															Kinexus	NK197-4	RpAb
JNK3 (MAPK10)	Pan	P53779	• PSTK															Kinexus	NK197	RpAb
JNK3 (MAPK10)	Pan	P53779	• PSTK															Kinexus	NK197-2	RpAb
Jun (c-Jun)	Pan	P05412			●													No	J31920	MmAb
Jun (c-Jun)	S63	P05412			●													No	9261L	RpAb
Jun (c-Jun)	S63	P05412			●													Kinexus	PN557	RpAb
Jun (c-Jun)	S63	P05412			●													No	sc-822	MmAb
Jun (c-Jun)	S73	P05412			●													Kinexus	PN612	RpAb
Jun (c-Jun)	T239	P05412			●													Kinexus	PN613	RpAb

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Jun (c-Jun)	S243	P05412			●													Kinexus	PN614	RpAb
KAP (KAP1; CDKN3; Cdi1)	Pan	Q16667		• DSP														No	sc-475	RpAb
KCC2 (SLC12A5)	S963	Q9H2X9														●		Kinexus	PN832	RpAb
KCNQ1 (KCNA8; KCNA9;	Pan	P51787					●											No	NN274-1	MmAb
KCNQ2	Pan	O43526					●											No	NN275-1	MmAb
KDEL Receptor (Kdelr1;	Pan	P24390				●												No	NN153	MmAb
KHS1 (MAP4K5; KHS)	Pan	Q9Y4K4	• PSTK															Kinexus	NK089-2	RpAb
KHS1 (MAP4K5; KHS)	Pan	Q9Y4K4	• PSTK															No	sc-6429	GpAb
KHS1 (MAP4K5; KHS)	Y31	Q9Y4K4	• PSTK															Kinexus	PK672	RpAb
KHS1 (MAP4K5; KHS)	S174	Q9Y4K4	• PSTK															Kinexus	PK671	RpAb
KIF5A	S155	Q12840																Kinexus	PN881	RpAb
KIF5A	S176	Q12840																Kinexus	PN882	RpAb
Kir2.2 (KCNJ12; IRK2;	Pan	Q14500					●											No	NN278-1	MmAb
Kir6.1 (KCNJ8; uKATP-1)	Pan	Q15842					●											No	NN280-1	MmAb
Kit	Pan	P10721	• PYK			●												Kinexus	NK241-1	RpAb
Kit	Pan	P10721	• PYK			●												Kinexus	NK241-2	RpAb
Kit	Pan	P10721	• PYK			●												Kinexus	NK241-3	RpAb
Kit	Y721	P10721	• PYK			●												Kinexus	PK885	RpAb
Kit	S821+Y823	P10721	• PYK			●												Kinexus	PK674	RpAb
Kit	Y936	P10721	• PYK			●												Kinexus	PK673	RpAb
KMT2C	S4267	Q8NEZ4																Kinexus	PN798	RpAb
KOR-1 (MSL-1)	Y369	P41145				●												Kinexus	PN799	RpAb
KRAS (K-Ras; KRAS2;	Pan	P01116																Kinexus	NN281-2	RpAb
KRAS (K-Ras; KRAS2;	S181	P01116																Kinexus	PN862	RpAb
Ksr1	Pan	Q8IVT5	• PSTK															Kinexus	NK090-1	10320
Ksr1	Pan	Q8IVT5	• PSTK															No	sc-6212	GpAb
Ksr1	S406	Q8IVT5	• PSTK															Kinexus	PK675	RpAb
Ksr2	S490	Q6VAB6	• PSTK															Kinexus	PK676	RpAb
Kv3.1 (KCNC1; Kv4)	Pan	P48547					●											No	NN282-1	RatmAb
Kv4.2	T602+T607	Q9NZV8					●											Kinexus	PN833	RpAb
L1CAM (CD171)	T1172	P32004													●			Kinexus	PN961	RpAb
L1CAM (CD171)	Y1176	P32004													●			Kinexus	PN962	RpAb
LASS2	T346+S348	Q96G23																Kinexus	PN1005	RpAb
LATS1	Pan	O95835	• PSTK															No	AP7035a	RpAb
LATS1	Pan	O95835	• PSTK															Kinexus	NK091-2	RpAb
LATS1	S464	O95835	• PSTK															Kinexus	PK677	RpAb
LATS1	S909	O95835	• PSTK															Kinexus	PK678	RpAb
LATS2 (KPM)	Pan	Q9NRM7	• PSTK															Kinexus	NK092-2	RpAb
LATS2 (KPM)	Pan	Q9NRM7	• PSTK															Kinexus	NK092-1	RpAb
Lck	Pan	P06239	• PYK															No	sc-433	MmAb
Lck	Y192	P06239	• PYK															Kinexus	PK679	RpAb
Lck	Y263+Y264	P06239	• PYK															Kinexus	PK680	RpAb
Lck	Y394	P06239	• PYK															Kinexus	PK903	RpAb
LEDGF	S273+S275	O75475			●													Kinexus	PN615	RpAb
LEF1	T155+Pan	Q9UJU2			●													Kinexus	PN616	RpAb
LG1 (Epitempin-1)	Pan	O95970																No	NN285-1	MmAb
LIMK1	T508	P53667	• PSTK															Kinexus	PK681	RpAb
LKB1 (STK11; STRAD)	Pan	Q15831	• PSTK															Kinexus	NK227-3	RpAb
LKB1 (STK11; STRAD)	Pan	Q15831	• PSTK															Kinexus	NK227-4	RpAb
LKB1 (STK11; STRAD)	Pan	Q15831	• PSTK															Kinexus	NK227-2	RpAb
LKB1 (STK11; STRAD)	S31	Q15831	• PSTK															Kinexus	PK682	RpAb
LKB1 (STK11; STRAD)	S428	Q15831	• PSTK															Kinexus	PK683	RpAb
LMNA	T19+S22	P02545												●				Kinexus	PN966	RpAb
LMNA	S301	P02545												●				Kinexus	PN963	RpAb
LMNA	S390+S392	P02545												●				Kinexus	PN964	RpAb
LMNA	S458	P02545												●				Kinexus	PN965	RpAb
LMR2 (LMTK2; KPI-2)	S1450	Q8IWU2	• PSTK															Kinexus	PK684	RpAb
LOK	S191	O94804	• PSTK															Kinexus	PK685-2	RpAb
LOK	S191	O94804	• PSTK															Kinexus	PK685	RpAb
LOK	T952	O94804	• PSTK															Kinexus	PK686	RpAb
LRP4 (LRP10; MEGF7)	Pan	O75096				●												No	NN287-2	MmAb
LRP4 (LRP10; MEGF7)	Pan	O75096				●												No	NN286-1	MmAb
LRP4 (LRP10; MEGF7)	S1887	O75096				●												Kinexus	PN967	RpAb

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LRRK2 (PARK8)	Pan	Q5S007	• PSTK															No	NK303-1	MmAb
LRRK2 (PARK8)	S910	Q5S007	• PSTK															Kinexus	PK904	RpAb
LRRK2 (PARK8)	S935	Q5S007	• PSTK															Kinexus	PK905	RpAb
LRRK2 (PARK8)	S935	Q5S007	• PSTK															Kinexus	PK935	RpAb
LRRK2 (PARK8)	S973	Q5S007	• PSTK															Kinexus	PK936	RpAb
LRRK2 (PARK8)	T1410	Q5S007	• PSTK															Kinexus	PK937	RpAb
LRRK2 (PARK8)	T1503	Q5S007	• PSTK															Kinexus	PK938	RpAb
LRRK2 (PARK8)	T2031+S203	Q5S007	• PSTK															Kinexus	PK939	RpAb
LTB4R	T308+S310	Q15722				●												Kinexus	PN800	RpAb
LTK	Y672	P29376				●												Kinexus	PK687	RpAb
Lyn	Pan	P07948	• PYK															Kinexus	NK095-2	RpAb
Lyn	Pan	P07948	• PYK															No	sc-7274	MmAb
Lyn	Y508	P07948	• PYK															Kinexus	PK688	RpAb
MAFG	S124+Pan	O15525			●													Kinexus	PN617	RpAb
MAK	Pan	P20794	• PSTK															No	AP7542b	RpAb
MAK	T157	P20794	• PSTK															Kinexus	PK689	RpAb
Malin (NHLRC1; EPM2B)	Pan	Q6VVV1							●									No	NN288-1	MmAb
MAP2	T1613+T161	P11137												●				Kinexus	PN834	RpAb
MAP2	S1782	P11137												●				Kinexus	PN835	RpAb
MAPKAPK2 (RPS6KC1)	Pan	P49137	• PSTK															Kinexus	NK097-2	RpAb
MAPKAPK2 (RPS6KC1)	Pan	P49137	• PSTK															No	sc-6221	GpAb
MAPKAPK2 (RPS6KC1)	Pan	P49137	• PSTK															No	sc-7871	RpAb
MAPKAPK2 (RPS6KC1)	T222	P49137	• PSTK															Kinexus	PK690	RpAb
MAPKAPK2 (RPS6KC1)	Y225+T226	P49137	• PSTK															Kinexus	PK691	RpAb
MAPKAPK3	Y76	Q16644	• PSTK															Kinexus	PK692	RpAb
MAPKAPK5 (PRAK)	Pan	Q8IW41	• PSTK															No	sc-8251	GpAb
MAPKAPK5 (PRAK)	T186	Q8IW41	• PSTK															Kinexus	PK693	RpAb
MARK1	Pan	Q9P0L2	• PSTK															Kinexus	NK098-2	RpAb
MARK1	T215	Q9P0L2	• PSTK															Kinexus	PK694	RpAb
MARK1	T215	Q9P0L2	• PSTK															Kinexus	PK695	RpAb
MARK2	Pan	Q7KZ17	• PSTK															Kinexus	NK275-2	RpAb
MARK2	Pan	Q7KZ17	• PSTK															Kinexus	NK275-1	RpAb
MARK3	Pan	P27448	• PSTK															Kinexus	NK276-2	RpAb
MARK3	Pan	P27448	• PSTK															Kinexus	NK276-1	RpAb
MARK3	T507	P27448	• PSTK															Kinexus	PK697	RpAb
MARK4	Pan	Q96L34	• PSTK															Kinexus	NK277-2	RpAb
MARK4	Pan	Q96L34	• PSTK															Kinexus	NK277-1	RpAb
MAT1A	T341	Q00266								●								Kinexus	PN759	RpAb
MATR3	T130	P43243																Kinexus	PN887	RpAb
MATR3	S188	P43243																Kinexus	PN883	RpAb
MATR3	Y219	P43243																Kinexus	PN888	RpAb
MATR3	S248+Y250	P43243																Kinexus	PN884	RpAb
MATR3	S533	P43243																Kinexus	PN885	RpAb
MATR3	S596+S598	P43243																Kinexus	PN886	RpAb
MBP	Y203	P02686												●				Kinexus	PN968	RpAb
MBP	T232	P02686												●				Kinexus	PN558	RpAb
Mcl1	Pan	Q07820										●						No	sc-819	RpAb
MCM2	S40+S41	P49736			●													Kinexus	PN618	RpAb
MCM2	Y137+S139	P49736			●													Kinexus	PN620	RpAb
MDC1 (NFB1)	Pan	Q14676												●				No	NN289-1	MmAb
MDM2	S166	Q00987							●									No	11550	RpAb
MEF2A	Pan	Q02078			●													No	sc-313	RpAb
MEF2A	T108	Q02078			●													Kinexus	PN622	RpAb
MEF2C	S396	Q06413			●													Kinexus	PN623	RpAb
MEF2D	S121	Q14814			●													Kinexus	PN624	RpAb
MEF2D	S180	Q14814			●													Kinexus	PN625	RpAb
MEK1 (MAP2K1; MKK1)	Pan	Q02750	• DSK															Kinexus	NK099-8	RpAb
MEK1 (MAP2K1; MKK1)	Pan	Q02750	• DSK															Kinexus	NK099-9	RpAb
MEK1 (MAP2K1; MKK1)	Pan	Q02750	• DSK															Kinexus	NK099-7	RpAb
MEK1 (MAP2K1; MKK1)	Pan	Q02750	• DSK															Kinexus	NK099-3	RpAb
MEK1 (MAP2K1; MKK1)	Pan	Q02750	• DSK															Kinexus	NK099-4	RpAb
MEK1 (MAP2K1; MKK1)	Pan	Q02750	• DSK															No	610122	MmAb
MEK1 (MAP2K1; MKK1)	S222+Pan	Q02750	• DSK															Kinexus	PK698	RpAb

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MEK1 (MAP2K1; MKK1)	T286	Q02750	• DSK															Kinexus	PK886	RpAb
MEK1 (MAP2K1; MKK1)	S298	Q02750	• DSK															No	KAP-MA020	RpAb
MEK2 (MAP2K2; MKK2)	Pan	P36507	• DSK															No	AP7905a	RpAb
MEK2 (MAP2K2; MKK2)	Pan	P36507	• DSK															Kinexus	NK100-5	RpAb
MEK2 (MAP2K2; MKK2)	Pan	P36507	• DSK															Kinexus	NK100-4	RpAb
MEK2 (MAP2K2; MKK2)	Pan	P36507	• DSK															Kinexus	NK100-6	RpAb
MEK2 (MAP2K2; MKK2)	Pan	P36507	• DSK															No	610236	MmAb
MEK5 (MAP2K5; MKK5)	Pan	Q13163	• DSK															Kinexus	NK104-4	RpAb
MEK5 (MAP2K5; MKK5)	Pan	Q13163	• DSK															Kinexus	NK104-5	RpAb
MEK5 (MAP2K5; MKK5)	Pan	Q13163	• DSK															Kinexus	NK104-2	RpAb
MEK5 (MAP2K5; MKK5)	Pan	Q13163	• DSK															Kinexus	NK104-3	RpAb
MEK5 (MAP2K5; MKK5)	Pan	Q13163	• DSK															No	sc-1287	GpAb
MEK5 (MAP2K5; MKK5)	S311	Q13163	• DSK															Kinexus	PK699	RpAb
MEKK1 (MAP3K1)	Pan	Q13233	• PSTK															No	AP7907a	RpAb
MEKK1 (MAP3K1)	Pan	Q13233	• PSTK															Kinexus	NK107-3	RpAb
MEKK1 (MAP3K1)	Pan	Q13233	• PSTK															No	sc-252	RpAb
MEKK2 (MAP3K2)	Pan	Q9Y2U5	• PSTK															No	AP7908a	RpAb
MEKK2 (MAP3K2)	Pan	Q9Y2U5	• PSTK															Kinexus	NK108-3	RpAb
MEKK2 (MAP3K2)	Pan	Q9Y2U5	• PSTK															Kinexus	NK108-4	RpAb
MEKK2 (MAP3K2)	Pan	Q9Y2U5	• PSTK															Kinexus	NK108-5	RpAb
MEKK2 (MAP3K2)	Pan	Q9Y2U5	• PSTK															No	sc-1089	RpAb
MEKK2 (MAP3K2)	S239+Pan	Q9Y2U5	• PSTK															Kinexus	PK700	RpAb
MEKK4 (MAP3K4)	Pan	Q9Y6R4	• PSTK															No	AP7910a	RpAb
MEKK6 (MAP3K6; ASK2)	Pan	O95382	• PSTK															Kinexus	NK225-2	RpAb
MEKK6 (MAP3K6; ASK2)	Pan	O95382	• PSTK															Kinexus	NK225-3	RpAb
MEKK6 (MAP3K6; ASK2)	Pan	O95382	• PSTK															Kinexus	NK225-4	RpAb
MELK	Pan	Q14680	• PSTK															Kinexus	NK229-3	RpAb
MELK	Pan	Q14680	• PSTK															Kinexus	NK229-4	RpAb
MELK	Pan	Q14680	• PSTK															Kinexus	NK229-2	RpAb
MELK	Y438	Q14680	• PSTK															Kinexus	PK701	RpAb
MERTK (MER)	Y749	Q12866	• PYK			●												Kinexus	PK702	RpAb
MERTK (MER)	Y749+Y753	Q12866	• PYK			●												Kinexus	PK703	RpAb
MERTK (MER)	Y753	Q12866	• PYK			●												Kinexus	PK704	RpAb
Met (HGF receptor)	Pan	P08581	• PYK			●												Kinexus	NK110-3	RpAb
Met (HGF receptor)	Pan	P08581	• PYK			●												Kinexus	NK110-4	RpAb
Met (HGF receptor)	Pan	P08581	• PYK			●												Kinexus	NK110-2	RpAb
Met (HGF receptor)	Y1003	P08581	• PYK			●												Kinexus	PK708	RpAb
Met (HGF receptor)	Y1230+Pan	P08581	• PYK			●												Kinexus	PK709	RpAb
Met (HGF receptor)	Y1234	P08581	• PYK			●												Kinexus	PK710	RpAb
Met (HGF receptor)	S1236	P08581	• PYK			●												Kinexus	PK705	RpAb
Met (HGF receptor)	Y1234+Y123	P08581	• PYK			●												Kinexus	PK711	RpAb
Met (HGF receptor)	Y1234+Y123	P08581	• PYK			●												Kinexus	PK712	RpAb
Met (HGF receptor)	T1355+Y135	P08581	• PYK			●												Kinexus	PK707	RpAb
Met (HGF receptor)	T1241	P08581	• PYK			●												Kinexus	PK706	RpAb
MITF	S414	O75030			●													Kinexus	PN626	RpAb
MKK3 (MAP2K3; MEK3)	Pan	P46734	• DSK															Kinexus	NK101-4	RpAb
MKK3 (MAP2K3; MEK3)	Pan	P46734	• DSK															Kinexus	NK101-5	RpAb
MKK3 (MAP2K3; MEK3)	Pan	P46734	• DSK															Kinexus	NK101-6	RpAb
MKK3 (MAP2K3; MEK3)	Pan	P46734	• DSK															No	sc-959	RpAb
MKK3 (MAP2K3; MEK3)	Pan	P46734	• DSK															No	sc-960	RpAb
MKK3 (MAP2K3; MEK3)	S218	P46734	• DSK															Kinexus	PK713	RpAb
MKK3 (MAP2K3; MEK3)	Y230	P46734	• DSK															Kinexus	PK714	RpAb
MKK3 (MAP2K3; MEK3);	Pan	P46734	• DSK															No	sc-8407	MmAb
MKK4 (MAP2K4; MEK4)	Pan	P45985	• DSK															Kinexus	NK103-4	RpAb
MKK4 (MAP2K4; MEK4)	Pan	P45985	• DSK															Kinexus	NK103-5	RpAb
MKK4 (MAP2K4; MEK4)	Pan	P45985	• DSK															Kinexus	NK103-6	RpAb
MKK4 (MAP2K4; MEK4)	Pan	P45985	• DSK															No	sc-964	RpAb
MKK4 (MAP2K4; MEK4)	S257	P45985	• DSK															Kinexus	PK715	RpAb
MKK4 (MAP2K4; MEK4)	S80+Pan	P45985	• DSK															Kinexus	PK716	RpAb
MKK6 (MAP2K6; MEK6)	Pan	P52564	• DSK															Kinexus	NK105-4	RpAb
MKK6 (MAP2K6; MEK6)	Pan	P52564	• DSK															Kinexus	NK105-5	RpAb
MKK6 (MAP2K6; MEK6)	Pan	P52564	• DSK															Kinexus	NK105-3	RpAb
MKK7 (MAP2K7; MEK7)	Pan	O14733	• DSK															Kinexus	NK106-4	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
MKK7 (MAP2K7; MEK7)	Pan	O14733	• DSK															Kinexus	NK106-5	RpAb
MKK7 (MAP2K7; MEK7)	Pan	O14733	• DSK															Kinexus	NK106-3	RpAb
MKK7 (MAP2K7; MEK7)	T275	O14733	• DSK															Kinexus	PK717	RpAb
MLK1 (MAP3K9)	Pan	P80192	• PSTK															Kinexus	NK278-1	RpAb
MLK2 (MAP3K10)	Pan	Q02779	• PSTK															Kinexus	NK279-1	RpAb
MLK3 (MAP3K11)	S281	Q16584	• PSTK															Kinexus	PK718	RpAb
MLK3 (MAP3K11)	T277+S281	Q16584	• PSTK															Kinexus	PK870	RpAb
MLK4 (MAP3K21)	Pan	Q5TCX8	• PSTK															Kinexus	NK280-1	RpAb
MLL	S2196	Q03164																Kinexus	PN801	RpAb
MLTK	T161+T162	Q9NYL2	• PSTK															Kinexus	PK719	RpAb
Mnk1	T250+T255	Q9BUB5	• PSTK															No	2111L	RpAb
Mnk2	Pan	Q9HBH9	• PSTK															No	sc-7445	GpAb
MOK (RAGE)	Pan	Q9UQ07	• PSTK															Kinexus	NK281-2	RpAb
MOK (RAGE)	Pan	Q9UQ07	• PSTK															Kinexus	NK281-1	RpAb
MOK (RAGE)	Y167	Q9UQ07	• PSTK															Kinexus	PK721	RpAb
MOK (RAGE)	T159+Y161	Q9UQ07	• PSTK															Kinexus	PK720	RpAb
MOR1 (mu opioid receptor)	T372+S377+	P35372				●												Kinexus	PN802	RpAb
Mos	Pan	P00540	• PSTK															Kinexus	NK112	RpAb
Mos	Y263	P00540	• PSTK															Kinexus	PK722	RpAb
MPL	Y591	P40238				●												Kinexus	PN760	RpAb
MRCKa (PK428)	Pan	Q5VT25	• PSTK															Kinexus	NK282-1	RpAb
MRCKb (CDC42BPB)	Pan	Q9Y5S2	• PSTK															Kinexus	NK283-1	RpAb
MRLC1	T19+S20	P24844												●				Kinexus	PN836	RpAb
MSH6	S14	P52701									●							Kinexus	PN708	RpAb
MSK1 (RPS6KA5)	S212	O75582	• PSTK															Kinexus	PK723	RpAb
MSK1 (RPS6KA5)	S376	O75582	• PSTK															No	9595L	RpAb
MSK2 (RPS6KA4)	T194+S196	O75676	• PSTK															Kinexus	PK868	RpAb
MSK2 (RPS6KA4)	T687	O75676	• PSTK															Kinexus	PK725	RpAb
MST1 (STK4; Krs2)	Pan	Q13043	• PSTK															No	sc-6213	GpAb
MST1 (STK4; Krs2)	Pan	Q13043	• PSTK															No	M77120	MmAb
MST1 (STK4; Krs2)	T183	Q13043	• PSTK															Kinexus	PK871	RpAb
MST1 (STK4; Krs2)	T187	Q13043	• PSTK															Kinexus	PK726	RpAb
MST3 (STK24)	T184+Pan	Q9Y6E0	• PSTK															Kinexus	PK727	RpAb
MST3 (STK24)	T190	Q9Y6E0	• PSTK															Kinexus	PK728	RpAb
mTOR (FRAP)	Pan	P42345	• PSTK															Kinexus	NK116-4	RpAb
mTOR (FRAP)	Pan	P42345	• PSTK															Kinexus	NK116-3	RpAb
mTOR (FRAP)	Pan	P42345	• PSTK															Kinexus	NK116-5	RpAb
mTOR (FRAP)	S2448	P42345	• PSTK															Kinexus	PK729	RpAb
mTOR (FRAP)	S2478+S248	P42345	• PSTK															Kinexus	PK730	RpAb
MuSK	Pan	O15146	• PYK			●												No	sc-6009	GpAb
MuSK	Y554	O15146	• PYK			●												Kinexus	PK953	RpAb
MuSK	Y756	O15146	• PYK			●												Kinexus	PK872	RpAb
Myb	S532+Pan	P10242			●													Kinexus	PN627	RpAb
Myc (c-Myc)	T58	P01106			●													No	11034	RpAb
Myc (c-Myc)	T58+S62	P01106			●													Kinexus	PN628	RpAb
Myf-5	Pan	P13349			●													No	sc-302	RpAb
MYT1 (PLPB1)	S143	Q99640	• PSTK															Kinexus	PK887	RpAb
NALCN (VGCNL1)	Pan	Q8IZF0					●											No	NN293-1	MmAb
Nav1.2	S568	Q99250					●											Kinexus	PN837	RpAb
NCAM1 (CD56)	S784	P13591													●			Kinexus	PN969	RpAb
NCOA3 (SRC-3)	S867	Q9Y6Q9			●													Kinexus	PN629	RpAb
NDR1 (NDR; STK38)	S281+T282	Q15208	• PSTK															Kinexus	PK731	RpAb
Nek1	S1052	Q96PY6	• PSTK															Kinexus	PK940	RpAb
Nek2	Pan	P51955	• PSTK															No	NK117-5	RpAb
Nek2	Pan	P51955	• PSTK															No	sc-7440	GpAb
Nek2	Pan	P51955	• PSTK															No	sc-7439	GpAb
Nek2	T170+S171	P51955	• PSTK															Kinexus	PK733	RpAb
Nek2	S171	P51955	• PSTK															Kinexus	PK732	RpAb
Nek4	Pan	P51957	• PSTK															No	AP8076b	RpAb
Nek6	S206	Q9HC98	• PSTK															Kinexus	PK734	RpAb
Nek7	T191+S195	Q8TDX7	• PSTK															Kinexus	PK735	RpAb
NF-H (NEFH)	Pan	P12036												●				Kinexus	NN583-1	RpAb
NF-H (NEFH)	S532	P12036												●				Kinexus	PN970	RpAb

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p38a MAPK (MAPK14; CSBP;	T180+Y182	Q16539	• PSTK															Kinexus	PK739	RpAb
p38a MAPK (MAPK14; CSBP;	T180+Y182	Q15759	• PSTK															Kinexus	PK740	RpAb
p38a MAPK (MAPK14; CSBP;	Y182	Q15759	• PSTK															Kinexus	PK959	RpAb
p38b MAPK (MAPK11)	Pan	Q15759	• PSTK															Kinexus	NK248-2	RpAb
p38b MAPK (MAPK11)	Pan	Q15759	• PSTK															Kinexus	NK248-1	RpAb
p38b MAPK (MAPK11)	T180+Y182	Q15759	• PSTK															Kinexus	PK741-2	RpAb
p38b MAPK (MAPK11)	T180+Y182	Q15759	• PSTK															Kinexus	PK741	RpAb
p38d MAPK (MAPK13)	Pan	O15264	• PSTK															Kinexus	NK121-3	RpAb
p38d MAPK (MAPK13)	Pan	O15264	• PSTK															Kinexus	NK121-4	RpAb
p38d MAPK (MAPK13)	Pan	O15264	• PSTK															Kinexus	NK121-2	RpAb
p38d MAPK (MAPK13)	T180+Y182	O15264	• PSTK															Kinexus	PK960	RpAb
p38d MAPK (MAPK13)	Y182	O15264	• PSTK															Kinexus	PK743	RpAb
p38d MAPK (MAPK13)	S261+T265	O15264	• PSTK															Kinexus	PK888	RpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															No	NK059-2	RpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															Kinexus	NK059-3	RpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															Kinexus	NK059-4	RpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															Kinexus	NK059-5	RpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															No	sc-6023	GpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															No	sc-6022	GpAb
p38g MAPK (MAPK12; ERK6;	Pan	P53778	• PSTK															No	07-139	RpAb
p70S6K (S6Ka; RPS6KB1)	Pan	P23443	• PSTK															Kinexus	NK223-2	RpAb
p70S6K (S6Ka; RPS6KB1)	Pan	P23443	• PSTK															Kinexus	NK223-4	RpAb
p70S6K (S6Ka; RPS6KB1)	Pan	P23443	• PSTK															No	sc-230	RpAb
p70S6K (S6Ka; RPS6KB1)	T252	P23443	• PSTK															Kinexus	PK744	RpAb
p70S6K (S6Ka; RPS6KB1)	T412	P23443	• PSTK															No	9205L	RpAb
p70S6K (S6Ka; RPS6KB1)	T412	P23443	• PSTK															Kinexus	PK745	RpAb
p70S6K (S6Ka; RPS6KB1)	S434	P23443	• PSTK															No	11269	RpAb
p70S6K (S6Ka; RPS6KB1)	T444+S447	P23443	• PSTK															Kinexus	PK746	RpAb
p70S6K (S6Ka; RPS6KB1)	S447	P23443	• PSTK															No	11284	RpAb
p70S6Kb (S6Kb2; RPS6KB2)	S423	Q9UBS0	• PSTK															Kinexus	PK747	RpAb
p73 (TRP73)	Pan	O15350			●													No	KAM-CC24	MmAb
p73 (TRP73)	Y99	O15350			●													Kinexus	PN861	RpAb
PAH	S16	P00439								●								Kinexus	PN713	RpAb
PAK1 (PAKa)	Pan	Q13153	• PSTK															Kinexus	NK122-2	RpAb
PAK1 (PAKa)	Pan	Q13153	• PSTK															No	sc-881	RpAb
PAK1 (PAKa)	S144	Q13153	• PSTK															Kinexus	PK748	RpAb
PAK1 (PAKa)	T212	Q13153	• PSTK															No	Y011154	RpAb
PAK1 (PAKa)	T423	Q13153	• PSTK															Kinexus	PK749	RpAb
PAK2 (PAKg)	Pan	Q13177	• PSTK															Kinexus	NK200	RpAb
PAK2 (PAKg)	Pan	Q13177	• PSTK															No	sc-1872	GpAb
PAK2 (PAKg)	Y130	Q13177	• PSTK															Kinexus	PK751	RpAb
PAK2 (PAKg)	S141	Q13177	• PSTK															Kinexus	PK750	RpAb
PAK4	S474	O96013	• PSTK															Kinexus	PK752	RpAb
PAK5 (PAK7)	Pan	Q9P286	• PSTK															Kinexus	NK190-3	RpAb
PAK5 (PAK7)	Pan	Q9P286	• PSTK															Kinexus	NK190-2	RpAb
PAK5 (PAK7)	S602	Q9P286	• PSTK															Kinexus	PK753	RpAb
PAK6	Pan	Q9NQU5	• PSTK															Kinexus	NK124-2	RpAb
Paxillin 1 (PXN; PAX1)	Y118	P49023												●				No	44-722G	RpAb
PBK (TOPK)	Pan	Q96KB5	• PSTK															Kinexus	NK284-1	RpAb
PBK (TOPK)	Y74	Q96KB5	• PSTK															Kinexus	PK754	RpAb
PBK (TOPK)	Y272	Q96KB5	• PSTK															Kinexus	PK889	RpAb
PBRM1	S303+Pan	Q86U86			●													Kinexus	PN767	RpAb
PBRM1	S948	Q86U86			●													Kinexus	PN714	RpAb
PCDH-gamma-A3	Pan	Q9Y5H0												●				No	NN308-2	MmAb
PCDH-gamma-C3 (PCDH2)	Pan	Q9UN70												●				No	NN304-1	MmAb
PCK1	S118	P35558								●								Kinexus	PN768	RpAb
PCTAIRE1 (CDK16; PCTK1)	Pan	Q00536	• PSTK															No	AP7547b	RpAb
PCTAIRE1 (CDK16; PCTK1)	Y176	Q00536	• PSTK															Kinexus	PK755	RpAb
PCTK2 (PCTAIRE2; CDK17)	Pan	Q00537	• PSTK															Kinexus	NK285-1	RpAb
PCTK2 (PCTAIRE2; CDK17))	S180	Q00537	• PSTK															Kinexus	PK756	RpAb
PCTK3 (PCTAIRE3; CDK18)	Pan	Q07002	• PSTK															Kinexus	NK286-1	RpAb
PCYT1A (CTPCT; CCTA)	Pan	P49585								●								Kinexus	NN456-2	RpAb
PCYT1A (CTPCT; CCTA)	Pan	P49585								●								Kinexus	NN606-1	RpAb

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PCYT1A (CTPCT; CCTA)	S329+S331	P49585								●								Kinexus	PN561	RpAb
PCYT1A (CTPCT; CCTA)	T342+S343	P49585								●								Kinexus	PN547	RpAb
PCYT1A (CTPCT; CCTA)	Y359+S362	P49585								●								Kinexus	PN548	RpAb
PCYT1B (CCTB)	Pan	Q9Y5K3								●								Kinexus	NN605-1	RpAb
PCYT1B (CCTB)	S315+S319	Q9Y5K3								●								Kinexus	PN546	RpAb
PDGFRA	Pan	P16234	• PYK			●												Kinexus	NK242-2	RpAb
PDGFRA	Pan	P16234	• PYK			●												Kinexus	NK242-1	RpAb
PDGFRA	Y762	P16234	• PYK			●												Kinexus	PK758	RpAb
PDGFRA	Y768	P16234	• PYK			●												Kinexus	PK759	RpAb
PDGFRA	S847+Y849	P16234	• PYK			●												Kinexus	PK757	RpAb
PDGFRB	Pan	P09619	• PYK			●												Kinexus	NK243-3	RpAb
PDGFRB	Pan	P09619	• PYK			●												Kinexus	NK243-1	RpAb
PDGFRB	Y716	P09619	• PYK			●												No	07-021	RpAb
PDK1 (PDHK1)	Pan	Q15118	• PSTK															Kinexus	NN179-2	RpAb
PDK1 (PDHK1)	Pan	Q15118	• PSTK															Kinexus	NN179-1	RpAb
PDK1 (PDPK1)	Pan	O15530	• PSTK															Kinexus	NK126-3	RpAb
PDK1 (PDPK1)	Pan	O15530	• PSTK															Kinexus	NK126-4	RpAb
PDK1 (PDPK1)	S241	O15530	• PSTK															Kinexus	PK760	RpAb
PDK2 (PDHK2; PyDK2)	Pan	Q15119	• PSTK															Kinexus	NN180-2	RpAb
PDK2 (PDHK2; PyDK2)	Pan	Q15119	• PSTK															Kinexus	NN180-1	RpAb
PDK3 (PDHK3)	Pan	Q15120	• PSTK															Kinexus	NN181-2	RpAb
PDK4 (PDHK4)	Pan	Q16654	• PSTK															Kinexus	NN178-3	RpAb
PDK4 (PDHK4)	Pan	Q16654	• PSTK															Kinexus	NN178-2	RpAb
PDLIM5 (LIM)	Y251	Q96HC4											●					Kinexus	PN522	RpAb
PECAM-1	Y713	P16284													●			Kinexus	PN523	RpAb
PEX6 (Peroxin-6; PXAAA1)	Pan	Q13608																No	NN305-1	RpAb
PFKFB3	S461	Q16875								●								Kinexus	PN715	RpAb
PFKFB3	S467	Q16875								●								Kinexus	PN769	RpAb
PFKL	S775	P17858								●								Kinexus	PN770	RpAb
PFKP	S386	Q01813								●								Kinexus	PN716	RpAb
PFKP	Y651+Pan	Q01813								●								Kinexus	PN771	RpAb
PFN1	Y60	P07737												●				Kinexus	PN898	RpAb
PFN1	Y129	P07737												●				Kinexus	PN524	RpAb
PGK1	Y196	P00558								●								Kinexus	PN525	RpAb
PHLPP1 (PHLPP)	Pan	O60346	• PSTP															Kinexus	NP049-1	RpAb
PHLPP1 (PHLPP)	Y1712+Y171	O60346	• PSTP															Kinexus	PP529	RpAb
PHLPP2	Pan	Q6ZVD8	• PSTP															Kinexus	NP050-1	RpAb
PHYH (Phytanic acid oxidase;)	Pan	O14832								●								No	NN306-1	MmAb
PI3KR4	Pan	Q99570	• PSTK															No	AP8026a	RpAb
PI4KCB	Pan	Q9UBF8								●								No	AP8030b	RpAb
Piccolo (Pclo)	Pan	Q9Y6V0												●				No	NN307-2	RpAb
PIK3CA	Y317	P42336	• PI-K															Kinexus	PK894	RpAb
PIK3R1 (PI3K p85)	Y467	P27986	• PI-K															Kinexus	PN526	RpAb
PIK3R1 (PI3K p85)	Y580	P27986	• PI-K															Kinexus	PN527	RpAb
PIK3R2	Y464	O00459	• PI-K															Kinexus	PN528	RpAb
Pim1	Pan	P11309	• PSTK															Kinexus	NK258-2	RpAb
Pim2	Pan	Q9P1W9	• PSTK															Kinexus	NK288-2	RpAb
Pim2	Pan	Q9P1W9	• PSTK															Kinexus	NK288-1	RpAb
Pim2	T195	Q9P1W9	• PSTK															Kinexus	PK761	RpAb
Pim3	Pan	Q86V86	• PSTK															Kinexus	NK289-1	RpAb
PINK1 (BRPK)	Pan	Q9BXM7	• PSTK															No	NK304-1	MmAb
PINK1 (BRPK)	S228	Q9BXM7	• PSTK															Kinexus	PK906	RpAb
PINK1 (BRPK)	T257	Q9BXM7	• PSTK															Kinexus	PK942	RpAb
PINK1 (BRPK)	T313	Q9BXM7	• PSTK															Kinexus	PK907	RpAb
PINK1 (BRPK)	S402	Q9BXM7	• PSTK															Kinexus	PK908	RpAb
PIP5K	S307	Q9Y217	• PSTK															Kinexus	PK762	RpAb
PIP5K	Y1772+Y177	Q9Y217	• PSTK															Kinexus	PK943	RpAb
PIP5K2a (PIP5K2A)	Pan	P48426	• PI-K															No	NK209	RpAb
PKCa (PRKCA)	Pan	P17252	• PSTK															Kinexus	NK201	RpAb
PKCa (PRKCA)	Pan	P17252	• PSTK															No	P16520	MmAb
PKCa (PRKCA)	Y195	P17252	• PSTK															Kinexus	PK764	RpAb
PKCa (PRKCA)	S226+T228	P17252	• PSTK															Kinexus	PK944	RpAb
PKCa (PRKCA)	T497	P17252	• PSTK															Kinexus	PK763	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
PKCa (PRKCA)	T638	P17252	• PSTK															Kinexus	PK909	RpAb
PKCa (PRKCA)	T638/T641	P17252	• PSTK															No	9375L	RpAb
PKCb (PRKCB1)	Pan	P05771	• PSTK															Kinexus	NK133-2	RpAb
PKCb (PRKCB1)	Pan	P05771	• PSTK															No	sc-209	RpAb
PKCb (PRKCB1)	T500	P05771	• PSTK															Kinexus	PK766	RpAb
PKCb (PRKCB1)	S661	P05771	• PSTK															Kinexus	PK765	RpAb
PKCb2 (PRKCB2)	Pan	P05771	• PSTK															No	sc-210	RpAb
PKCd (PRKCD)	Pan	Q05655	• PSTK															No	sc-213	RpAb
PKCd (PRKCD)	Y313	Q05655	• PSTK															Kinexus	PK768	RpAb
PKCd (PRKCD)	Y334	Q05655	• PSTK															Kinexus	PK769	RpAb
PKCd (PRKCD)	T507	Q05655	• PSTK															Kinexus	PK767	RpAb
PKCd (PRKCD)	S664	Q05655	• PSTK															No	44-976G	RpAb
PKCe (PRKCE)	Pan	Q02156	• PSTK															No	sc-214	RpAb
PKCe (PRKCE)	Pan	Q02156	• PSTK															No	sc-214-G	GpAb
PKCg (PRKCG)	Pan	P05129	• PSTK															No	sc-211	RpAb
PKCg (PRKCG)	T514	P05129	• PSTK															No	KAP-PK011	RpAb
PKCg (PRKCG)	T655	P05129	• PSTK															No	44-965	RpAb
PKCh (PRKCH; PRKCeta)	Pan	P24723	• PSTK															No	sc-215	RpAb
PKCi (PRKCiota)/PKCI	Pan	P41743	• PSTK															No	sc-32020	GpAb
PKCt (PRKCQ; PKC-q; PKC-	Y545	Q04759	• PSTK															Kinexus	PK773	RpAb
PKCt (PRKCQ; PKC-q; PKC-	S676	Q04759	• PSTK															No	11297	RpAb
PKCt (PRKCQ; PKC-q; PKC-	S685	Q04759	• PSTK															Kinexus	PK961	RpAb
PKCt (PRKCQ; PKC-q; PKC-	S695	Q04759	• PSTK															Kinexus	PK772	RpAb
PKCt (PRKCQ; PKC-q; PKC-	S695	Q04759	• PSTK															No	11173	RpAb
PKCz (PRKCZ)	Pan	Q05513	• PSTK															No	sc-216	RpAb
PKCz (PRKCZ)	S262+Y263	Q05513	• PSTK															Kinexus	PK774	RpAb
PKCz (PRKCZ)	T410	Q05513	• PSTK															Kinexus	PK775	RpAb
PKD1 (PRKCM; PKCm;	Pan	Q15139	• PSTK															No	sc-639	RpAb
PKD1 (PRKCM; PKCm;	S205	Q15139	• PSTK															Kinexus	PK770	RpAb
PKD1 (PRKCM; PKCm;	S738+S742	Q15139	• PSTK															Kinexus	PK771	RpAb
PKD1 (PRKCM; PKCm;	S910	Q15139	• PSTK															Kinexus	PK912	RpAb
PKD2 (PRKD2)	S197+S198	Q9BZL6	• PSTK															Kinexus	PK784	RpAb
PKD3 (PRKCN)	Pan	O94806	• PSTK															Kinexus	NK139-2	RpAb
PKG1a (PRKG1A)	Pan	Q13976	• PSTK															Kinexus	NK202-2	RpAb
PKG1a (PRKG1A)	Pan	Q13976	• PSTK															Kinexus	NK202	RpAb
PKG1a (PRKG1A)	Pan	Q13976	• PSTK															No	sc-10344	GpAb
PKG1a (PRKG1A)	T515+T517	Q13976	• PSTK															Kinexus	PK776	RpAb
PKG1a (PRKG1A)	T517	Q13976	• PSTK															Kinexus	PK776-2	RpAb
PKG2 (PRKG2)	Pan	Q13237	• PSTK															Kinexus	NK290-2	RpAb
PKG2 (PRKG2)	Pan	Q13237	• PSTK															Kinexus	NK290-1	RpAb
PKM2	S37	P14618								●								Kinexus	PN718	RpAb
PKM2	Y105	P14618								●								Kinexus	PN772	RpAb
PKM2	Y148	P14618								●								Kinexus	PN717	RpAb
PKM2	Y370	P14618								●								Kinexus	PN773	RpAb
PKM2	Y390	P14618								●								Kinexus	PN529	RpAb
PKN1 (PRK1)	Pan	Q16512	• PSTK															No	sc-1842	GpAb
PKN1 (PRK1)	T774	Q16512	• PSTK															Kinexus	PK781	RpAb
PKN2 (PRK2)	Pan	Q16513	• PSTK															Kinexus	NK149-3	RpAb
PKR1 (PRKR; EIF2AK2)	Pan	P19525	• PSTK															No	sc-6282	MmAb
PKR1 (PRKR; EIF2AK2)	T446+Pan	P19525	• PSTK															Kinexus	PK777	RpAb
PKR1 (PRKR; EIF2AK2)	T451	P19525	• PSTK															Kinexus	PK910	RpAb
PLCB3	S1105	Q01970								●								Kinexus	PN719	RpAb
PLCD1	S460	P51178								●								Kinexus	PN720	RpAb
PLCE1	S1096+T110	Q9P212								●								Kinexus	PN721	RpAb
PLCG1	Y771	P19174								●								No	11523	RpAb
PLCG1	Y771+Y775	P19174								●								Kinexus	PN774	RpAb
PLCG1	Y783	P19174								●								Kinexus	PN530	RpAb
PLCG1	Y977	P19174								●								Kinexus	PN722	RpAb
PLCG2 (PLC R)	Pan	P16885								●								No	sc-407	RpAb
PLCG2 (PLC R)	Y753	P16885								●								Kinexus	PN723	RpAb
PLCG2 (PLC R)	Y759	P16885								●								Kinexus	PN775	RpAb
PLCG2 (PLC R)	Y759	P16885								●								Kinexus	PN531	RpAb

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PLCG2 (PLC R)	Y1217	P16885								●								Kinexus	PN776	RpAb
Plk1 (PLK)	Pan	P53350	• PSTK															Kinexus	NK145-2	RpAb
Plk1 (PLK)	Pan	P53350	• PSTK															No	33-1700	RpAb
Plk1 (PLK)	T210	P53350	• PSTK															Kinexus	PK778	RpAb
Plk1 (PLK)	T210	P53350	• PSTK															Kinexus	PK778-2	RpAb
Plk1 (PLK)	Y217	P53350	• PSTK															Kinexus	PK779	RpAb
Plk2 (SNK)	Pan	Q9NYY3	• PSTK															No	NK146	RpAb
Plk2 (SNK)	Pan	Q9NYY3	• PSTK															No	sc-9577	GpAb
Plk3 (CNK; FNK)	Pan	Q9H4B4	• PSTK															No	AP3213a	RpAb
Plk3 (CNK; FNK)	Pan	Q9H4B4	• PSTK															Kinexus	NK147-2	RpAb
Plk3 (CNK; FNK)	Pan	Q9H4B4	• PSTK															No	sc-9578	GpAb
Plk3 (CNK; FNK)	Pan	Q9H4B4	• PSTK															No	sc-9580	GpAb
Plk4 (SAK; STK18)	Pan	O00444	• PSTK															Kinexus	NK291-1	RpAb
Plk4 (SAK; STK18)	T170	O00444	• PSTK															Kinexus	PK780	RpAb
PML	S518+Pan	P29590			●													Kinexus	PN641	RpAb
POU2F1	S385	P14859			●													Kinexus	PN643	RpAb
PPARg-1	S112	P37231			●	●												Kinexus	PN644	RpAb
PPFIBP1	S599+S601	Q86W92											●					Kinexus	PN777	RpAb
PPP1CA (PP1/Ca)	Pan	P62136	• PSTP															No	sc-7482	MmAb
PPP1CA (PP1/Ca)	Y306	P62136	• PSTP															Kinexus	PP542	RpAb
PPP1CA (PP1/Ca)	Y134+Y137	P62136	• PSTP															Kinexus	PP541	RpAb
PPP1CB (PP1/Cb)	Y306	P62140	• PSTP															Kinexus	PP530	RpAb
PPP1CB (PP1/Cb)	T316	P62140	• PSTP															Kinexus	PP502	RpAb
PPP1R11 (HCG V)	Y64	O60927	• PSTP-															Kinexus	PN532	RpAb
PPP1R12A (MYPT1; MBS)	Y496	O14974	• PSTP-															Kinexus	PP543	RpAb
PPP1R12A (MYPT1; MBS)	Y766	O14974	• PSTP-															Kinexus	PP544	RpAb
PPP1R12B (MYPT2)	T646	O60237	• PSTP-															Kinexus	PP503	RpAb
PPP1R14B (PHI-1)	Y29	Q96C90	• PSTP-															Kinexus	PP546	RpAb
PPP1R14B (PHI-1)	T57	Q96C90	• PSTP-															Kinexus	PP545	RpAb
PPP1R16A (MYPT3)	Y434	Q96I34	• PSTP-															Kinexus	PP547	RpAb
PPP1R1A (I-1; Inhibitor-1)	T35	Q13522	• PSTP-															Kinexus	PP548	RpAb
PPP2CA (PP2A/Ca)	Pan	P67775	• PSTP															No	P47720	MmAb
PPP2CA (PP2A/Ca)	Y284	P67775	• PSTP															Kinexus	PP549	RpAb
PPP2CA (PP2A/Ca)	Y307	P67775	• PSTP															Kinexus	PP504	RpAb
PPP2CB	T304	P62714	• PSTP															Kinexus	PP505	RpAb
PPP2R4 (PP2A subunit B';	Y223	Q15257	• PSTP-															Kinexus	PP550	RpAb
PPP2R5D (2A5D; B56D)	Y580	Q14738	• PSTP-															Kinexus	PP551	RpAb
PPP2R5E	Y99	Q16537	• PSTP-															Kinexus	PP552	RpAb
PPP3CA (PP2B-Aa;	Pan	Q08209	• PSTP															No	sc-17808	MmAb
PPP3CC (Calcinerin Ag)	S463+Pan	P48454	• PSTP															Kinexus	PP506	RpAb
PPP4R1 (PP4/A'2 (PPP4/A'2)	Pan	Q8TF05	• PSTP-															No	P215P	RpAb
PPP5C (PP5C; PP5; PPT)	Y119	P53041	• PSTP															Kinexus	PP507	RpAb
PPP6C	Y261	O00743	• PSTP															Kinexus	PP553	RpAb
PPPM1A (PP2Ca;	Y362	P35813	• PSTP															Kinexus	PP508	RpAb
PPPM1B (PP2Cb; PPM1B)	Y367	O75688	• PSTP															Kinexus	PP540	RpAb
PRKACA (PKA; PKACA)	Pan	P17612	• PSTK															No	610981	MmAb
PRKACA/B (PKA; PKACA/B)	T196+T198	P17612	• PSTK															Kinexus	PK782	RpAb
PRKACB (PKA)	Y69	P22694	• PSTK															Kinexus	PK783	RpAb
PRKACB (PKA)	S339	P22694	• PSTK															No	44-992G	RpAb
PRKAR2B)	Pan	P31323	• PSTK															No	AP8096a	RpAb
PRKX	Pan	P51817	• PSTK															Kinexus	NK292-1	RpAb
PRKX	T201+T203	P51817	• PSTK															Kinexus	PK785	RpAb
PRKY	Pan	O43930	• PSTK															Kinexus	NK293-1	RpAb
PRMT5	T634	O14744																Kinexus	PN549	RpAb
PRP4K (PRP4; PRPF4B)	Y849	Q13523	• PSTK															Kinexus	PK786	RpAb
PSEN1	T354	P49768							●									Kinexus	PN977	RpAb
PTEN	Pan	P60484	• PI-P															Kinexus	NP023-3	RpAb
PTEN	Pan	P60484	• PI-P															Kinexus	NP023-4	RpAb
PTEN	Pan	P60484	• PI-P															Kinexus	NP023-5	RpAb
PTEN	Pan	P60484	• PI-P															No	sc-7974	MmAb
PTEN	Y315	P60484	• PI-P															Kinexus	PP531	RpAb
PTEN	Y336	P60484	• PI-P															Kinexus	PP556	RpAb

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PTPN1 (PTP1B)	Pan	P18031		• PYP														No	P18020	MmAb
PTPN1 (PTP1B)	Y46	P18031		• PYP														Kinexus	PP533	RpAb
PTPN1 (PTP1B)	S50	P18031		• PYP														Kinexus	PP509	RpAb
PTPN1 (PTP1B)	Y66	P18031		• PYP														Kinexus	PP510	RpAb
PTPN1 (PTP1B)	Y20+Pan	P18031		• PYP														Kinexus	PP532	RpAb
PTPN2 (TC-PTP)	S304	P17706		• PYP														Kinexus	PP515	RpAb
PTPN3 (PTP-H1)	S357+S359	P26045		• PYP														Kinexus	PP519	RpAb
PTPN6 (PTP1C; SH-PTP1;	Y536	P29350		• PYP														Kinexus	PP520	RpAb
PTPN6 (PTP1C; SH-PTP1;	Y564	P29350		• PYP														Kinexus	PP538	RpAb
PTPN6 (PTP1C; SH-PTP1)	Pan	P29350		• PYP														No	sc-7289	MmAb
PTPN11 (PTP1D; PTP2C;	Pan	Q06124		• PYP														No	B50279-51	RpAb
PTPN11 (PTP1D; PTP2C;	Pan	Q06124		• PYP														No	B50270-51	RpAb
PTPN11 (PTP1D; PTP2C;	Y62	Q06124		• PYP														Kinexus	PP512	RpAb
PTPN11 (PTP1D; PTP2C;	Y546	Q06124		• PYP														Kinexus	PP534	RpAb
PTPN11 (PTP1D; PTP2C;	Y584	Q06124		• PYP														Kinexus	PP535	RpAb
PTPN12 (PTP-PEST; PTPG1)	S39	Q05209		• PYP														Kinexus	PP513	RpAb
PTPN12 (PTP-PEST; PTPG1)	S435	Q05209		• PYP														Kinexus	PP536	RpAb
PTPN14	S486+Pan	Q15678		• PYP														Kinexus	PP514	RpAb
PTPN21	S637	Q16825		• PYP														Kinexus	PP516	RpAb
PTPN22	Y499	Q9Y2R2		• PYP														Kinexus	PP517	RpAb
PTPN23 (HD-PTP)	Y1165	Q9H3S7		• PYP														Kinexus	PP518	RpAb
PTPN23 (HD-PTP)	Y1229	Q9H3S7		• PYP														Kinexus	PP537	RpAb
PTPRA (PTP-alpha)	Y798	P18433		• PYP		●												Kinexus	PP521	RpAb
PTPRB (PTP-beta)	Y1981	P23467		• PYP		●												Kinexus	PP522	RpAb
PTPRE (PTP-epsilon)	Y696	P23469		• PYP		●												Kinexus	PP554	RpAb
PTPRF (LAR)	Y1621	P10586		• PYP		●												Kinexus	PP523	RpAb
PTPRK (PTP-kappa)	Y858	Q15262		• PYP		●												Kinexus	PP539	RpAb
PTPRK (PTP-kappa)	Y916	Q15262		• PYP		●												Kinexus	PP524	RpAb
PTPRM (PTPRL1)	Y929	P28827		• PYP		●												Kinexus	PP526	RpAb
PTRF	Y308	Q6NZI2			●													Kinexus	PN646	RpAb
PTRF	Y308	Q6NZI2			●													Kinexus	PN533	RpAb
PU.1	S146	P17947			●													Kinexus	PN647	RpAb
PYK2 (PTK2B; FAK2)	Pan	Q14289	• PYK															No	AP7703a	RpAb
PYK2 (PTK2B; FAK2)	Pan	Q14289	• PYK															No	sc-1514	GpAb
PYK2 (PTK2B; FAK2)	Y402	Q14289	• PYK															Kinexus	PK788	RpAb
PYK2 (PTK2B; FAK2)	Y402	Q14289	• PYK															Kinexus	PK787	RpAb
PYK2 (PTK2B; FAK2)	Y579+Y580	Q14289	• PYK															Kinexus	PK789	RpAb
QKI (HKQ)	Pan	Q96PU8																No	NN311-1	MmAb
RAB1B	Pan	Q9H0U4																No	NN378-1	RpAb
RAB5A (Rab5)	Pan	P20339																No	NN150	RpAb
RACK1 (GNB2L1)	Pan	P63244											●					No	NN045	RpAb
Raf-A (ARaf)	Pan	P10398	• PSTK															Kinexus	NK205-3	RpAb
Raf-A (ARaf)	Pan	P10398	• PSTK															Kinexus	NK205-4	RpAb
Raf-A (ARaf)	Pan	P10398	• PSTK															Kinexus	NK205-5	RpAb
Raf-A (ARaf)	Pan	P10398	• PSTK															No	sc-408	RpAb
Raf-A (ARaf)	Y302	P10398	• PSTK															Kinexus	PK500	RpAb
Raf-B (B-Raf; BRaf; RafB)	Pan	P15056	• PSTK															Kinexus	NK156-4	RpAb
Raf-B (B-Raf; BRaf; RafB)	Pan	P15056	• PSTK															Kinexus	NK156-6	RpAb
Raf-B (B-Raf; BRaf; RafB)	Pan	P15056	• PSTK															No	sc-9002	RpAb
Raf-B (B-Raf; BRaf; RafB)	Pan	P15056	• PSTK															No	sc-5284	MmAb
Raf-B (B-Raf; BRaf; RafB)	Pan	P15056	• PSTK															No	/H000673M	MmAb
Raf-B (B-Raf; BRaf; RafB)	S446+S447	P15056	• PSTK															Kinexus	PK534	RpAb
Raf-B (B-Raf; BRaf; RafB)	S729	P15056	• PSTK															Kinexus	PK535	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															No	610151	MmAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															Kinexus	NK155-5	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															Kinexus	NK155-7	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															Kinexus	NK155-8	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															Kinexus	NK155-2	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															Kinexus	NK155-6	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															No	sc-376142	MmAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															No	sc-7198	RpAb
Raf1 (c-Raf; RafC)	Pan	P04049	• PSTK															No	sc-227	RpAb
Raf1 (c-Raf; RafC)	S259	P04049	• PSTK															Kinexus	PK790	RpAb

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Raf1 (c-Raf; RafC)	S296	P04049	• PSTK															Kinexus	PK791	RpAb
Raf1 (c-Raf; RafC)	S301+T303	P04049	• PSTK															Kinexus	PK792	RpAb
Raf1 (c-Raf; RafC)	S338	P04049	• PSTK															Kinexus	PK913	RpAb
Raf1 (c-Raf; RafC)	Y340+Y341	P04049	• PSTK															Kinexus	PK914	RpAb
RARA	S77	P10276			●	●												Kinexus	PN648	RpAb
Rb (RB1)	S249+T252	P06400											●					Kinexus	PN724	RpAb
Rb (RB1)	T373	P06400											●					Kinexus	PN978	RpAb
Rb (RB1)	S612	P06400											●					No	44-572	RpAb
Rb (RB1)	S807+S811	P06400											●					Kinexus	PN847	RpAb
RBM9iso6	T7	O43251			●								●					Kinexus	PN649	RpAb
RDBP	S89+T91	P18615			●													Kinexus	PN650	RpAb
REEP1	Pan	Q9H902																No	NN312-1	MmAb
REEP2 (SGC32445)	Pan	Q9BRK0																No	NN312-2	MmAb
RelB (RELB)	S573	Q01201			●													No	Y011255	RpAb
Ret (GDNF receptor)	Pan	P07949	• PYK			●												Kinexus	NK244-2	RpAb
Ret (GDNF receptor)	Pan	P07949	• PYK			●												Kinexus	NK244-3	RpAb
Ret (GDNF receptor)	Pan	P07949	• PYK			●												Kinexus	NK244-1	RpAb
Ret (GDNF receptor)	Y905	P07949	• PYK			●												Kinexus	PK793	RpAb
Ret (GDNF receptor)	Y1062	P07949	• PYK			●												Kinexus	PK915	RpAb
Rhodopsin (OPN2; RHO;	Pan	P08100				●												No	NN313-2	MmAb
Rhodopsin (OPN2; RHO;	Pan	P08100				●												No	NN313-1	MmAb
Rictor	S21	Q6R327											●					Kinexus	PN979	RpAb
Rictor	T1135	Q6R327											●					Kinexus	PN980	RpAb
RIOK1	Y466	Q9BRS2	• PSTK															Kinexus	PK794	RpAb
RIOK2	S332+S335+	Q9BVS4	• PSTK															Kinexus	PK890	RpAb
RIPK1 (RIP; RIPK)	Pan	Q13546	• PSTK															No	sc-133102	MmAb
RIPK1 (RIP; RIPK)	S166	Q13546	• PSTK															Kinexus	PK945	RpAb
RIPK1 (RIP; RIPK)	S320	Q13546	• PSTK															Kinexus	PK946	RpAb
RIPK1 (RIP; RIPK)	Y384	Q13546	• PSTK															Kinexus	PK795	RpAb
RIPK2 (RICK; RIP2; CARD3)	S176	O43353	• PSTK															Kinexus	PK796	RpAb
RIPK2 (RICK; RIP2; CARD3)	Y381	O43353	• PSTK															Kinexus	PK797	RpAb
ROCK1 (ROKb)	T233	Q13464	• PSTK															Kinexus	PK947	RpAb
ROCK1 (ROKb)	Y913	Q13464	• PSTK															Kinexus	PK798	RpAb
ROCK2 (ROKa)	Pan	O75116	• PSTK															No	sc-1851	GpAb
ROCK2 (ROKa)	Pan	O75116	• PSTK															No	07-443	RpAb
ROCK2 (ROKa)	Y722	O75116	• PSTK															Kinexus	PK799	RpAb
Ron (RONa; MST1R)	Pan	Q04912	• PYK			●												Kinexus	NK161-3	RpAb
Ron (RONa; MST1R)	Pan	Q04912	• PYK			●												Kinexus	NK161-4	RpAb
Ron (RONa; MST1R)	Pan	Q04912	• PYK			●												Kinexus	NK161-2	RpAb
Ron (RONa; MST1R)	Y1238	Q04912	• PYK			●												Kinexus	PK800	RpAb
Ron (RONa; MST1R)	Y1238+Y123	Q04912	• PYK			●												Kinexus	PK801	RpAb
ROR2 (RON2)	Y645+Y646	Q01974	• PYK			●												Kinexus	PK802	RpAb
RORA	S35	P35398			●	●												Kinexus	PN651	RpAb
Ros (ROS1)	Pan	P08922	• PYK			●												Kinexus	NK163-3	RpAb
Ros (ROS1)	Pan	P08922	• PYK			●												Kinexus	NK163-4	RpAb
Ros (ROS1)	Pan	P08922	• PYK			●												Kinexus	NK163-2	RpAb
Ros (ROS1)	Y2114+Y211	P08922	• PYK			●												Kinexus	PK803	RpAb
RPS6	Pan	P62753						●										No	sc-74576	MmAb
RPS6	Pan	P62753						●										No	sc-74459	MmAb
RPS6	S235	P62753						●										No	07-433	RpAb
RPS6	S235+S236	P62753						●										Kinexus	PN685	RpAb
RPS6	S235+S236+	P62753						●										Kinexus	PN559	RpAb
RPTOR (RAPTOR)	T706	Q8N122											●					Kinexus	PN982	RpAb
RPTOR (RAPTOR)	S859+S863	Q8N122											●					Kinexus	PN981	RpAb
RSK1 (RPS6KA1; p90RSK)	Pan	Q15418	• PSTK															Kinexus	NK164-3	RpAb
RSK1 (RPS6KA1; p90RSK)	Pan	Q15418	• PSTK															No	sc-231	RpAb
RSK1 (RPS6KA1; p90RSK)	Y220+S221	Q15418	• PSTK															Kinexus	PK807	RpAb
RSK1 (RPS6KA1; p90RSK)	S221	Q15418	• PSTK															Kinexus	PK804	RpAb
RSK1 (RPS6KA1; p90RSK)	S380	Q15418	• PSTK															Kinexus	PK805	RpAb
RSK1 (RPS6KA1; p90RSK)	T573	Q15418	• PSTK															Kinexus	PK806	RpAb
RSK2 (RPS6KA3)	Pan	P51812	• PSTK															Kinexus	NK165-2	RpAb
RSK2 (RPS6KA3)	Pan	P51812	• PSTK															Kinexus	NK165-3	RpAb
RSK2 (RPS6KA3)	Pan	P51812	• PSTK															No	AF1518	RpAb

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RSK3 (RPS6KA2)	Y217+S218	Q15349	• PSTK															Kinexus	PK808	RpAb
RSK4 (RPS6KA6)	Pan	Q9UK32	• PSTK															Kinexus	NK166-2	RpAb
RTN4 (NOGO)	S107	Q9NQC3																Kinexus	PN983	RpAb
RUNX1 (AML1)	S276+Pan	Q01196			●													Kinexus	PN778	RpAb
RXRa	S260	P19793			●	●												Kinexus	PN652	RpAb
RYK	Pan	P34925	• PYK															No	AP7677b	RpAb
S100A9 (CAGB; MRP14)	Pan	P06702														●		Kinexus	NN459-3	RpAb
SAA2	Pan	P0DJ19									●							Kinexus	NN460-3	RpAb
SAC3 (FIG4)	Y631	Q92562								●								Kinexus	PN984	RpAb
SATB1	S38	Q01826			●													Kinexus	PN653	RpAb
SCN2B (NaVbeta2; Gm183)	Pan	O60939					●											No	NN314-1	MmAb
SCN3B (NaVbeta3)	Pan	Q9NY72					●											No	NN315-1	MmAb
SCNN1A (ENaCA; Alpha-SCYL1	Pan	P37088					●											No	NN316-1	RpAb
SCYL1	S754	Q96KG9	• PSTK															Kinexus	PK809	RpAb
SETD2	S2080+S208	Q9BYW2																Kinexus	PN779	RpAb
SFC (KITLG)	Pan	P21583																No	10004254-M	MmAb
SGK1	Pan	O00141	• PSTK															Kinexus	NK294-1	RpAb
Sgk223	Y413	Q86YV5	• PSTK															Kinexus	PK810	RpAb
Sgk269 (PEAK1)	Y635	Q9H792	• PSTK															Kinexus	PK811	RpAb
Sgk288 (ANKK1)	Pan	Q8NFD2	• PSTK															Kinexus	NK295-1	RpAb
SGK3 (CISK; SGK1)	Pan	Q96BR1	• PSTK															Kinexus	NK170-4	RpAb
SGK3 (CISK; SGK1)	Pan	Q96BR1	• PSTK															Kinexus	NK170-3	RpAb
SH2BP1	T925	Q6PD62			●													Kinexus	PN654	RpAb
SHANK2 (CortBP1; Cortactin-SHANK3 (PROSAP2; PSAP2)	Pan	Q9UPX8											●					No	NN318-1	MmAb
Shc1 (Shc)	Y427	P29353											●					No	NN319-1	MmAb
Shc1 (Shc)	Y349+Y350	P29353											●					Kinexus	PN986	RpAb
Shc1 (Shc)	Y349+Y350	P29353											●					No	sc-23764	GpAb
Shc3	Y406	Q92529											●					Kinexus	PN987	RpAb
Shc4	Y424	Q6S5L8											●					Kinexus	PN988	RpAb
SHIP1 (INPP5D)	Pan	Q92835	• PI-P															Kinexus	NP044-2	RpAb
SHIP1 (INPP5D)	Pan	Q92835	• PI-P															Kinexus	NP044-3	RpAb
SHIP1 (INPP5D)	Pan	Q92835	• PI-P															Kinexus	NP044-1	RpAb
SHIP1 (INPP5D)	Y187	Q92835	• PI-P															Kinexus	PN560	RpAb
SHIP2 (INPPL1)	Pan	O15357	• PI-P															Kinexus	NP045-2	RpAb
SHIP2 (INPPL1)	Pan	O15357	• PI-P															Kinexus	NP045-3	RpAb
SHIP2 (INPPL1)	Pan	O15357	• PI-P															Kinexus	NP045-1	RpAb
SHIP2 (INPPL1)	Y886	O15357	• PI-P															Kinexus	PN534	RpAb
SIK (SNF1LK)	Pan	P57059	• PSTK															Kinexus	NK251-2	RpAb
SIK (SNF1LK)	Pan	P57059	• PSTK															Kinexus	NK251-3	RpAb
SIK (SNF1LK)	Pan	P57059	• PSTK															Kinexus	NK251-1	RpAb
SIK (SNF1LK)	T182	P57059	• PSTK															Kinexus	PK812	RpAb
SIK2 (QIK)	Pan	Q9H0K1	• PSTK															Kinexus	NK249-2	RpAb
SIK2 (QIK)	Pan	Q9H0K1	• PSTK															Kinexus	NK249-3	RpAb
SIK2 (QIK)	Pan	Q9H0K1	• PSTK															Kinexus	NK249-1	RpAb
SIK2 (QIK)	S358	Q9H0K1	• PSTK															Kinexus	PK813	RpAb
SIK3 (QSK)	Pan	Q9Y2K2	• PSTK															Kinexus	NK250-2	RpAb
SIK3 (QSK)	Pan	Q9Y2K2	• PSTK															Kinexus	NK250-3	RpAb
SIK3 (QSK)	Pan	Q9Y2K2	• PSTK															Kinexus	NK250-1	RpAb
SIK3 (QSK)	T163	Q9Y2K2	• PSTK															Kinexus	PK814	RpAb
SIK3 (QSK)	T411	Q9Y2K2	• PSTK															Kinexus	PK815	RpAb
SIN3A	S832+Pan	Q96ST3			●													Kinexus	PN655	RpAb
SIT	Y90	Q9Y3P8											●					Kinexus	PN535	RpAb
SIT	Y95	Q9Y3P8											●					Kinexus	PN536	RpAb
SLC12A1 (NKCC2;	Pan	Q13621														●		No	NN320-1	RpAb
SLC12A3 (NCC; Thiazide-	Pan	P55017														●		No	NN321-1	RpAb
SLC12A5 (KCC2; K-Cl	Pan	Q9H2X9														●		No	NN322-1	MmAb
SLC2A1 (GLUT-1)	T478	P11166														●		Kinexus	PN989	RpAb
SLC38A1 (ATA1; NAT2)	Pan	Q9H2H9														●		No	NN324-1	MmAb
SLC9A3 (NHE3)	Pan	P48764														●		No	NN326-1	RpAb
SLK	S189	Q9H2G2	• PSTK															Kinexus	PK816	RpAb
Smad1	S465	Q15797			●													No	11321	RpAb
Smad2	T220	Q15796			●													No	11323	RpAb

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Smad3	T8+Pan	P84022			●													Kinexus	PN658	RpAb
Smad4	Y513	Q13485			●													Kinexus	PN725	RpAb
SMARCA4	S610+S613	P51532			●													Kinexus	PN726	RpAb
SMARCB1	T134	Q12824			●													Kinexus	PN727	RpAb
SMG1	Pan	Q96Q15	• PYK															Kinexus	NK233-1	RpAb
SMG1	Pan	Q96Q15	• PYK															Kinexus	NK233-3	RpAb
SMG1	Pan	Q96Q15	• PYK															Kinexus	NK233-2	RpAb
SMG1	T3550	Q96Q15	• PYK															Kinexus	PK817	RpAb
SNAP25	S28+T29	P60880															●	Kinexus	PN1003	RpAb
SNAP25	T138	P60880															●	Kinexus	PN991	RpAb
SNAP25	S187	P60880															●	Kinexus	PN990	RpAb
SNCA (a-Synuclein)	Y39	P37840												●				Kinexus	PN850	RpAb
SNCA (a-Synuclein)	S129+Pan	P37840												●				Kinexus	PN849	RpAb
SNCA (a-Synuclein)	Y136	P37840												●				No	11286	RpAb
SND1	Y908	Q7KZF4			●													Kinexus	PN661	RpAb
snRNP70	Y126	P08621																Kinexus	PN537	RpAb
SOCS7	Y561	O14512			●													Kinexus	PN728	RpAb
SOD1 (hSod1)	Pan	P00441									●							No	NN098-4	RpAb
SOD1 (hSod1)	T40	P00441									●							Kinexus	PN905	RpAb
SOD1 (hSod1)	S99	P00441									●							Kinexus	PN904	RpAb
SOD1 (hSod1)	S108	P00441									●							Kinexus	PN903	RpAb
SOD2 (Mn-SOD)	Pan	P04179									●							No	NN068-1	RpAb
SOD2 (Mn-SOD)	Pan	P04179									●							No	NN068-2	RpAb
SOD3 (Cu/Zn; ECSOD)	Pan	P08294									●							No	NN328-1	MmAb
SOX9	S181+Pan	P48436			●													Kinexus	PN662	RpAb
SP4	S770	Q02446			●													Kinexus	PN851	RpAb
SPG11	S1955	Q96JI7																Kinexus	PN906	RpAb
SPG11	S1961	Q96JI7																Kinexus	PN907	RpAb
SPRED1	S105	Q7Z699																Kinexus	PN566	RpAb
SPT5	T791	O00267			●													Kinexus	PN663	RpAb
SQSTM1 (Sequestosome-1)	Pan	Q13501											●					No	NN375-1	RpAb
SQSTM1 (Sequestosome-1)	T269+S272	Q13501											●					Kinexus	PN909	RpAb
SQSTM1 (Sequestosome-1)	T339+S342	Q13501											●					Kinexus	PN910	RpAb
SQSTM1 (Sequestosome-1)	S403	Q13501											●					Kinexus	PN908	RpAb
Src	Pan	P12931	• PYK															No	sc-19	RpAb
Src	Pan	P12931	• PYK															No	KAP-TK121	RpAb
Src	Pan	P12931	• PYK															No	05-184	MmAb
Src	Y419	P12931	• PYK															Kinexus	PK818	RpAb
Src	Y419	P12931	• PYK															Kinexus	PK818-2	RpAb
Src	Y530	P12931	• PYK															Kinexus	PK948	RpAb
SRF	S224	P11831			●													Kinexus	PN664	RpAb
SRPK1	S222	Q96SB4	• PSTK															Kinexus	PK819	RpAb
SRPK1	S587	Q96SB4	• PSTK															Kinexus	PK891	RpAb
SRPK2	Pan	P78362	• PSTK															Kinexus	NK296-1	RpAb
SRPK2	Y319	P78362	• PSTK															Kinexus	PK820	RpAb
SSTR2	S341+S343	P30874				●												Kinexus	PN804	RpAb
STAG2	Y433	Q8N3U4																Kinexus	PN729	RpAb
STAM2	Y374	O75886											●					Kinexus	PN538	RpAb
STAT1	Pan	P42224			●													No	DB037	RpAb
STAT1	Y701	P42224			●													Kinexus	PN666	RpAb
STAT1	Y701	P42224			●													No	sc-8394	MmAb
STAT1	S727+Pan	P42224			●													Kinexus	PN667	RpAb
STAT2	Y690	P52630			●													Kinexus	PN668	RpAb
STAT3	Y705+T708	P40763			●													Kinexus	PN539	RpAb
STAT3	S727	P40763			●													Kinexus	PN669	RpAb
STAT4	Pan	Q14765			●													No	DB030	RpAb
STAT4	Y693	Q14765			●													Kinexus	PN670	RpAb
STAT5A	Y694	P42229			●													Kinexus	PN671	RpAb
STAT5A	S780	P42229			●													Kinexus	PN672	RpAb
STAT5B	Pan	P51692			●													No	DB032	RpAb
STAT6	Pan	P42226			●													No	DB038	RpAb
STAT6	Y641	P42226			●													Kinexus	PN673	RpAb
STI1 (STIP1)	Pan	P31948									●							No	S65720	MmAb

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STLK3 (DCHT)	T231	Q9UEW8	• PSTK															Kinexus	PK916	RpAb
STLK6 (ALS2CR2)	S304+S306	Q9C0K7	• PSTK															Kinexus	PN911	RpAb
STX1B	S14	P61266															●	Kinexus	PN852	RpAb
STXBP1 (HUNC18)	S313	P61764															●	Kinexus	PN992	RpAb
STXBP1 (HUNC18)	Y473	P61764															●	Kinexus	PN994	RpAb
STXBP1 (HUNC18)	T574	P61764															●	Kinexus	PN993	RpAb
SUR1 (Abcc8)	Pan	Q09428					●											No	NN340-1	MmAb
Syk	Pan	P43405	• PYK															No	sc-1240	MmAb
Syk	Y323	P43405	• PYK															Kinexus	PK821	RpAb
Syk	Y352	P43405	• PYK															Kinexus	PK822	RpAb
Syk	Y525+Y526	P43405	• PYK															Kinexus	PK823	RpAb
SYN1 (Synapsin 1)	Pan	P17600															●	No	Y021259	RpAb
SYN1 (Synapsin 1)	S605	P17600															●	Kinexus	PN854	RpAb
SYN1 (Synapsin 1)	S551+S553	P17600															●	Kinexus	PN853	RpAb
Synaptophysin (SYP)	Pan	P08247															●	No	NN370-1	MmAb
SYNJ1 (INPP5G)	Y784+Y786	O43426															●	Kinexus	PN996	RpAb
SYNJ1 (INPP5G)	S1084	O43426															●	Kinexus	PN995	RpAb
SYT1 (SVP65)	T129	P21579															●	Kinexus	PN997	RpAb
SYT1 (SVP65)	Y312	P21579															●	Kinexus	PN998	RpAb
SYT1 (SVP65)	Y381	P21579															●	Kinexus	PN999	RpAb
SYT3	Pan	Q9BQG1															●	No	NN366-1	MmAb
SYT6	Pan	Q5T7P8															●	No	NN367-1	MmAb
SYT9 (Synaptotagmin 9)	Pan	Q86SS6															●	No	NN343-1	MmAb
SYT10 (Synaptotagmin 10)	Pan	Q6XYQ8															●	No	NN344-1	MmAb
SYT12 (Synaptotagmin 12)	Pan	Q8IV01															●	No	NN345-1	MmAb
TAK1 (MAP3K7)	Pan	O43318	• PSTK															Kinexus	NK175-3	RpAb
TAK1 (MAP3K7)	Pan	O43318	• PSTK															No	sc-7967	MmAb
TAK1 (MAP3K7)	Pan	O43318	• PSTK															No	AP-ST0091	RpAb
TAK1 (MAP3K7)	T184+T187	O43318	• PSTK															Kinexus	PK825	RpAb
TAK1 (MAP3K7)	S439	O43318	• PSTK															Kinexus	PK824	RpAb
TAO1 (TAOK1)	S181	Q7L7X3	• PSTK															Kinexus	PK826	RpAb
TAO1 (TAOK1)	Y309	Q7L7X3	• PSTK															Kinexus	PK827	RpAb
TAO2 (TAOK2)	Pan	Q9UL54	• PSTK															No	sc-514268	MmAb
TAO3 (JIK, TAOK3)	Pan	Q9H2K8	• PSTK															No	AP7902a	RpAb
TAO3 (JIK, TAOK3)	Pan	Q9H2K8	• PSTK															Kinexus	NK087-2	RpAb
TARDBP	S409+S410	Q13148			●													Kinexus	PN674	RpAb
Tau (MAPT)	S202	P10636												●				No	28017	RpAb
Tau (MAPT)	T498	P10636												●				Kinexus	PN855	RpAb
Tau (MAPT)	S515+S516+	P10636												●				Kinexus	PN856	RpAb
Tau (MAPT)	T522 (T205)	P10636												●				No	Y021108	RpAb
Tau (MAPT)	T529+T534	P10636												●				Kinexus	PN857	RpAb
Tau (MAPT)	S713+Pan	P10636												●				Kinexus	PN858	RpAb
TBC1D7	Y14	Q9P0N9																Kinexus	PN540	RpAb
TBK1 (IKKd)	Pan	Q9UHD2	• PSTK															No	sc-9085	RpAb
TBK1 (IKKd)	S172	Q9UHD2	• PSTK															Kinexus	PK828	RpAb
TBK1 (IKKd)	S716	Q9UHD2	• PSTK															Kinexus	PK949	RpAb
TBXA2R	S329+S331	P21731				●												Kinexus	PN805	RpAb
TDP-43 (TADBP)	S48	Q13148																Kinexus	PN914	RpAb
TDP-43 (TADBP)	S183	Q13148																Kinexus	PN912	RpAb
TDP-43 (TADBP)	S403+S404	Q13148																Kinexus	PN913	RpAb
Tec	Y519	P42680	• PYK															Kinexus	PK829	RpAb
TERF1	T371	P54274			●													Kinexus	PN675	RpAb
TGFβ1	Pan	P01137																No	sc-146	RpAb
TGM2	Y369	P21980																Kinexus	PN541	RpAb
TH (TY3H)	S19	P07101					●											Kinexus	PN731	RpAb
TH (TY3H)	S71	P07101					●											Kinexus	PN730	RpAb
THRAP3	S253	Q9Y2W1			●													Kinexus	PN676	RpAb
TIE2 (TEK)	Pan	Q02763	• PYK			●												No	AP7684a	RpAb
TIE2 (TEK)	Y897	Q02763	• PYK			●												Kinexus	PK830	RpAb
TIE2 (TEK)	Y992	Q02763	• PYK			●												Kinexus	PK831	RpAb
TLK1	Pan	Q9UKI8	• PSTK															No	AP8101b	RpAb
TLN1	Y70	Q9Y490												●				Kinexus	PN542	RpAb
TLR4 (CD284)	Pan	O00206				●												No	NN368-1	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/ Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
TMEM205	Pan	Q6UW68																No	sc-514568	MmAb
TNFR1 (CD120a; TNFRSF1A;	Pan	P19438				●												No	NN347-1	RpAb
TNK1	Y277	Q13470	• PYK															Kinexus	PK832	RpAb
TORC2 (CRTC2)	S433	Q53ET0			●													Kinexus	PN677	RpAb
TP53 (p53)	Pan	P04637			●													No	sc-126	MmAb
TP53 (p53)	Pan	P04637			●													No	NN082-2	MmAb
TP53 (p53)	Pan	P04637			●													No	NN082-3	RpAb
TP53 (p53)	S6	P04637			●													No	11092	RpAb
TP53 (p53)	S6+S9	P04637			●													Kinexus	PN637	RpAb
TP53 (p53)	S15	P04637			●													Kinexus	PN859	RpAb
TP53 (p53)	T18+S20	P04637			●													Kinexus	PN638	RpAb
TP53 (p53)	S392	P04637			●													Kinexus	PN640	RpAb
TP53BP1	T1056	Q12888			●													Kinexus	PN678	RpAb
TPH1	T225+S228	P17752								●								Kinexus	PN780	RpAb
TPPb	Pan	NA								●								No	B50263-51	RpAb
TRADD	Pan	Q15628											●					No	T50320	MmAb
Trail (TNSF10)	Pan	P50591																No	DB040	RpAb
TRAK2 (ALS2CR3)	Pan	O60296																No	SMC-483D	MmAb
TRAP1 (HSP75)	Pan	Q12931									●							No	NN349-2	RpAb
TRAP1 (HSP75)	Pan	Q12931									●							No	NN349-1	MmAb
TRHR	S364+T365	P34981				●												Kinexus	PN806	RpAb
TRIM28 (TIF1B)	Y458	Q13263	• PSTK		●													Kinexus	PK834	RpAb
TRIM28 (TIF1B)	S473	Q13263	• PSTK		●													Kinexus	PK833	RpAb
TRIM28 (TIF1B)	Y517	Q13263	• PSTK		●													Kinexus	PK835	RpAb
TRIM33 (TIF1G)	S1119	Q9UPN9	• PSTK		●													Kinexus	PK836	RpAb
TrkA (NGFR; NTRK1)	Y496	P04629	• PYK			●												No	sc-8058	MmAb
TrkA (NGFR; NTRK1)	Y680+Y681	P04629	• PYK			●												Kinexus	PK837	RpAb
TrkB (NTRK2)	Y516	Q16620	• PYK			●												Kinexus	PK838	RpAb
TrkB (NTRK2)	Y702	Q16620	• PYK			●												Kinexus	PK839	RpAb
TrkB (NTRK2)	Y706+Y707	Q16620	• PYK			●												Kinexus	PK917	RpAb
TrkC (NTRK3)	Y709+Y710	Q16288	• PYK			●												Kinexus	PK840	RpAb
TRPV4	Pan	Q9HBA0					●											Kinexus	NN464-2	RpAb
TRRAP	Pan	Q9Y4A5	• PSTK															Kinexus	NK232-2	RpAb
TRRAP	Pan	Q9Y4A5	• PSTK															Kinexus	NK232	RpAb
TRRAP	Pan	Q9Y4A5	• PSTK															Kinexus	NK232-3	RpAb
TSC1	S505	Q92574											●					Kinexus	PN781	RpAb
TSSK3	T168	Q96PN8	• PSTK															Kinexus	PK841	RpAb
TTBK1	Pan	Q5TCY1	• PSTK															Kinexus	NK306-1	RpAb
TTBK1	Pan	Q5TCY1	• PSTK															Kinexus	NK306-2	RpAb
TTBK1	T186	Q5TCY1	• PSTK															Kinexus	PK955	RpAb
TTBK2	Pan	Q6IQ55	• PSTK															Kinexus	NK307-2	RpAb
TTK (MPS1)	Pan	P33981	• DSK															No	AP8103a	RpAb
TTK (MPS1)	S677	P33981	• DSK															Kinexus	PK842	RpAb
TTK (MPS1)	Y833+Y836	P33981	• DSK															Kinexus	PK843	RpAb
TUBA4A	Pan	P68366												●				No	NN380-1	RpAb
TUBA4A	Y103	P68366												●				Kinexus	PN915	RpAb
TUBA4A	Y210	P68366												●				Kinexus	PN916	RpAb
TXK	Y420	P42681	• PYK															Kinexus	PK844	RpAb
TYK2	Pan	P29597	• PYK															Kinexus	NK181-3	RpAb
TYK2	Pan	P29597	• PYK															Kinexus	NK181-4	RpAb
TYK2	Pan	P29597	• PYK															Kinexus	NK181-5	RpAb
TYK2	Pan	P29597	• PYK															No	sc-169	RpAb
TYK2	Pan	P29597	• PYK															No	sc-7205	RpAb
TYK2	Y292	P29597	• PYK															Kinexus	PK846	RpAb
TYK2	Y1054+Y105	P29597	• PYK															Kinexus	PK845	RpAb
Tyro3	Y681	Q06418	• PYK			●												Kinexus	PK847	RpAb
Tyro3	Y685+Y686	Q06418	• PYK			●												Kinexus	PK848	RpAb
UBF	T201	P17480			●													Kinexus	PN680	RpAb
UBF	S484	P17480			●													Kinexus	PN679	RpAb
Ubiquitin (Ub; UBB)	Pan	NA							●									No	sc-8017	MmAb
UBQLN2	T128	Q9UHD9							●									Kinexus	PN920	RpAb
UBQLN2	S222	Q9UHD9							●									Kinexus	PN918	RpAb
UBQLN2	S256	Q9UHD9							●									Kinexus	PN919	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/ Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
UGDH	Y352	O60701								●								Kinexus	PN782	RpAb
ULK1	Pan	O75385	• PSTK															Kinexus	NK298-1	RpAb
ULK1	Pan	O75385	• PSTK															No	NK298-2	RpAb
ULK2	Pan	Q8IYT8	• PSTK															No	NK354-1	RpAb
ULK3	Pan	Q6PHR2	• PSTK															No	NK355-1	RpAb
ULK4	Pan	Q96C45	• PSTK															Kinexus	NK299-1	RpAb
UTRN	Y3197	P46939												●				Kinexus	PN1000	RpAb
UVRAG	Pan	Q9P2Y5															●	No	NN356-1	RpAb
VACAMKL	Y245	Q8NCB2	• PSTK															Kinexus	PK892	RpAb
VAMP1	S63	P23763															●	Kinexus	PN1001	RpAb
VAMP4	S30	O75379															●	Kinexus	PN1002	RpAb
VAPB	T46	O95292															●	Kinexus	PN924	RpAb
VAPB	T150	O95292															●	Kinexus	PN922	RpAb
VAPB	T164	O95292															●	Kinexus	PN923	RpAb
VAPB	S206	O95292															●	Kinexus	PN921	RpAb
VAV1 (Vav)	Y826	P15498																Kinexus	PN543	RpAb
VCP	S37	P55072																Kinexus	PN925	RpAb
VCP	T56	P55072																Kinexus	PN929	RpAb
VCP	T316	P55072																Kinexus	PN927	RpAb
VCP	T509	P55072																Kinexus	PN928	RpAb
VCP	S702	P55072																Kinexus	PN926	RpAb
VCP	T761	P55072																Kinexus	PN930	RpAb
VEGFR1 (Flt1)	Pan	P17948	• PYK															No	AP7642b	RpAb
VEGFR1 (Flt1)	Pan	P17948	• PYK															Kinexus	NK226-2	RpAb
VEGFR1 (Flt1)	Pan	P17948	• PYK															Kinexus	NK226-1	RpAb
VEGFR1 (Flt1)	Pan	P17948	• PYK															No	AP7642a	RpAb
VEGFR1 (Flt1)	Y1048	P17948	• PYK															Kinexus	PK850	RpAb
VEGFR1 (Flt1)	Y1053	P17948	• PYK															Kinexus	PK851	RpAb
VEGFR2 (KDR)	Pan	P35968	• PYK															Kinexus	NK245-2	RpAb
VEGFR2 (KDR)	Pan	P35968	• PYK															Kinexus	NK245-3	RpAb
VEGFR2 (KDR)	Pan	P35968	• PYK															Kinexus	NK245-1	RpAb
VEGFR2 (KDR)	Y1054	P35968	• PYK															Kinexus	PK852	RpAb
VEGFR3 (Flt4)	Pan	P35916	• PYK															Kinexus	NK064-3	RpAb
VEGFR3 (Flt4)	Pan	P35916	• PYK															Kinexus	NK064-2	RpAb
VEGFR3 (Flt4)	Y1063	P35916	• PYK															No	11531	RpAb
VEGFR3 (Flt4)	Y1068	P35916	• PYK															Kinexus	PK853	RpAb
Versican (GHAP; CSPG2)	Pan	P13611														●		No	NN360-1	MmAb
VGLUT1 (SLC17A7; BNPI)	Pan	Q9P2U7														●		No	NN361-1	MmAb
VGLUT3 (SLC17A8; Solute)	Pan	Q8NDX2														●		No	NN362-1	MmAb
VHL	S111	P40337							●									Kinexus	PN783	RpAb
VIM (Vimentin)	Y117	P08670												●				Kinexus	PN544	RpAb
Vrk1	Pan	Q99986	• PSTK															No	AP7408c	RpAb
WASP	Y291	P42768											●					Kinexus	PN545	RpAb
Wee1	Pan	P30291	• DSK															Kinexus	NK185	RpAb
Wee1	S642	P30291	• DSK															Kinexus	PK854	RpAb
Wip1 (PPM1D)	Pan	O15297	• PSTP															No	sc-7263	GpAb
Wip1 (PPM1D)	Pan	O15297	• PSTP															No	sc-7264	GpAb
WNK1	Pan	Q9H4A3	• PSTK															Kinexus	NK252-2	RpAb
WNK1	Pan	Q9H4A3	• PSTK															Kinexus	NK252-3	RpAb
WNK1	Pan	Q9H4A3	• PSTK															Kinexus	NK252-1	RpAb
WNK1	T60	Q9H4A3	• PSTK															Kinexus	PK856	RpAb
WNK1	S382+Pan	Q9H4A3	• PSTK															Kinexus	PK855	RpAb
WNK1	T2245	Q9H4A3	• PSTK															Kinexus	PK857	RpAb
WNK2	Pan	Q9Y3S1	• PSTK															Kinexus	NK253-2	RpAb
WNK2	Pan	Q9Y3S1	• PSTK															Kinexus	NK253-3	RpAb
WNK2	Pan	Q9Y3S1	• PSTK															Kinexus	NK253-1	RpAb
WNK3 (PRKWNK3)	Pan	Q9BYP7	• PSTK															Kinexus	NK254-2	RpAb
WNK3 (PRKWNK3)	Pan	Q9BYP7	• PSTK															Kinexus	NK254-3	RpAb
WNK3 (PRKWNK3)	Pan	Q9BYP7	• PSTK															Kinexus	NK254-1	RpAb
WNK4 (PRKWNK4)	Pan	Q96J92	• PSTK															Kinexus	NK255-3	RpAb
WNK4 (PRKWNK4)	Pan	Q96J92	• PSTK															Kinexus	NK255-1	RpAb
WT1	S365	P19544			●													Kinexus	PN732	RpAb
YAP1	S109	P46937			●													Kinexus	PN681	RpAb

Target Protein Name	Pan-specific or P-Site	Human UniProt ID	Protein Kinase	Protein Phosphatase	Transcription	Receptor	Ion Channel	Protein Synthesis	Protein Degradation	Metabolic Enzyme	Stress Protein	Apoptosis	Adapter/ Scaffold	Cytoskeletal	Cell Adhesion	Ca/ Lipid / Solute	Vesicle Protein	Kinexus Anti-body	Kinexus Antibody Code	Anti-body Type
YAP1	T119	P46937			●													Kinexus	PN682	RpAb
YAP1	S127	P46937			●													Kinexus	PN683	RpAb
YDJ1 (MAS5; Yeast dnaJ	Pan	P25491																No	NN057-6	MmAb
Yes	Pan	P07947	• PYK															No	sc-8403	MmAb
Yes	Pan	P07947	• PYK															No	sc-46674	MmAb
Yes	Pan	P07947	• PYK															No	sc-14	RpAb
Yes	Y222+Y223	P07947	• PYK															Kinexus	PK858	RpAb
YLPM1	S561	P49750			●													Kinexus	PN684	RpAb
YSK1 (STK25; SOK1)	Pan	O00506	• PSTK															No	sc-6865	GpAb
YSK1 (STK25; SOK1)	Pan	O00506	• PSTK															No	sc-6884	GpAb
YSK1 (STK25; SOK1)	T174	O00506	• PSTK															Kinexus	PK859	RpAb
YSK4 (MAP3K19)	Pan	Q56UN5	• PSTK															Kinexus	NK256-2	RpAb
YSK4 (MAP3K19)	Pan	Q56UN5	• PSTK															Kinexus	NK256-3	RpAb
YSK4 (MAP3K19)	Pan	Q56UN5	• PSTK															Kinexus	NK256-1	RpAb
ZAP70	Pan	P43403	• PYK															No	sc-1526	GpAb
ZAP70	Pan	P43403	• PYK															No	sc-574	RpAb
ZAP70	Y248	P43403	• PYK															Kinexus	PK860	RpAb
ZAP70	Y292	P43403	• PYK															Kinexus	PK861	RpAb
ZAP70	Y319	P43403	• PYK															Kinexus	PK862	RpAb
ZAP70	Y492+Y493	P43403	• PYK															Kinexus	PK863	RpAb
ZC2 (TNIK; GK)	Pan	Q9UKE5	• PSTK															Kinexus	NK301-1	RpAb

Appendix 2. Lead Antibodies in EGF-treated A431 Cells Identified with the KAM-1325-pY Microarray

The table below provides a selection of the leads antibodies that showed increased signals in over-night serum starved human A431 cervical epidermoid carcinoma cells that were subsequently treated with and without 100 ng/ml of epidermal growth factor (EGF) for 5 minutes prior to harvesting in lysate buffer that contained 1% Triton X-100 and a battery of phosphatase inhibitors (including 5 mM sodium orthovanadate). Approximately 100 µg of lysate protein were applied per field on a KAM-1325 slide, and after a 1 hour incubation, the slide was washed and probed with dye-labeled PYK anti-phosphotyrosine antibody (Kinexus Cat. No. PG-0001). Values are the averages of duplicate measurements, and the percent error in these measurements from the averages are shown. %CFC is the percentage change with EGF treatment from the untreated control values. Notably, these findings reproduce expected changes in the phosphorylation of EGF receptor family and MAP kinase family members as revealed by Western blotting.

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
ACK1 (TNK2)	Pan-specific	NK002	External	RpAb	PYK	359	10	548	33	53
ACK1 (TNK2)	Y284	PK511	Kinexus	RpAb	PYK	8931	19	27034	20	203
ACK1 (TNK2)	Y518	PK512	Kinexus	RpAb	PYK	3142	3	4585	3	46
BLK	Y188	PK542	Kinexus	RpAb	PYK	3160	23	8828	27	179
BLK	Y389	PK543	Kinexus	RpAb	PYK	4129	7	18130	27	339
CDK1/CDK2	T14+Y15	PK560	Kinexus	RpAb	PSTK	8859	11	42850	11	384
CDK2	Pan-specific	NK026-6	External	RpAb	PSTK	483	14	740	45	53
CDK2	T160	PK568	Kinexus	RpAb	PSTK	2233	6	3591	31	61
CDK5	Y15	PK570	Kinexus	RpAb	PSTK	3268	3	6451	28	97
CDK6	Pan-specific	NK029-4	External	MmAb	PSTK	140	7	235	22	68
CDK6	Y13	PK571	Kinexus	RpAb	PSTK	6317	7	20570	4	226
CDK6	Y24	PK572	Kinexus	RpAb	PSTK	3169	1	5672	28	79
CDK7	T170	PK573	Kinexus	RpAb	PSTK	4178	5	10685	13	156
COX2	Pan-specific	NN027-2	External	MmAb		241	13	408	46	69
COX2	Y446	PN695	Kinexus	RpAb		399	5	777	1	95
CTNNB1	Pan-specific	NN021-2	External	MmAb		256	16	399	21	56
CTNNB1	Pan-specific	NN021	External	RpAb		238	11	488	49	105
CTNNB1	S33	PN166	External	RpAb		290	1	747	64	157
CTNNB1	Y333	PN167	External	RpAb		267	14	502	64	88
CTNNB1	Y654	PN579	Kinexus	RpAb		2174	6	3238	11	49
EGFR (ErbB1)	Pan-specific	NK052-4	Kinexus	RpAb	PYK	10561	2	54142	2	413
EGFR (ErbB1)	Y869	PK602	Kinexus	RpAb	PYK	5787	3	13756	11	138
EGFR (ErbB1)	Y998	PK603	Kinexus	RpAb	PYK	6392	3	14495	5	127
EGFR (ErbB1)	Y1172	PK010	External	RpAb	PYK	136	36	233	1	71
EGFR (ErbB1)	Y1172	PK601	Kinexus	RpAb	PYK	5173	7	18471	1	257
ENO1	Y44	PN511	Kinexus	RpAb		7612	3	12528	2	65
ENO2	Y25	PN512	Kinexus	RpAb		5604	3	11789	3	110

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
ErbB2 (HER2, Neu)	Pan-specific	NK054-4	Kinexus	RpAb	PYK	3071	1	4767	35	55
ErbB2 (HER2, Neu)	Pan-specific	NK054-6	Kinexus	RpAb	PYK	1843	5	3086	44	67
ErbB2 (HER2, Neu)	Y735	PK614	Kinexus	RpAb	PYK	3377	2	6567	40	94
ErbB2 (HER2, Neu)	Y877	PK615	Kinexus	RpAb	PYK	1946	2	2756	15	42
ErbB2 (HER2, Neu)	Y1248	PK613	Kinexus	RpAb	PYK	6813	4	18214	35	167
ERBB2IP (Erbin)	Y1104	PN513	Kinexus	RpAb		8011	2	21201	46	165
ErbB3 (HER3)	Pan-specific	NK231-3	Kinexus	RpAb	PYK	1777	5	2989	32	68
ErbB3 (HER3)	Y1289	PK616	Kinexus	RpAb	PYK	3708	3	13187	21	256
ErbB3 (HER3)	Y1307	PK617	Kinexus	RpAb	PYK	2714	3	4438	19	64
ErbB3 (HER3)	Y1328	PK618	Kinexus	RpAb	PYK	3886	4	8347	57	115
ERK1 (MAPK3)	Pan-specific	NK055-1	Kinexus	RpAb	PSTK	2098	6	2776	21	32
ERK1 (MAPK3)	Pan-specific	NK055-3	Kinexus	RpAb	PSTK	1854	6	2740	22	48
ERK1 (MAPK3)	T202+Y204	PK182	External	MmAb	PSTK	401	13	628	32	57
ERK1 (MAPK3)	T202+Y204	PK621	Kinexus	RpAb	PSTK	3068	4	11148	42	263
ERK1 (MAPK3)	Y204	PK183	External	MmAb	PSTK	149	15	256	33	72
ERK1 (MAPK3)	Y204	PK864	Kinexus	RpAb	PSTK	4505	5	9883	31	119
ERK1 (MAPK3)	Y204+T207	PK866	Kinexus	RpAb	PSTK	3828	4	4990	2	30
ERK1 (MAPK3)	S283	PK879	Kinexus	RpAb	PSTK	2073	3	2958	28	43
ERK2 (MAPK1)	Y263+S266	PK880	Kinexus	RpAb	PSTK	2763	3	5555	6	101
ERK3 (MAPK6)	Pan-specific	NK057-2	External	RpAb	PSTK	609	13	935	27	54
ERK3 (MAPK6)	S189	PK623	Kinexus	RpAb	PSTK	1997	5	3516	33	76
ERK5 (MAPK7)	Pan-specific	NK206-3	External	GpAb	PSTK	150	40	686	40	357
ERK5 (MAPK7)	T219+Y221	PK184	External	MmAb	PSTK	234	11	501	11	114
ERK5 (MAPK7)	Y221	PK626	Kinexus	RpAb	PSTK	4398	4	29019	17	560
ESYT1	Y822	PN514	Kinexus	RpAb		8144	2	27152	6	233
FAK (PTK2)	Y397	PK627	Kinexus	RpAb	PYK	9653	2	50927	1	428
FAK (PTK2)	Y576+Y577	PK628	Kinexus	RpAb	PYK	8596	0	15540	24	81
FBPase (FBP1)	Y265	PN699	Kinexus	RpAb		7671	0	19437	11	153
FBPase 2 (FBP2)	Y216	PN700	Kinexus	RpAb		2424	3	12906	6	433
FGFR2 (BEK)	Pan-specific	NK063-2	Kinexus	RpAb	PYK	2424	3	3196	14	32
FGFR2 (BEK)	Pan-specific	NK063-4	Kinexus	RpAb	PYK	1916	7	2625	11	37
FGFR2 (BEK)	Y656+Y657	PK635	Kinexus	RpAb	PYK	3756	2	8910	10	137
FGFR3	Pan-specific	NK236-2	Kinexus	RpAb	PYK	1803	4	2486	16	38
FGFR3	Y647+Y648	PK637	Kinexus	RpAb	PYK	3389	0	5074	3	50
FGFR3	Y647+Y648	PK636	Kinexus	RpAb	PYK	5121	4	9423	16	84
Fgr	Y208+Y209	PK638	Kinexus	RpAb	PYK	4449	3	16536	3	272
Fgr	Y412	PK639	Kinexus	RpAb	PYK	2536	3	7666	7	202
G6PD	Y401	PN515	Kinexus	RpAb		2184	5	3927	10	80

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
G6PD	Y503+Y507	PN701	Kinexus	RpAb		6697	6	29997	1	348
GIT1	Y545	PN517	Kinexus	RpAb		6426	5	14806	7	130
GUK1	Y53	PK652	Kinexus	RpAb	PSTK	5848	4	15847	5	171
HCA59	Y147	PN518	Kinexus	RpAb		11538	2	26455	1	129
HMGA1	S36+T39	PN605	Kinexus	RpAb		1826	8	2917	1	60
HMGA1	T53	PN606	Kinexus	RpAb		2592	4	3803	9	47
HMGB1	S35+S39	PN607	Kinexus	RpAb		3254	8	5016	13	54
HMGCS1	S495	PN754	Kinexus	RpAb		5784	0	8965	19	55
HRAS	Pan-specific	NN281-3	Kinexus	RpAb		1688	7	2372	14	41
HRAS	Y157	PN755	Kinexus	RpAb		4122	10	9705	21	135
ICK	Pan-specific	NK073-2	External	MmAb	PSTK	355	17	503	1	42
ICK	Y156+T157	PK655	Kinexus	RpAb	PSTK	2476	1	4285	10	73
ICK	Y159	PK656	Kinexus	RpAb	PSTK	1571	4	2527	6	61
IDH1	T75+T77	PN706	Kinexus	RpAb		2196	1	3616	12	65
IDH1	Y391	PN757	Kinexus	RpAb		4662	7	29210	6	527
IGF1R	Pan-specific	NK074-2	Kinexus	RpAb	PYK	347	10	741	2	114
IGF1R	Pan-specific	NK074-4	External	MmAb	PYK	214	27	756	50	253
IGF1R	Y1280	PK152	External	RpAb	PYK	317	20	616	22	94
IGF1R	Y1346	PK658	Kinexus	RpAb	PYK	1396	3	3334	21	139
IkBα	Pan-specific	NN064	External	RpAb		225	19	438	22	95
IkBα	S32	PN232	External	MmAb		216	8	417	13	93
IkBα	Y42	PN164	External	RpAb		90	29	191	14	113
IκBe	S161	PN168	External	RpAb		77	0	107	24	39
IKKβ (IκBKB)	Pan-specific	NK076-5	Kinexus	RpAb	PSTK	1445	3	2158	6	49
IKKβ (IκBKB)	Pan-specific	NK076-7	External	MmAb	PSTK	131	18	316	27	142
IKKε (IκBKE)	S172	PK660	Kinexus	RpAb	PSTK	1484	0	1954	10	32
IKKγ (NEMO)	Pan-specific	NN077-2	External	MmAb		153	11	233	10	52
IKKγ (NEMO)	S377	PN758	Kinexus	RpAb		2210	1	3224	10	46
InsR (IR)	Pan-specific	NK079-2	Kinexus	RpAb	PYK	393	0	901	26	129
InsR (IR)	Y1189	PK663	Kinexus	RpAb	PYK	2832	8	4406	14	56
IRAK1	Pan-specific	NK080-2	External	RpAb	PSTK	453	15	671	22	48
IRAK1	T387	PK664	Kinexus	RpAb	PSTK	3563	1	5735	1	61
IRAK4	T345+S346	PK665	Kinexus	RpAb	PSTK	2977	8	4137	8	39
IRR (INSRR)	Pan-specific	NK273-1	Kinexus	RpAb	PYK	895	30	1272	7	42
ITK	Y512	PK666	Kinexus	RpAb	PYK	4742	4	9040	0	91
ITSN2	Y968	PN521	Kinexus	RpAb		4251	7	19574	23	360
JAK1	Pan-specific	NK084-5	Kinexus	RpAb	PYK	3361	5	4752	5	41
JAK1	Pan-specific	NK084-2	External		PYK	312	3	483	14	55

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
JAK1	Y1034+Y1035	PK884	Kinexus	RpAb	PYK	7253	5	42395	6	485
JAK1	T1107	PK895	Kinexus	RpAb	PYK	1644	0	2494	4	52
JAK2	Pan-specific	NK085-3	Kinexus	RpAb	PYK	1800	3	2664	16	48
JAK2	Pan-specific	NK085-4	Kinexus	RpAb	PYK	1417	11	2283	14	61
JAK2	Y570	PK668	Kinexus	RpAb	PYK	2885	4	5736	18	99
JAK2	Y1007+Y1008	PK034-1	External	RpAb	PYK	382	28	587	0	54
JAK2	Y1007+Y1008	PK667	Kinexus	RpAb	PYK	1789	9	3372	4	88
JAK3	Pan-specific	NK086	External	MmAb	PYK	115	15	190	1	64
JAK3	Y980+Y981	PK669	Kinexus	RpAb	PYK	1942	3	2840	4	46
JNK1 (MAPK8)	Pan-specific	NK217-2	Kinexus	RpAb	PSTK	1196	7	1968	10	65
JNK1 (MAPK8)	Pan-specific	NK189-5	External	MmAb	PSTK	360	20	633	31	76
JNK1 (MAPK8)	T183+Y185	PK190	External	MmAb	PSTK	131	6	209	38	60
JNK1 (MAPK8)	Y185	PK670	Kinexus	RpAb	PSTK	1913	5	3263	3	71
JNK2 (MAPK9)	Pan-specific	NK189-3	Kinexus	RpAb	PSTK	1419	5	1973	4	39
JNK2 (MAPK9)	Pan-specific	NK189-2	Kinexus	RpAb	PSTK	3568	1	5106	7	43
JNK3 (MAPK10)	Pan-specific	NK197-2	Kinexus	RpAb	PSTK	2506	7	3693	17	47
Jun (c-Jun)	Pan-specific	NN162	External	MmAb		87	13	158	4	81
Jun (c-Jun)	S243	PN614	Kinexus	RpAb		3838	5	7150	3	86
Jun (c-Jun)	S63	PN557	Kinexus	RpAb		3324	1	4321	16	30
Jun (c-Jun)	S63	PN213	External	MmAb		192	3	270	10	41
Jun (c-Jun)	S73	PN612	Kinexus	RpAb		2191	0	3128	10	43
Jun (c-Jun)	T91	PN163	External	RpAb		202	17	311	1	54
Jun (c-Jun)	T91+T93	PN214	External	MmAb		346	13	581	25	68
Jun (c-Jun)	Y170	PN155	External	RpAb		210	11	656	7	212
Jun (c-Jun)	T239	PN613	Kinexus	RpAb		1171	1	1708	3	46
KHS1 (MAP4K5)	Pan-specific	NK089	External	GpAb	PSTK	133	4	188	7	42
KHS1 (MAP4K5)	S174	PK671	Kinexus	RpAb	PSTK	2496	0	3675	16	47
KHS1 (MAP4K5)	Y31	PK672	Kinexus	RpAb	PSTK	3577	6	18672	4	422
Kit	Pan-specific	NK241-4	External	MmAb	PYK	164	10	254	4	55
Kit	S821+Y823	PK674	Kinexus	RpAb	PYK	4272	2	12119	2	184
Kit	Y703	PK036	External	RpAb	PYK	2699	8	7479	13	177
Kit	Y721	PK885	Kinexus	RpAb	PYK	5061	8	26023	11	414
Kit	Y730	PK037	External	RpAb	PYK	738	1	1301	5	76
Kit	Y936	PK673	Kinexus	RpAb	PYK	8913	3	39835	5	347
Ksr1	Pan-specific	NK090-1	Kinexus	RpAb	PSTK	258	2	455	22	76
Ksr1	S406	PK675	Kinexus	RpAb	PSTK	2132	0	3181	2	49
Ksr2	S490	PK676	Kinexus	RpAb	PSTK	2306	4	3315	11	44
LATS1	Pan-specific	NK091-2	Kinexus	RpAb	PSTK	709	16	956	19	35

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
LATS1	Pan-specific	NK091-3	External	MmAb	PSTK	207	7	325	4	57
LATS1	S464	PK677	Kinexus	RpAb	PSTK	1207	4	1619	2	34
LATS1	S909	PK678	Kinexus	RpAb	PSTK	2550	5	3705	16	45
Lck	Pan-specific	NK353-4	External	MmAb	PYK	195	11	262	10	35
Lck	Y192	PK679	Kinexus	RpAb	PYK	2193	2	4233	4	93
Lck	Y263+Y264	PK680	Kinexus	RpAb	PYK	3676	8	11064	1	201
Lck	Y394	PK149	External	MmAb	PYK	158	14	240	4	52
LOK	S191	PK685	Kinexus	RpAb	PSTK	4212	2	14191	2	237
LTK	Y672	PK687	Kinexus	RpAb	PYK	4193	5	7616	11	82
MERTK (MER)	Y749	PK702	Kinexus	RpAb	PYK	2210	1	10908	5	394
MERTK (MER)	Y749+Y753	PK703	Kinexus	RpAb	PYK	6536	6	22474	2	244
MERTK (MER)	Y753	PK704	Kinexus	RpAb	PYK	2854	15	7577	3	166
Met	Y1003	PK708	Kinexus	RpAb	PYK	3034	8	12255	1	304
Met	Y1230	PK709	Kinexus	RpAb	PYK	5518	3	13448	8	144
Met	Y1234	PK710	Kinexus	RpAb	PYK	6293	4	9779	18	55
Met	Y1234+Y1235	PK711	Kinexus	RpAb	PYK	7428	0	21575	8	190
PBK	Y74	PK754	Kinexus	RpAb	PSTK	2261	1	9315	5	312
PBK	Y272	PK889	Kinexus	RpAb	PSTK	7197	4	27056	3	276
PCTK1 (CDK16)	Y176	PK755	Kinexus	RpAb	PSTK	6805	2	22799	27	235
PECAM-1	Y713	PN523	Kinexus	RpAb		7162	3	19088	13	167
PGK1	Y196	PN525	Kinexus	RpAb		3511	5	13246	6	277
PIK3R1	Y467	PN526	Kinexus	RpAb		7170	6	19076	2	166
PIK3R1	Y580	PN527	Kinexus	RpAb		4582	1	8308	1	81
PIK3R2	Y464	PN528	Kinexus	RpAb		2432	16	4902	8	102
PKCt (PRKCQ)	Y545	PK773	Kinexus	RpAb	PSTK	4128	4	13694	9	232
PLCG1	Pan-specific	NN144-2	External	MmAb		567	18	769	0	36
PLCG1	Y771	PN165	External	RpAb		256	18	400	17	57
PLCG1	Y783	PN144	External	RpAb		115	25	304	11	165
PLCG1	Y783	PN530	Kinexus	RpAb		4894	9	20485	5	319
PLCG1	Y977	PN722	Kinexus	RpAb		5067	4	6676	19	32
PLCG2	Y753	PN723	Kinexus	RpAb		3465	1	8074	32	133
PLCG2	Y753	PN143	External	RpAb		335	8	1276	26	281
PLCG2	Y759	PN531	Kinexus	RpAb		4180	2	6482	16	55
Plk1 (PLK)	T210	PK778	Kinexus	RpAb	PSTK	1589	7	2856	35	80
Plk1 (PLK)	Y217	PK779	Kinexus	RpAb	PSTK	4273	12	16135	1	278
Plk4 (SAK; STK18)	T170	PK780	Kinexus	RpAb	PSTK	3216	11	8826	2	174
PP2A/Ca (PPP2CA)	Y307	PP504	Kinexus	RpAb	PSTP	2411	6	4813	5	100
PP2Ca (PPM1A)	Y362	PP508	Kinexus	RpAb	PSTP	3829	10	16063	0	319

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
PPP5C	Y119	PP507	Kinexus	RpAb	PSTP	6662	4	24229	7	264
PTPN11 (SHP2)	Pan-specific	NP026-3	External	MmAb	PYP	304	1	456	15	50
PTPN11 (SHP2)	Y62	PP512	Kinexus	RpAb	PYP	6783	2	23367	5	244
PTPN11 (SHP2)	T542	PP008	External	MmAb	PYP	243	20	406	6	67
PTPRA	Y798	PP521	Kinexus	RpAb	PYP	2568	4	4656	5	81
PTPRB	Y1981	PP522	Kinexus	RpAb	PYP	4015	8	13054	2	225
PTPRK	Y916	PP524	Kinexus	RpAb	PYP	1665	5	9041	1	443
PTPRM	Y929	PP526	Kinexus	RpAb	PYP	3131	3	16719	5	434
PTRF	Y308	PN646	Kinexus	RpAb		6021	5	29191	2	385
PYK2 (PTK2B)	Y402	PK788	Kinexus	RpAb	PYK	4691	1	7939	10	69
PYK2 (PTK2B)	Y402	PK787	Kinexus	RpAb	PYK	3671	4	6641	14	81
PYK2 (PTK2B)	Y579+Y580	PK789	Kinexus	RpAb	PYK	6627	6	18387	2	177
RIPK1 (RIP; RIPK)	Pan-specific	NK158-2	External	MmAb	PSTK	750	2	1024	25	37
RIPK1 (RIP; RIPK)	Y384	PK795	Kinexus	RpAb	PSTK	3211	7	6890	21	115
Ron (RONa)	Pan-specific	NK161-2	Kinexus	RpAb	PYK	3696	1	7082	4	92
Ron (RONa)	Y1238	PK800	Kinexus	RpAb	PYK	5380	1	25684	6	377
Ron (RONa)	Y1238+Y1239	PK801	Kinexus	RpAb	PYK	3192	9	9874	26	209
Ros	Y2114+Y2115	PK803	Kinexus	RpAb	PYK	8187	4	34551	7	322
RSK1 (RPS6KA1)	T573	PK806	Kinexus	RpAb	PSTK	7999	5	22001	10	175
RSK1 (RPS6KA1)	Y220+S221	PK807	Kinexus	RpAb	PSTK	4867	1	21638	7	345
RSK3 (RPS6KA2)	Y217+S218	PK808	Kinexus	RpAb	PSTK	4559	2	9621	5	111
SgK269 (PEAK1)	Y635	PK811	Kinexus	RpAb	PSTK	5459	10	11582	5	112
SHIP2 (INPPL1)	Y886	PN534	Kinexus	RpAb		9919	18	28076	12	183
SIT	Y90	PN535	Kinexus	RpAb		2974	10	4033	8	36
SIT	Y95	PN536	Kinexus	RpAb		3623	2	14419	3	298
snRNP 70	Y126	PN537	Kinexus	RpAb		1849	13	2955	7	60
SOCS7	Y561	PN728	Kinexus	RpAb		4406	5	7432	3	69
Src	Pan-specific	NK172-4	External	MmAb	PYK	153	8	260	0	71
Src	Pan-specific	NK172-3	External	RpAb	PYK	242	13	447	41	85
Src	Y419	PK107	External	RpAb	PYK	147	38	457	5	210
STAT1	Y701	PN666	Kinexus	RpAb		9327	0	37380	3	301
STAT2	Y690	PN668	Kinexus	RpAb		145	26	276	5	90
STAT3	Y705+T708	PN539	Kinexus	RpAb		1549	6	3127	3	102
STAT4	S721	PN274	External	MmAb		354	7	779	0	120
STAT6	Y641	PN673	Kinexus	RpAb		3881	7	15544	2	301
Syk	Y323	PK821	Kinexus	RpAb	PYK	1064	18	1630	5	53
Syk	Y352	PK822	Kinexus	RpAb	PYK	615	1	858	1	39
Syk	Y525+Y526	PK823	Kinexus	RpAb	PYK	425	31	673	14	58

Target Name	P-Site	Kinexus Antibody Codes	Antibody Source	Type	Kinase or Phosphatase Type	Average Serum-Starved Net Signal	% Error	Average EGF-treated Net Signal	% Error	EGF-induced %CFC
TEC	Y519	PK829	Kinexus	RpAb	PYK	2374	1	4271	0	80
TGM2	Y369	PN541	Kinexus	RpAb		7205	9	22534	0	213
TIE2 (TEK)	Y897	PK830	Kinexus	RpAb	PYK	2722	4	9004	5	231
TIE2 (TEK)	Y992	PK831	Kinexus	RpAb	PYK	231	2	415	21	80
TLN1	Y70	PN542	Kinexus	RpAb		3691	1	6451	3	75
TNK1	Y277	PK832	Kinexus	RpAb	PSTK	1205	0	14220	3	1080
TrkA (NGFR)	Y680+Y681	PK837	Kinexus	RpAb	PYK	4722	2	14771	4	213
TrkB (NTRK2)	Y516	PK838	Kinexus	RpAb	PYK	2433	6	3632	5	49
TrkB (NTRK2)	Y702	PK839	Kinexus	RpAb	PYK	263	4	384	3	46
Yes	Pan-specific	NK186	External	MmAb	PYK	204	42	336	15	64
Yes	Y222+Y223	PK858	Kinexus	RpAb	PYK	3073	9	6875	2	124
YSK1 (STK25)	T174	PK859	Kinexus	RpAb	PSTK	2159	2	5282	7	145
ZAP70	Y248	PK860	Kinexus	RpAb	PYK	234	2	341	16	46
ZAP70	Y292	PK861	Kinexus	RpAb	PYK	1173	18	2831	17	141
ZAP70	Y319	PK862	Kinexus	RpAb	PYK	3173	32	5123	19	61
ZAP70	Y492+Y493	PK863	Kinexus	RpAb	PYK	3205	13	5104	22	59