KINEXUS

KCAM SERVICES
Version 25JN1

# CUSTOM SERVICES

## CUSTOM ANTIBODY MACROARRAYS
## CUSTOMER INFORMATION PACKAGE

Toll free: 1-866-KINEXUS or 604-323-2547
Facsimile: 604-323-2548
E-mail: info@kinexus.ca
www.kinexus.ca

KINEXUS

# Custom Antibody Macroarray (KCAM) Services

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# Overview of Kinexus Custom Antibody Macroarray Services

## 1. INTRODUCTION

Our Kinexus antibody array services empower our clients to have their cell and tissue lysates from their experimental model systems investigated for the discovery of biomarker leads with high and medium content antibody microarrays. Whereas our Kinex™ KAM-2000 series antibody microarrays allow for the testing of over 2000 different pan- and phosphosite-specific antibodies for broad biomarker screening, our custom antibody macroarray service offer high flexibility for our clients to explore a smaller focused set of antibodies with a more economical approach when large numbers of samples are to be investigated. Our custom antibody macroarrays are convenient and very cost-effective tools to explore in a directed manner the expression and phosphorylation states of up to 200 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 50 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 custom antibody microarrays superior to any other commercially available antibody microarrays. Some of the key advantages of our antibody arrays include the opportunity to use highly validated antibodies that 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 arrays 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. Our antibody arrays 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.

No other proteomics technology, including mass spectrometry, can compete with antibody arrays 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 use of antibody arrays is a particularly attractive initial route for taking a systems biology, directed proteomics approach to studying human diseases and experimental model systems.

In this comprehensive information package, we explain the vulnerabilities of antibody arrays in general, and the versatility and power of the antibody microarrays to work with different formats and how we hhave overcome many of 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 our antibody arrays, 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 types of services with antibody arrays that permit detections of changes in protein expression and phosphorylation at either specific phosphosites or general changes in protein-tyrosine phosphorylation. Clients should contact us regarding alternative formats for detection of other types of covalent modifications, and protein- and drug-interactions.

Kinexus also offers full service to our clients with cell and tissue specimens shipped to our facility in Vancouver, British Columbia, Canada.

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 arrays for biomarker discovery, we recommend our 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

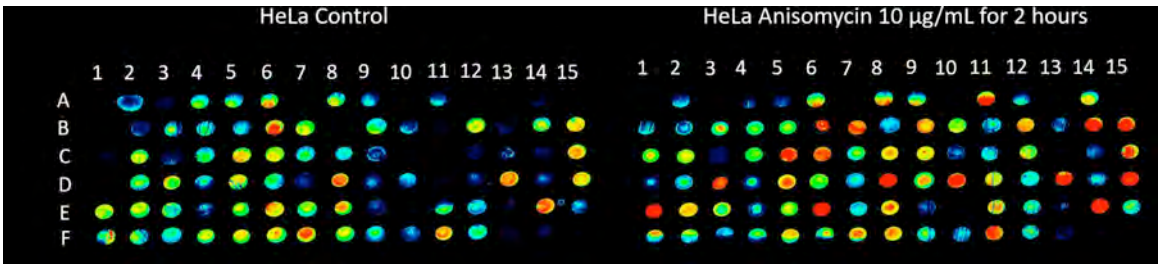
Kinexus presently offers over 1,200 phosphosite-specific antibodies (for phosphorylation) and pan-specific antibodies (for expression levels of these phosphoproteins). Almost all of these are incorporated into the KAM-2025 antibody microarrays.

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. A complete listing of all the antibodies available from Kinexus are provided in MS-Excel format, which are downloadable from the Kinexus website and also included in **Appendix 5** in this information package. These 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.

## 3. QUALITY CONTROL PROCEDURES

The antibodies on the custom macroarrays are robotically deposited on 3D-matrix-coated glass (Nexterion) slides or nitrocellulose membranes with a quill-printing contact microarrayer. A deposition amount of ~25-250 ng of antibody are typically 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 arrays 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 1 provides scanned images of two fields of a custom-printed antibody macroarray slide with transcription factor phosphosite-specific antibodies.

Figure 1. **HeLa cells treated with anisomycin lead to visible changes in the signals on a transcription factor antibody macroarray.** Eighty-nine different antibodies were printed (0.25 ug/mL) on the slide in each of two fields. Each letter and number combination corresponds to a particular antibody purified to recognize a specific phosphosite(s) on a transcription factor. Fifty ug of biotinylated lysate proteins from HeLa cells were added onto each field. In the field shown on the right, the HeLa cells were pretreated for 2 hours with the protein synthesis inhibitor anisomycin. Alexa543-Cy3 labeled anti-biotin antibodies were used as secondary antibodies. Images were captured using the Perkin Elmer Scan Array and analyzed via the Scan array express program. Blue to red: from lower to higher signal intensities. It is evident anisomycin-treatment increases the phosphorylation of many of the targeted transcription factors.



In our custom antibody 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 multiple measurements from the average, which can be used to determine which target proteins to follow up.

## 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 antibody arrays and our follow-up Kinetworks™ custom Western blotting services are superior and complementary methods to undertake broad studies of proteins for signalling network analyses.

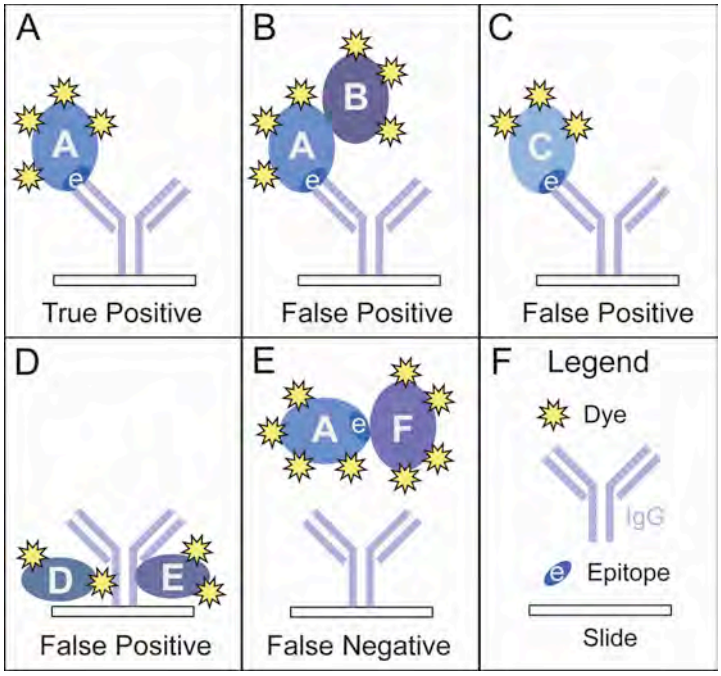
## 5. DETECTION OF PROTEIN EXPRESSION AND SITE-SPECIFIC PHOSPHORYLATION WITH KINEXUS ANTIBODY ARRAYS

Historically, lysate proteins are commonly directly dye-labelled prior to capture on antibody microarrays in most published studies. However, as illustrated in Figure 2, 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. 2B), from cross-reactivity with off-target proteins that share similar epitopes (Fig. 2C), and from the direct binding of the proteins to other regions in the immobilized capture antibodies (Fig. 2D). 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. 2E).

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. 2D). 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 2. 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, 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 arrays in the past and have hindered their adoption.

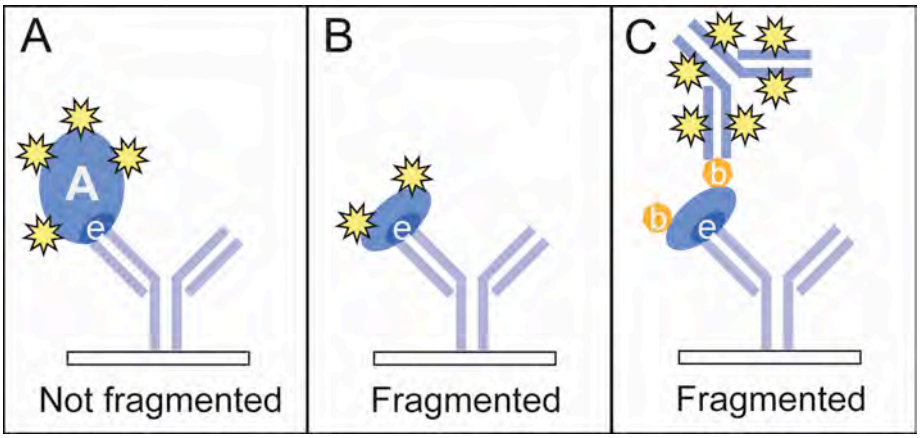
To help mitigate the problem of target proteins residing in complexes, we have developed a sample preparation method that involves fragmentation of the lysate proteins by chemical cleavage at cysteine (CCC) residues using Tris (2-carboxyethyl) phosphine hydrochloride (TCEP) and 2-Nitro-5-thiocyanatobenzoic acid (NTCB) (Fig. 3). 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. See **Appendix 7** for our recommended protocols for lysate sample preparation for use with antibody microarrays.

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 a 20-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 strong signals than smaller sized proteins.

Figure 3. Chemical cleavage of lysate proteins at cysteine residues and detection.

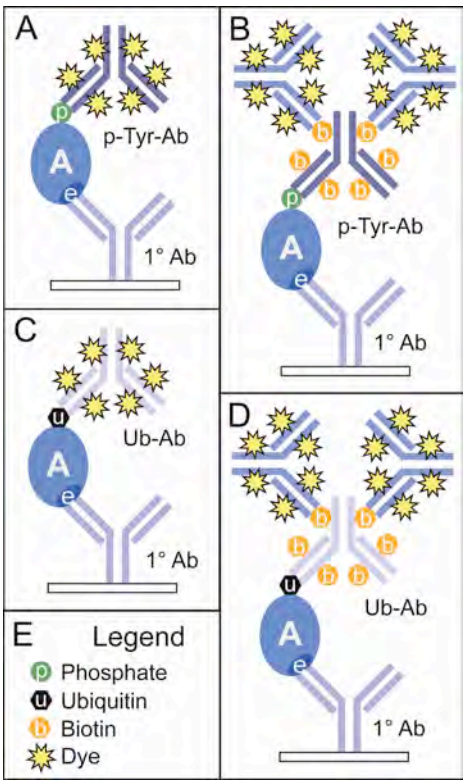



Lysate proteins can be directly labelled with a fluorescent dye after CCC and then captured on an antibody array. However, many of the signalling proteins targeted with Kinexus antibodies are normally produced at levels that are hundreds to thousands of times lower than structural proteins and housekeeping 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 3C, with a dye-labelled anti-biotin antibody represents one of the protocols that we we have adopted with our services.

## 6. DETECTION OF COVALENT MODIFICATIONS WITH ANTIBODY ARRAYS

Antibody arrays can also be used in a sandwich antibody array 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 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. 4A and 4B) or a ubiquitin-specific antibody (Fig. 4C and 4D) 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 4. Possible configurations for tracking phosphorylation or ubiquitination of lysate proteins with the Kinexus antibody array. 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.



## 7. CUSTOM ANTIBODY ARRAY REPORTS

The Kinex™ KAM services also permit our clients to move from “pixels” to “pathways”. As part of our KAM Antibody Array services, Kinexus quantifies the intensities of dye-signals from captured proteins on antibody arrays using Imagene 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 measurement of the same 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.

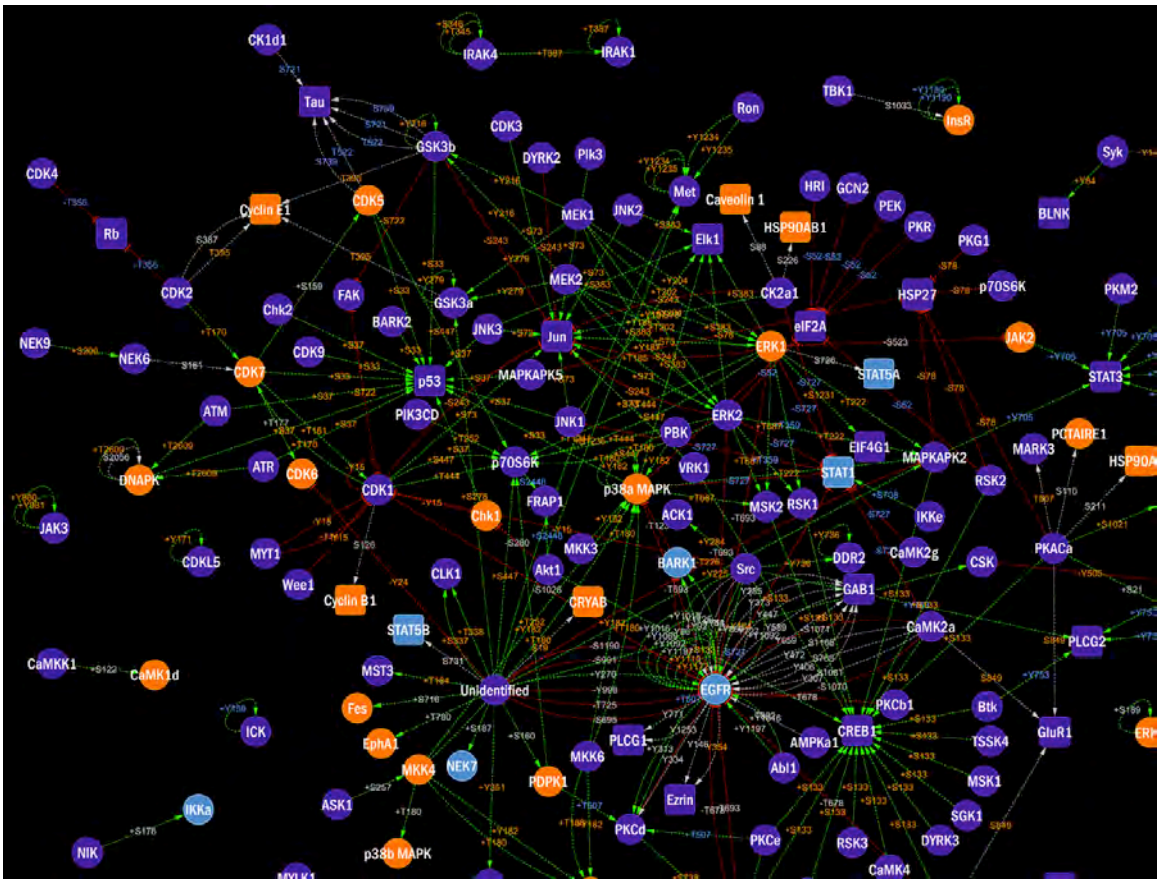
This includes the minimum, maximum, average, median and standard error values of the globally normalized signal intensities across these other studies. Any of the Kinexus antibodies on our arrays can be ordered directly from Kinexus for follow-up to experimentally validate key leads from the antibody array 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 available fo viewing on the https://kinexus-ca.myshopify.com/ website.

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 2,500 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 antibody arrays.

Kinexus also offers our custom KiNetscape Network Mapping service to connect the leads from our proteomics analyses into protein phosphorylation network maps. We have produced a database of over 24,000 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 5 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 5. 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 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 large portion of the full map is shown.



## 8. TURNAROUND TIME

The turnaround time for these services is estimated to be 3 to 4 weeks. However, this could varies slightly according to the size of the order and the demand of the service at the time when the order is placed. Each arrayed will be delivered with a comprehensive report.

## 9. PRICING INFORMATION

Due to the large range of potential strategies to produce custom antibody arrays, we do not have lists of pricing options for the KCAM services. Interested clients should contact Dr. Dirk Winkler at the Peptide Facility at Kinexus (peptides@kinexus.ca) to consult with him about the best options and pricing of antibody macroarrays optimal for their needs.

## 10. FOLLOW-UP SERVICES

We highly recommend that all interesting leads generated with the our custom antibody macroarrays 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 https://www.kinexus.ca/kinexus/services/immunoblotting.

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:

- Mass spectrometry identification of antibody cross-reactive proteins;
- Custom Graphics – we can prepare pathway charts and bar graphs for your scientific publications;
- Custom Lysate Macroarrays – we can print custom nitrocellulose or glass slide arrays with 10 to 100 or more cell/tissue lysates slected from our library or supplied by you; and

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

- KiNET™ Antibody Microarray (KiNET-AM) DataBase (www.kinet-am.ca) – clients can directly compare their antibody array 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 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 antibody arrays 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.

# FORMS REQUIRED

## 11. FORMS TO BE COMPLETED

***All customers are required to complete the following forms for each order placed:***

A. Service Order Form (KCAM-SOF). The Service Order Form (SOF) allows us to obtain client contact and billing information and establish the cost of the order (see **Appendix 1**).

B. Service Identification Form (KCAM-SIF). The Service Identification Form (SIF) permits us to determine which specific Custom Peptide Macroarray Services are requested (see **Appendix 2**).

C. Kinexus Proteomics Services Agreement (see **Appendix 3**).

D. Courier Airway Bill. If antibodies or lysate samples are to be sent to Kinexus by the client, please complete this form (Supplied by courier).

E. Commercial Invoice (not required by Canadian clients). If antibodies or lysate samples are to be sent to Kinexus by the client who is not located within Canada, please complete this form (see **Appendix 4**).

### A. Service Order Form (KCAM-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

Note that clients may choose to have Kinexus produce custom antibody macroarrays and carry out further analyses with the slides in their own laboratory.

**B. Service Identification Form (KCAM-SIF)**

*Note that:*

* Fillable MS-Word versions of all of these KCAM-SIF and the KCAM-SOF forms are available by contacting Kinexus directly. These MS-Word forms as well as for all enquiries related to peptide synthesis and array technical/research issues, work orders, and service fees, please contact Dr. Dirk Winkler by email at peptides@kinexus.ca or by phone at 604-323-2547 Ext.17.
- For the CKAM service, please assign a unique name (Client ID Name) to be entered on the Service Order Form (KCAM-SOF).

*For each sample submitted to Kinexus for KCAM analysis, please ensure the following:*

- At least 200 µg of protein is provided for each lysate sample to be analyzed, 1 sample per screen. Please see **Appendix 6** for advice on how best to prepare lysate samples for antibody array analyses.
- The form is certified correct and signed and dated

When Kinexus received the all information complete and correct, you will receive a confirmation of the specifics for your order, including pricing. We will not proceed with your order until we have received verification of your approval to go ahead and process your order.

**C. Kinexus Proteomics Services Agreement**

- A signed Kinexus Proteomics Services Agreement is required before your first order with Kinexus can be processed.

- This Agreement is required to be signed and dated by an authorized representative, typically a Senior Officer, Senior Scientist, or Principal Investigator, before the first order can be processed, but does not have to be signed again for repeat orders. The Kinexus Service Agreement is typically valid for 10 years. Note that this a general agreement that permits our clients to use any of our proteomics services, and certain provisions do not apply to synthesis of peptides and peptide arrays, which are considered fully confidential. If you require changes or modifications to be made to our standard Service Agreement, please email us at 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 to us for our final approval.

**D. 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

**E. 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.

Clients can just order the printed peptide macroarrays and perform the experiments in their own laboratory. Alternatively, Kinexus can perform the experimental work at our facility, including incubations with the desired probing reagent such as an antibody, recombinant protein, active enzyme, peptide, lectin or another binding ligand. The intensity of each signal on the peptide macroarray can be quantified using our Bio-Rad FluroS Max scanner and images provided of the scanned array.

Our custom peptide macroarrays are ideal when the number of features desired ranges between 40 to 400. For higher density arrays, we can also provide custom microarray printing of peptides on coated glass slides. Contact us to learn how we can provide the most cost-effective array solutions for your research studies.

Form: KCAM-SOF

# KINEXUS CUSTOM ANTIBODY MACROARRAY SERVICE ORDER FORM

*Subject to terms of the Kinexus Proteomics Services Agreement*

**Kinexus Order Number**
For Kinexus internal use only.

## Client Information

☐ Repeat Customer **OR** ☐ New Customer ☐ Client Order ID Name _____

☐ Dr. ☐ Mr. ☐ Ms. _____
*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*

## KINEXUS CUSTOM ANTIBODY MACROARRAYS

**RESULTS MAY BE SENT BY EMAIL TO:** ☐ AUTHORIZED REPRESENTATIVE/INVESTIGATOR **AND/OR** ☐ CONTACT PERSON

## BILLING INFORMATION

**The Kinexus Custom Antibody Macroarrays are produced as specified by the client, and the client may also opt to have Kinexus perform the testing, scanning and quantitation of these membranes or slides printed with antibodies.**

**PRICE PER SAMPLE ON EACH MACROARRAY - *Refer to provided quotation from Kinexus*** ***All prices in U.S. Funds***

*Sample Analysis Options*

KCAM copies produced (confidential peptide samples used* and arrays printed @ quoted price)* $_____
KCAM copies probed, scanned and quantified (confidential @ quoted price) + $_____
*Note that any Kinexus pre-made antibodies used are billed separately.

Total # of antibody spots per copy: _____ Total # of Custom Antibody Macroarray copies: _____ **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)* *CSV* *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 KCAM Services?*** ☐ ***Direct Mail*** ☐ ***Email*** ☐ ***Web Site*** ☐ ***Ad*** ☐ ***Referral*** ☐ ***Conference or Trade Show*** ☐ ***Other***

Form: KCAM-SIF

# KINEXUS CUSTOM ANTIBODY MACROARRAY SERVICE INFORMATION FORM

*Subject to terms of the Kinexus Proteomics Services Agreement*

**KINEXUS ORDER NUMBER**
For Kinexus internal use only.

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

## CUSTOM KINEXUS ANTIBODY MACROARRAY PRODUCTION SERVICES REQUESTED: (WITH CLIENT OR KINEXUS ANTIBODIES)

Use this form to order this custom service currently offered by Kinexus. Please check the appropriate tick boxes. If you need assistance, please contact a technical service representative by calling toll free in North America 1-866-KINEXUS (866-546-3987) or by email at info@kinexus.ca. An electronic fillable MS-Word version of this form can be downloaded provided upon request.

☐ KCAM PRODUCTION SERVICE REQUESTED

☐ KCAM PROBING, SCANNING AND QUANTIFICATION SERVICE REQUESTED

**KINEXUS ID NUMBER**
*(Bar Code Identification Number)*
For Kinexus Internal Use Only.

**A. CLIENT ORDER ID NAME:**

Customer ID:

*Provide ID name of your choice for your reference and for use in the KCAM-SOF and other forms that describe the antibodies to be used in this service for macroarray production.*

**B. SAMPLE IDENTIFICATION:**

*For each client supplied antibody sample, please provide a list of the antibodies with their names and the preferred configuration or layout for printing that includes replicates if desired. There should be one (1) completed Antibody Sample Description list per Client Order ID Name.*

**D. PRICING:**

☐ This should be determined after consultation with Kinexus and based on a quoted price for the work.

**Use this pricing information for completion and submission of Service Order Form KCAM-SOF.**

_____ _____ _____
*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.

| | |
|---|---|
| _____ | **KINEXUS BIOINFORMATICS CORPORATION** |
| *Printed Name of Institute or Company* | |
| Per: _____ | Per: _____ |
| *Signature of Authorized Representative* | *Signature of Dr. Steven Pelech* |
| Name: _____ | **Dr. Steven Pelech** |
| *Printed Name of Authorized Representative* | |
| Title: _____ | **President and Chief Scientific Officer** |
| *Printed Title of Authorized Representative* | |
| Date signed: _____ | Date signed: _____ |

# COMMERCIAL INVOICE

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

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

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

| NO. OF PKGS | TYPE OF PACKAGING | QUANTITY OF SAMPLES | COMPLETE AND ACCURATE COMMODITY DESCRIPTION | UNIT VALUE |
|---|---|---|---|---|
| | ☐ FedEx Letter<br>☐ FedEx Pak<br>☐ Box<br>☐ Other | *Total number of 1.5 ml Eppendorf tubes:* | 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 *per sample* |

| 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**

**Appendix 5**

## Listing of antibodies available for sale from Kinexus

**www.kinexus.ca**

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14-3-3 (KCIP-1) | Pan | P31946 | | | | | | | | | | | ● | | | | | 14-3-3-pan-1 | NN441-2 |
| 14-3-3 (KCIP-1) | Pan | P31946 | | | | | | | | | | | ● | | | | | 14-3-3-pan-2 | NN441-3 |
| 14-3-3-F | Pan | Q04917 | | | | | | | | | | | ● | | | | | 14-3-3-F-2 | NN450-1 |
| 14-3-3-G | Pan | P61981 | | | | | | | | | | | ● | | | | | 14-3-3-G-2 | NN453-2 |
| 14-3-3-S | Pan | P31947 | | | | | | | | | | | ● | | | | | 14-3-3-S-1 | NN454-1 |
| 14-3-3-S | Pan | P31947 | | | | | | | | | | | ● | | | | | 14-3-3-S-2 | NN454-2 |
| 14-3-3-T | Pan | P27348 | | | | | | | | | | | ● | | | | | 14-3-3-T-1 | NN455-1 |
| 14-3-3-T | Pan | P27348 | | | | | | | | | | | ● | | | | | 14-3-3-T-2 | NN455-2 |
| 14-3-3-Z | Pan | P63104 | | | | | | | | | | | ● | | | | | 14-3-3-Z-2 | NN001-3 |
| 14-3-3b | Pan | P31946 | | | | | | | | | | | ● | | | | | 14-3-3-B-1 | NN452-1 |
| 14-3-3b | Pan | P31946 | | | | | | | | | | | ● | | | | | 14-3-3-B-2 | NN452-2 |
| 14-3-3e | Pan | P62258 | | | | | | | | | | | ● | | | | | 14-3-3-E-1 | NN451-1 |
| 14-3-3e | Pan | P62258 | | | | | | | | | | | ● | | | | | 14-3-3-E-CT | NN451-3 |
| 4E-BP1 (PHAS1) | T37+T46 | Q13541 | | | | | | ● | | | | | | | | | | 4E-BP1-pT37+pT46 | PN550 |
| A6 (Twinfilin-1) | Y309 | Q12792 | DSK | | | | | | | | | | ● | | | | | A6-pY309 | PK501 |
| A6r (Twinfin-2) | Y309 | Q6IBS0 | DSK | | | | | | | | | | ● | | | | | A6r-pY309 | PK502 |
| AAK1 | S637+Pan | Q2M2I8 | PSTK | | | | | | | | | | | | | | | AAK1-pS637 | PK503 |
| Abl (Abl1) | Pan | P00519 | PYK | | | | | | | | | | | | | | | Abl1 | NK001-2 |
| Abl (Abl1) | Pan | P00519 | PYK | | | | | | | | | | | | | | | Abl1-3 | NK001-4 |
| Abl (Abl1) | Pan | P00519 | PYK | | | | | | | | | | | | | | | Abl1-2 | NK001-6 |
| Abl (Abl1) | Y139 | P00519 | PYK | | | | | | | | | | | | | | | Abl1-pY139 | PK504 |
| Abl (Abl1) | Y226 | P00519 | PYK | | | | | | | | | | | | | | | Abl1-pY226 | PK505 |
| Abl (Abl1) | Y257 | P00519 | PYK | | | | | | | | | | | | | | | Abl1-pY257 | PK506 |
| Abl (Abl1) | Y264 | P00519 | PYK | | | | | | | | | | | | | | | Abl1-pY264 | PK507 |
| Abl (Abl1) | Y393+T394 | P00519 | PYK | | | | | | | | | | | | | | | Abl-pY393+pT394 | PK873 |
| Abl (Abl1) | Y413 | P00519 | PYK | | | | | | | | | | | | | | | Abl1-pY413 | PK896 |
| Abl (Abl1) | Y469 | P00519 | PYK | | | | | | | | | | | | | | | Abl1-pY469 | PK508 |
| ACACA (ACC1; | S29 | Q13085 | | | | | | | | ● | | | | | | | | ACC1-pS29 | PN733 |
| ACACA (ACC1; | S80 | Q13085 | | | | | | | | ● | | | | | | | | ACACA-pS80 | PN863 |
| ACACB (ACC2) | T1342 | O00763 | | | | | | | | ● | | | | | | | | ACC2-pT1342 | PN734 |
| AChE | Y164 | P22303 | | | | | | | | ● | | | | | | | | AChE-pY164 | PN931 |
| ACK1 (TNK2) | Y284 | Q07912 | PYK | | | | | | | | | | | | | | | ACK1-pY284 | PK511 |
| ACK1 (TNK2) | Y518 | Q07912 | PYK | | | | | | | | | | | | | | | ACK1-pY518 | PK512 |
| ACK1 (TNK2) | Y859+Y860 | Q07912 | PYK | | | | | | | | | | | | | | | ACK1-pY859+pY86 | PK513 |
| ACLY | S455 | P53396 | | | | | | | | ● | | | | | | | | ACLY-pS455 | PN735 |
| ACLY | Y682 | P53396 | | | | | | | | ● | | | | | | | | ACLY-pY682 | PN686 |
| ACO1 IREB1) | S711+Pan | P21399 | | | | | | | | ● | | | | | | | | ACO1-pS711 | PN736 |
| ACO1 IREB1) | S806 | P21399 | | | | | | | | ● | | | | | | | | ACO1-pS806 | PN737 |
| ACP1 | Y132+Y133 | P24666 | | PSTP | | | | | | | | | | | | | | ACP1-pY132+pY13 | PN687 |
| ACTB (beta- | Y53 | P60709 | | | | | | | | | | | | ● | | | | ACTB-pY53 | PN501 |
| ACTB (beta- | Y294 | P60709 | | | | | | | | | | | | ● | | | | ACTB-pY294 | PN500 |
| ACTN1 | Y246 | P12814 | | | | | | | | | | | | ● | | | | ACTN1-pY246 | PN502 |
| ADD1 (Adducin- | S726 | Q9UEY8 | | | | | | | | | | | | ● | | | | ADD1-pS726 | PN807 |
| ADD1 (Adducin- | T724+S726 | Q9UEY8 | | | | | | | | | | | | ● | | | | ADD1- | PN866 |
| ADD1 (Adducin- | Y35 | Q9UEY8 | | | | | | | | | | | | ● | | | | ADD1-pY35 | PN867 |
| ADD1 (Adducin- | Y550 | Q9UEY8 | | | | | | | | | | | | ● | | | | ADD1-pY550 | PN868 |
| ADRB2 | S355+S356 | P07550 | | | | ● | | | | | | | | | | | | ADRB2-pS355+pS3 | PN784 |
| AGTR1 (AT1) | S335+T336 | P30556 | | | | ● | | | | | | | | | | | | AGTR1-pS335+pT3 | PN785 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AKAP5 | T227 | P24588 | | | | | | | | | | | ● | | | | | AKAP5-pT227 | PN1019 |
| AKAP12 | S627+S629 | Q02952 | | | | | | | | | | | ● | | | | | AKAP12-pS627+pS | PN1009 |
| AKAP12 | S696 | Q02952 | | | | | | | | | | | ● | | | | | AKAP12-pS696 | PN933 |
| AKAP12 | T469 | Q02952 | | | | | | | | | | | ● | | | | | AKAP12-pT469 | PN1018 |
| Akt1 (PKBa) | Pan | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-2 | NK129-4 |
| Akt1 (PKBa) | Pan | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-3 | NK129-5 |
| Akt1 (PKBa) | Pan | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-1 | NK129-3 |
| Akt1 (PKBa) | T308 | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-pT308 | PK515 |
| Akt1 (PKBa) | Y315 | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-pY315 | PK516 |
| Akt1 (PKBa) | Y326 | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-pY326 | PK517 |
| Akt1 (PKBa) | T443 | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-pT443 | PK973 |
| Akt1 (PKBa) | S473 | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-pS473 | PK869 |
| Akt1 (PKBa) | S473 | P31749 | PSTK | | | | | | | | | | | | | | | Akt1-pS473 | PK958 |
| Akt2 (PKBb) | Pan | P31751 | PSTK | | | | | | | | | | | | | | | Akt2-1 | NK130-4 |
| Akt2 (PKBb) | Pan | P31751 | PSTK | | | | | | | | | | | | | | | PKB2-PCT (Akt2-4) | NK130-5 |
| Akt2 (PKBb) | Pan | P31751 | PSTK | | | | | | | | | | | | | | | Akt2-2 | NK130-8 |
| Akt2 (PKBb) | Pan | P31751 | PSTK | | | | | | | | | | | | | | | Akt2-3 | NK130-9 |
| Akt3 (PKBg) | Pan | Q9Y243 | PSTK | | | | | | | | | | | | | | | Akt3-2 | NK131-3 |
| ALK | Pan | Q9UM73 | PYK | | | ● | | | | | | | | | | | | ALK-AKCD | NK003-2 |
| ALK | Pan | Q9UM73 | PYK | | | ● | | | | | | | | | | | | ALK-BKCD | NK003-3 |
| ALK | Y1092 | Q9UM73 | PYK | | | ● | | | | | | | | | | | | ALK-pY1092 | PK518 |
| ALK | Y1096 | Q9UM73 | PYK | | | ● | | | | | | | | | | | | ALK-pY1096 | PK519 |
| ALK | Y1507 | Q9UM73 | PYK | | | ● | | | | | | | | | | | | ALK-pY1507 | PK520 |
| ALOX5 (5-LO) | S272 | P09917 | | | | | | | | ● | | | | | | | | ALOX5-pS272 | PN738 |
| ALS2 (ALS2CR6) | S483 | Q96Q42 | | | | | | | | | | | | | | | | ALS2-pS483 | PN869 |
| ALS2 (ALS2CR6) | S492 | Q96Q42 | | | | | | | | | | | | | | | | ALS2-pS492 | PN870 |
| AML1 (RUNX1) | T273 | Q01196 | | | ● | | | | | | | | | | | | | AML1-pT273 | PN568 |
| AML2 (RUNX3) | T231 | Q13761 | | | ● | | | | | | | | | | | | | AML2-pT231 | PN569 |
| AMPKa1 | Pan | Q13131 | PSTK | | | | | | | | | | | | | | | AMPKa1-AKCD | NK259-1 |
| AMPKa1 | Pan | Q13131 | PSTK | | | | | | | | | | | | | | | AMPKa1-NT | NK259-2 |
| AMPKa1 | T172 | Q13131 | PSTK | | | | | | | | | | | | | | | AMPK-pT172 (actu | PK897 |
| AMPKa1 | T183+S184 | Q13131 | PSTK | | | | | | | | | | | | | | | AMPKa1-pT183+pS | PK521 |
| AMPKa1 | T490 | Q13131 | PSTK | | | | | | | | | | | | | | | AMPKa1-pT490 | PK918 |
| AMPKa2 | Pan | P54646 | PSTK | | | | | | | | | | | | | | | AMPKa2-AKCD2 | NK260-1 |
| AMPKa2 | Pan | P54646 | PSTK | | | | | | | | | | | | | | | AMPKa2-AKCD1 | NK260-2 |
| AMPKa2 | S377 | P54646 | PSTK | | | | | | | | | | | | | | | AMPKa2-pS377 | PK522 |
| AMPKa2 | Y436 | P54646 | PSTK | | | | | | | | | | | | | | | AMPKa2-pY436 | PK919 |
| ANAX11 | Y482 | P50995 | | | | | | | | | | | | | | ● | | ANXA11-pY482 | PN871 |
| ANKRD3 | S438+Pan | P57078 | PSTK | | | | | | | | | | | | | | | ANKRD3-pS438 | PK523 |
| ANXA1 | Y207 | P04083 | | | | | | | | | | | | | | ● | | ANXA1-pY207 | PN503 |
| ANXA2 | Y238 | P07355 | | | | | | | | | | | | | | ● | | ANXA2-pY238 | PN504 |
| AP2B1 (ADTB2) | Y276 | P63010 | | | | | | | | | | | | | | | ● | AP2B1-pY276 | PN934 |
| AP2M1 (AP-2 mu | T156 | Q96CW | | | | | | | | | | | ● | | | | ● | AP2M1-pT156 | PN935 |
| AP3B1 | S276 | O00203 | | | | | | | | | | | | | | | ● | AP3B1-pS276 | PN936 |
| AP3B2 | S272 | Q13367 | | | | | | | | | | | | | | | ● | AP3B2-pS272 | PN937 |
| APC | S2129 | P25054 | | | | | | | | | | | ● | | | | | APC-pS2129 | PN739 |
| APP (A4; ABPP; | Pan | P05067 | | | ● | ● | | | | | ● | | | | | | | APP-2 | NN192-3 |
| APP (A4; ABPP; | T743 | P05067 | | | ● | ● | | | | | ● | | | | | | | APP-pT743 | PN808 |
| APP (A4; ABPP; | Y757 | P05067 | | | ● | ● | | | | | ● | | | | | | | APP-pY757 | PN809 |
| AR | S310 | P10275 | | | ● | ● | | | | | | | | | | | | AR-pS308 | PN571 |
| AR | S96 | P10275 | | | ● | ● | | | | | | | | | | | | AR-pS94 | PN570 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arg (Abl2) | Pan | P42684 | PYK | | | | | | | | | | | | | | | Abl2-1 | NK238-1 |
| Arg (Abl2) | Y439 | P42684 | PYK | | | | | | | | | | | | | | | Abl2-pY439 | PK509 |
| Arg (Abl2) | Y439+T440 | P42684 | PYK | | | | | | | | | | | | | | | Abl2-pY439+pT440 | PK510 |
| ARID1A | S363 | O14497 | | | ● | | | | | | | | | | | | | ARID1A-pS363 | PN740 |
| ARID1A | Y1506 | O14497 | | | | | | | | | | | | | | | | ARID1A-pY1506 | PN864 |
| ARRB1 | S412 | | | | | | | | | | | | | | | | | ARRB1-pS412 | PN1031 |
| ASK1 (MAP3K5) | S1033 | Q99683 | PSTK | | | | | | | | | | | | | | | ASK1-pS1033 | PK524 |
| ASK1 (MAP3K5) | T1326 | Q99683 | PSTK | | | | | | | | | | | | | | | ASK1-pT1326 | PK920 |
| ASK1 (MAP3K5) | T838 | Q99683 | PSTK | | | | | | | | | | | | | | | ASK1-pT838 | PK525 |
| ASS1 | T174+S180 | P00966 | | | | | | | | ● | | | | | | | | ASS1-pT174+pS18 | PN741 |
| ATASE (PPAT) | T356 | Q06203 | | | | | | | | ● | | | | | | | | ATASE-pT356 | PN742 |
| ATF2 (CRE-BP1) | T69+T71 | P15336 | | | ● | | | | | | | | | | | | | ATF2-pT69+pT71 | PN552 |
| ATF2 (CRE-BP1) | T69+T71 | P15336 | | | ● | | | | | | | | | | | | | ATF2-pT69+pT71 | PN572 |
| ATM | Pan | Q13315 | PSTK | | | | | | | | | | | | | | | ATM-2 | NK230-1 |
| ATM | Pan | Q13315 | PSTK | | | | | | | | | | | | | | | ATM-1 | NK230-2 |
| ATM | Pan | Q13315 | PSTK | | | | | | | | | | | | | | | ATM-3 | NK230-3 |
| ATM | S1981 | Q13315 | PSTK | | | | | | | | | | | | | | | ATM-pS1981 | PK526 |
| ATM | Y2969 | Q13315 | PSTK | | | | | | | | | | | | | | | ATM-pY2969 | PK527 |
| ATR | Pan | Q13535 | PSTK | | | | | | | | | | | | | | | ATR-3 | NK237-2 |
| ATR | Pan | Q13535 | PSTK | | | | | | | | | | | | | | | ATR-4 | NK237-3 |
| ATR | S435+S436 | Q13535 | PSTK | | | | | | | | | | | | | | | ATR-pS435+pS436 | PK528 |
| AurKA (Aurora A; | Pan | O14965 | PSTK | | | | | | | | | | | | | | | AurKA-1 | NK008-3 |
| AurKA (Aurora A; | Pan | O14965 | PSTK | | | | | | | | | | | | | | | AurKA-2 | NK008-4 |
| AurKA (Aurora A; | Pan | O14965 | PSTK | | | | | | | | | | | | | | | AurKA-3 | NK008-5 |
| AurKA (Aurora A; | T287+T288 | O14965 | PSTK | | | | | | | | | | | | | | | AurKA-pT287+pT28 | PK529 |
| AurKB (AurB; | Pan | Q96GD4 | PSTK | | | | | | | | | | | | | | | AurKB-1 | NK193-2 |
| AurKB (AurB; | Pan | Q96GD4 | PSTK | | | | | | | | | | | | | | | AurKB-2 | NK193-3 |
| AurKB (AurB; | Pan | Q96GD4 | PSTK | | | | | | | | | | | | | | | AurKB-3 | NK193-4 |
| AurKB (AurB; | S227 | Q96GD4 | PSTK | | | | | | | | | | | | | | | AurKB-pS227 | PK530 |
| AurKB (AurB; | T232 | Q96GD4 | PSTK | | | | | | | | | | | | | | | AurKB-pT232 | PK531 |
| AurKC (Aurora C; | Pan | Q9UQB9 | PSTK | | | | | | | | | | | | | | | AurKC-1 | NK009-2 |
| AurKC (Aurora C; | Pan | Q9UQB9 | PSTK | | | | | | | | | | | | | | | AurKC-2 | NK009-3 |
| AurKC (Aurora C; | S193 | Q9UQB9 | PSTK | | | | | | | | | | | | | | | AurKC-pS193 | PK532 |
| AVPR1A | T378+S380 | P37288 | | | | ● | | | | | | | | | | | | AVPR1A-pT378+pS | PN787 |
| Axl (UFO) | Pan | P30530 | PYK | | | ● | | | | | | | | | | | | Axl-AKCD | NK010-2 |
| Axl (UFO) | Y702+Y703 | P30530 | PYK | | | ● | | | | | | | | | | | | Axl-pY702+pY703 | PK533 |
| Axl (UFO) | Y779 | P30530 | PYK | | | ● | | | | | | | | | | | | AXL-pY779 | PK898 |
| B-Myb (MYBL2) | T487 | P10244 | | | ● | | | | | | | | | | | | | B-Myb -pT487 | PN573 |
| BCKD (BCKDK) | Pan | O14874 | PSTK | | | | | | | | | | | | | | | BCKD-1 | NK257-1 |
| BCKD (BCKDK) | Pan | O14874 | PSTK | | | | | | | | | | | | | | | BCKD-2 | NK257-2 |
| BCKD (BCKDK) | Pan | O14874 | PSTK | | | | | | | | | | | | | | | BCKD-3 | NK257-3 |
| BCKDHA | S337+Pan | P12694 | | | | | | | | ● | | | | | | | | BCKDHA-pS337 | PN810 |
| Bcl2 | S70+Pan | P10415 | | | | | | | | | | ● | | | | | | Bcl-2-pS70 | PN811 |
| BCLAF1 | S512 | Q9NYF8 | | | ● | | | | | | | | | | | | | BCLAF1-pS512 | PN574 |
| Bcr | Y177 | P11274 | PSTK | | | | | | | | | | | | | | | Bcr-pY177 | PK538 |
| Bcr | Y591 | P11274 | PSTK | | | | | | | | | | | | | | | Bcr-pY591 | PK539 |
| Bcr | Y644 | P11274 | PSTK | | | | | | | | | | | | | | | Bcr-pY644 | PK540 |
| BKR2 | S366+T369 | P30411 | | | | ● | | | | | | | | | | | | BKR2-pS366+pT36 | PN788 |
| BLK | Y187 | P51451 | PYK | | | | | | | | | | | | | | | BLK-pY187 | PK541 |
| BLK | Y188 | P51451 | PYK | | | | | | | | | | | | | | | BLK-pY188 | PK542 |
| BLK | Y389 | P51451 | PYK | | | | | | | | | | | | | | | BLK-pY389 | PK543 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BMPR2 (BMPR- | S375 | Q13873 | | | | ● | | | | | | | | | | | | BMPR2-pS375 | PK544 |
| Bmx (Etk) | Y40 | P51813 | PYK | | | | | | | | | | | | | | | Bmx-Y40 | PK545 |
| BRCA1 | T509 | P38398 | | | ● | | | | | | | | | | | | | BRCA1-pT509 | PN690 |
| BRCA2 | S70 | P51587 | | | | | | | | | | | ● | | | | | BRCA2-pS70 | PN789 |
| BRD2 | S37 | P25440 | PSTK | | | | | | | | | | | | | | | BRD2-pS37 | PK546 |
| BRK | S446+Y447 | Q13882 | PYK | | | | | | | | | | | | | | | BRK-pS446+pY447 | PK547 |
| BRK | Y342 | Q13882 | PYK | | | | | | | | | | | | | | | BRK-pY342 | PK548 |
| BRSK1 | T205 | Q8TDC3 | PSTK | | | | | | | | | | | | | | | BRSK1-pT189 | PK549 |
| Btk | Y223+Y225 | Q06187 | PYK | | | | | | | | | | | | | | | Btk-pY223+pY225 | PK550 |
| Btk | Y551 | Q06187 | PYK | | | | | | | | | | | | | | | Btk-pY551 | PK551 |
| BUBR1 (BUB1B) | S670+Pan | O60566 | PSTK | | | | | | | | | | | | | | | BUB1B-pS670 | PK552 |
| C-EBP-alpha | T226+T230 | P49715 | | | ● | | | | | | | | | | | | | C-EBPa-pT226+pT | PN575 |
| CACNB1 | T499 | Q02641 | | | | | ● | | | | | | | | | | | CACNB1-pT499 | PN938 |
| CACNG3 | Pan | O60359 | | | | | ● | | | | | | | | | | | TARP3-Pan (CACN | NN456 |
| CAD | S1859 | P27708 | | | | | | | | ● | | | | | | | | CAD-pS1859 | PN691 |
| CaMK1a | T177 | Q14012 | PSTK | | | | | | | | | | | | | | | CaMK1a-pT177 | PK553 |
| CaMK1a | Y235 | Q14012 | PSTK | | | | | | | | | | | | | | | CAMK1a-pY235 | PK874 |
| CaMK1d | T180 | Q8IU85 | PSTK | | | | | | | | | | | | | | | CaMK1d-pT180 | PK554 |
| CaMK2a | T286 | Q9UQM | PSTK | | | | | | | | | | | | | | | CaMK2a-pT286 | PK555 |
| CaMK2a | Y230 | Q9UQM | PSTK | | | | | | | | | | | | | | | CaMK2A-pY230 | PK875 |
| CAMK2b | Pan | Q13554 | PSTK | | | | | | | | | | | | | | | CaMK2b-PAD | NK018-3 |
| CAMK2d | Pan | Q13557 | PSTK | | | | | | | | | | | | | | | CaMK2d-NT | NK019-3 |
| CaMK4 | Pan | Q16566 | PSTK | | | | | | | | | | | | | | | CaMPK4-NT (CaMK | NK021-1 |
| CaMK4 | Pan | Q16566 | PSTK | | | | | | | | | | | | | | | CaMK4-CT (CaMK4 | NK021-2 |
| CaMK4 | T200 | Q16566 | PSTK | | | | | | | | | | | | | | | CaMK4-pT200 | PK556 |
| CaMKK1 | Pan | Q8N5S9 | PSTK | | | | | | | | | | | | | | | CaMKK1 (CaMKK1 | NK022 |
| CaMKK1 | S74 | Q8N5S9 | PSTK | | | | | | | | | | | | | | | CaMKK1-pS74 | PK557 |
| Cas-L | Y166+Pan | Q14511 | | | | | | | | | | | ● | | | | | Cas-L-pY166 | PN505 |
| Cbl | Y674 | P22681 | | | | | | | | | | | ● | | | | | CBL-pY674 | PN743 |
| CBS | S227+Pan | P35520 | | | | | | | | ● | | | | | | | | CBS-pS227 | PN744 |
| CD45 (PTPRC) | Y1216 | P08575 | | PYP | | ● | | | | | | | | | | | | CD45-pY1216 | PP527 |
| CDC25A | Pan | P30304 | | DSP | | | | | | | | | | | | | | CDC25A-1 | NP038-1 |
| CDC25A | Pan | P30304 | | DSP | | | | | | | | | | | | | | CDC25A-2 | NP038-2 |
| CDC25A | Pan | P30304 | | DSP | | | | | | | | | | | | | | CDC25A-3 | NP038-3 |
| CDC25B | Pan | P30305 | | DSP | | | | | | | | | | | | | | CDC25B-3 | NP002-2 |
| CDC25B | Pan | P30305 | | DSP | | | | | | | | | | | | | | CDC25B-1 | NP002-3 |
| CDC25C | Pan | P30307 | | DSP | | | | | | | | | | | | | | CDC25C-2 | NP003-2 |
| CDC25C | Pan | P30307 | | DSP | | | | | | | | | | | | | | CDC25C-3 | NP003-3 |
| CDC5L | T385 | Q99459 | | | ● | | | | | | | | | | | | | CDC5L-pT385 | PN576 |
| CDC7 | T376 | O00311 | PSTK | | | | | | | | | | | | | | | CDC7-pT376 | PK558 |
| CDK1 (CDC2) | Pan | P06493 | PSTK | | | | | | | | | | | | | | | CDC2-CT (CDK1-1 | NK025-4 |
| CDK1 (CDC2) | Pan | P06493 | PSTK | | | | | | | | | | | | | | | CDK1-X | NK025-7 |
| CDK1 (CDC2) | T14 | P06493 | PSTK | | | | | | | | | | | | | | | CDK1-pT14 | PK559 |
| CDK1 (CDC2) | T14+Y15 | P06493 | PSTK | | | | | | | | | | | | | | | CDK1-pT14+pY15 | PK560 |
| CDK1 (CDC2) | T161 | P06493 | PSTK | | | | | | | | | | | | | | | CDK1-pT161 | PK561 |
| CDK1 (CDC2) | Y15 | P06493 | PSTK | | | | | | | | | | | | | | | CDK1-pY15 | PK562 |
| CDK1 (CDC2) | Y19 | P06493 | PSTK | | | | | | | | | | | | | | | CDK1-pY19 | PK563 |
| CDK10 | Pan | Q15131 | PSTK | | | | | | | | | | | | | | | CDK10-ANT | NK033-2 |
| CDK10 | Pan | Q15131 | PSTK | | | | | | | | | | | | | | | CDK10-CT | NK033-3 |
| CDK10 | T196 | Q15131 | PSTK | | | | | | | | | | | | | | | CDK10-pT196 | PK564 |
| CDK11A | T583 | Q9UQ88 | PSTK | | | | | | | | | | | | | | | CDK11A-pT583 | PK565 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDK12 (Cdc2L7; | S383+S385 | Q9NYV4 | PSTK | | | | | | | | | | | | | | | CDK12-pS383+pS3 | PK566 |
| CDK12 (Cdc2L7; | T893 | Q9NYV4 | PSTK | | | | | | | | | | | | | | | CDK12-pT893 | PK567 |
| CDK14 | Pan | O94921 | PSTK | | | | | | | | | | | | | | | PFTAIRE1-ANT | NK287-1 |
| CDK15 | Pan | Q96Q40 | PSTK | | | | | | | | | | | | | | | PFTAIRE2-ANT | NK004-2 |
| CDK15 | Pan | Q96Q40 | PSTK | | | | | | | | | | | | | | | PFTAIRE2-CT | NK004-3 |
| CDK15 | Y114 | Q96Q40 | PSTK | | | | | | | | | | | | | | | PFTAIRE2-pY114 | PK957 |
| CDK2 | T160 | P24941 | PSTK | | | | | | | | | | | | | | | CDK2-pT160 | PK568 |
| CDK4 | T172 | P11802 | PSTK | | | | | | | | | | | | | | | CDK4-pT172 | PK569 |
| CDK5 | Pan | Q00535 | PSTK | | | | | | | | | | | | | | | CDK5-1 | NK028-2 |
| CDK5 | S159+Pan | Q00535 | PSTK | | | | | | | | | | | | | | | CDK5-pS159 | PK899 |
| CDK5 | Y15 | Q00535 | PSTK | | | | | | | | | | | | | | | CDK5-pY15 | PK570 |
| CDK6 | Y13 | Q00534 | PSTK | | | | | | | | | | | | | | | CDK6-pY13 | PK571 |
| CDK6 | Y24 | Q00534 | PSTK | | | | | | | | | | | | | | | CDK6-pY24 | PK572 |
| CDK7 (MO15) | Pan | P50613 | PSTK | | | | | | | | | | | | | | | CDK7 (CDK7-1) | NK030-1 |
| CDK7 (MO15) | T170 | P50613 | PSTK | | | | | | | | | | | | | | | CDK7-pT170 | PK573 |
| CDK8 | Pan | P49336 | PSTK | | | | | | | | | | | | | | | CDK8-NT (CDK8-1) | NK031-4 |
| CDK9 | S347 | P50750 | PSTK | | | | | | | | | | | | | | | CDK9-pS347 | PK574 |
| CDK9 | T186 | P50750 | PSTK | | | | | | | | | | | | | | | CDK9-pT186 | PK575 |
| CDKL1 | Pan | Q00532 | PSTK | | | | | | | | | | | | | | | CDK1L-1 (KKIALRE | NK199 |
| CDKL2 | Pan | Q92772 | PSTK | | | | | | | | | | | | | | | CDKL2-CT | NK261-1 |
| CDKL3 | Pan | Q8IVW4 | PSTK | | | | | | | | | | | | | | | CDKL3-BCT | NK262-1 |
| CDKL5 | Y171 | O76039 | PSTK | | | | | | | | | | | | | | | CDKL5-pY171 | PK576 |
| CDKN2A | Pan | P42771 | PSTK- | | | | | | | | | | | | | | | CDKN2A-Pan-1 | PN693 |
| CDKN2A (p16; | Pan | P42771 | PSTK- | | | | | | | | | | | | | | | CDKN2A-Pan-2 | PN694 |
| CHAK1 (TRPM7) | S1504 | Q96QT4 | | | | ● | ● | | | | | | | | | | | ChaK1-pS1504 | PK921 |
| Chk1 (CHEK1) | S280 | O14757 | PSTK | | | | | | | | | | | | | | | Chk1-pS280 | PK577 |
| Chk1 (CHEK1) | S317 | O14757 | PSTK | | | | | | | | | | | | | | | Chk1-pS317 | PK578 |
| Chk1 (CHEK1) | S345 | O14757 | PSTK | | | | | | | | | | | | | | | Chk1-pS345 | PK579 |
| Chk2 (CHEK2) | T383 | O96017 | PSTK | | | | | | | | | | | | | | | Chk2-pT383 | PK580 |
| Chk2 (CHEK2) | T68 | O96017 | PSTK | | | | | | | | | | | | | | | Chk2-pT68 | PK581 |
| CHMP2B | S199 | Q9UQN | | | | | | | | | | | | | | | | CHMP2B-pS199 | PN872 |
| CHRM1 | S451+T455 | P11229 | | | | ● | | | | | | | | | | | | CHRM1-pS451+pT | PN790 |
| CHRNA9 | Y374 | Q9UGM | | | | ● | | | | | | | | | | | | CHRNA9-pY374 | PN939 |
| CHRNA9 | Y430 | Q9UGM | | | | ● | | | | | | | | | | | | CHRNA9-pY430 | PN940 |
| CK1d (CSNK1D) | S370 | P48730 | PSTK | | | | | | | | | | | | | | | CK1d-pS370 | PK922 |
| CK1d (CSNK1D) | T176 | P48730 | PSTK | | | | | | | | | | | | | | | CK1d-pT176 | PK923 |
| CK1d (CSNK1D) | T347 | P48730 | PSTK | | | | | | | | | | | | | | | CK1d-pT347 | PK924 |
| CK2a1 | Pan | P68400 | PSTK | | | | | | | | | | | | | | | CK2a1-ANT | NK041-2 |
| CK2a1 | pY188 | P68400 | PSTK | | | | | | | | | | | | | | | CK2a-pY188 | PK962 |
| CK2a1 | )S194+pY19( | P68400 | PSTK | | | | | | | | | | | | | | | CK2a-pS194+pY19 | PK963 |
| CK2a1 | Y255 | P68400 | PSTK | | | | | | | | | | | | | | | CK2a-pY255 | PK582 |
| CK2a1 | )T360+pS362 | P68400 | PSTK | | | | | | | | | | | | | | | CK2a-pT360+pS36 | PK964 |
| CLK1 | S337 | P49759 | PSTK | | | | | | | | | | | | | | | CLK1-pS337 | PK583 |
| CLK1 | S337+T338 | P49759 | PSTK | | | | | | | | | | | | | | | CLK1-pS337+pT33 | PK584 |
| CLTC | Y634 | Q00610 | | | | | | | | | | | | | | | ● | CLTC-pY634 | PN941 |
| CNR2 | S335+S336 | P34972 | | | | ● | | | | | | | | | | | | CNR2-pS335+pS33 | PN792 |
| CNTN1 | Y742 | Q12860 | | | | | | | | | | | | | | | | CNTN1-pY742 | PN942 |
| Cofilin 1 (CFL1) | S3 | P23528 | | | | | | | | | | | | ● | | | | CFL1-pS3 | PN812 |
| Cofilin 1 (CFL1) | Y140 | P23529 | | | | | | | | | | | | ● | | | | CFL1-pY140 | PN813 |
| COT (MAP3K8; | Pan | P41279 | PSTK | | | | | | | | | | | | | | | COT-CT (COT-2) | NK042-2 |
| COT (MAP3K8; | Pan | P41279 | PSTK | | | | | | | | | | | | | | | COT (COT-1) | NK042-1 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COT (MAP3K8; | T290 | P41279 | PSTK | | | | | | | | | | | | | | | COT-pT290 | PK956 |
| COT (MAP3K8; | S334 | P41279 | PSTK | | | | | | | | | | | | | | | COT-pS334 | PK585 |
| COX2 | Y446 | P35354 | | | | | | | | ● | | | | | | | | COX2-pY446 | PN695 |
| CPD | Pan | O75976 | | | | | | | ● | | | | | | | | | CPD-3 | NN462-3 |
| CREB1 | S133 | P16220 | | | ● | | | | | | | | | | | | | CREB-pS133 | PN553 |
| CREB1 | S129+S133 | P16220 | | | ● | | | | | | | | | | | | | CREB1-pS129+pS1 | PN577 |
| CRMP2 | Y499 | Q16555 | | | | | | | | | | | | ● | | | | CRMP2-pY499 | PN944 |
| CRMP2 | T509 | Q16555 | | | | | | | | | | | | ● | | | | CRMP2-pT509 | PN814 |
| CRMP2 | T514 | Q16555 | | | | | | | | | | | | ● | | | | CRMP2-pT514 | PN943 |
| CSF1R (Fms) | Pan | P07333 | PYK | | | ● | | | | | | | | | | | | CSF1R -1 | NK234-3 |
| CSF1R (Fms) | Pan | P07333 | PYK | | | ● | | | | | | | | | | | | CSF1R -3 | NK234-4 |
| CSF1R (Fms) | Pan | P07333 | PYK | | | ● | | | | | | | | | | | | CSF1R-2 | NK234-2 |
| CSF1R (Fms) | Y699 | P07333 | PYK | | | ● | | | | | | | | | | | | CSF1R-pY699 | PK587 |
| CSF1R (Fms) | S807+Y809 | P07333 | PYK | | | ● | | | | | | | | | | | | CSF1R-pS807+pY8 | PK586 |
| CSF1R (Fms) | Y809 | P07333 | PYK | | | ● | | | | | | | | | | | | CSF1R-pY809 | PK588 |
| Csk | Y184 | P41240 | PYK | | | | | | | | | | | | | | | Csk-pY184 | PK589 |
| CTMP | S379 | | | | | | | | | | | | | | | | | CTMP-pS379 | PN1011 |
| CTNNB1 | S33+S37 | P35222 | | | ● | | | | | | | | | ● | | | | CTNNB1-pS33+pS3 | PN816 |
| CTNNB1 | Y489 | P35222 | | | ● | | | | | | | | | ● | | | | CTNNB1-pY489 | PN745 |
| CTNNB1 | S552 | P35222 | | | ● | | | | | | | | | ● | | | | CTNNB1-pS552 | PN945 |
| CTNNB1 | Y654 | P35222 | | | ● | | | | | | | | | ● | | | | CTNNB1-pY654 | PN579 |
| CTNNB1 | S675 | P35222 | | | ● | | | | | | | | | ● | | | | CTNNB1-pS675 | PN946 |
| CUX1 (CUTL1) | S1270 | P39880 | | | ● | | | | | | | | | | | | | CUX1-pS1270 | PN580 |
| DAG1 | T790 | Q14118 | | | | | | | | | | | | ● | | | | DAG1-pT790 | PN947 |
| DARPP32 | Y74 | Q9UD71 | | PSTP- | | | | | | | | | | | | | | DARPP32-pY74 | PN794 |
| DARPP32 | T75 | Q9UD71 | | PSTP- | | | | | | | | | | | | | | DARPP32-pT75 | PN818 |
| DCK (dCK) | S74+Pan | P27707 | | | | | | | | ● | | | | | | | | DCK-pS74 | PN696 |
| DCTN1 | S105+T108 | Q14203 | | | | | | | | | | | | | | | | DCTN1- | PN873 |
| DCTN1 | S541 | Q14203 | | | | | | | | | | | | | | | | DCTN1-pS541 | PN874 |
| DCTN1 | T1152+S11 | Q14203 | | | | | | | | | | | | | | | | DCTN1- | PN875 |
| DDR1 | Pan | Q08345 | PYK | | | ● | | | | | | | | | | | | DDR1-BCT | NK263-1 |
| DDR1 | Y796+Y797 | Q08345 | PYK | | | ● | | | | | | | | | | | | DDR1-pY796+pY79 | PK591 |
| DDR1 | Y797 | Q08345 | PYK | | | ● | | | | | | | | | | | | DDR1-pY797 | PK592 |
| DDR2 (Tyro10) | Y736 | Q16832 | PYK | | | ● | | | | | | | | | | | | DDR2-pY736 | PK593 |
| DDR2 (Tyro10) | Y740 | Q16832 | PYK | | | ● | | | | | | | | | | | | DDR2-pY740 | PK594 |
| DLG1 (SAP97) | Y760 | Q12959 | | | | | | | | | | | ● | | | | | Dlg1-pY760 | PN948 |
| DLG1 (SAP97) | Y784 | Q12959 | | | | | | | | | | | ● | | | | | Dlg1-pY784 | PN949 |
| DLG4 (PSD95) | S73 | P78352 | | | | | | | | | | | ● | | | | | PSD95-pS73 | PN900 |
| DLG4 (PSD95) | Y240 | P78352 | | | | | | | | | | | ● | | | | | PSD95-pY240 | PN901 |
| DLG4 (PSD95) | S295 | P78352 | | | | | | | | | | | ● | | | | | PSD95-pS295 | PN846 |
| DLGAP4 | S15 | | | | | | | | | | | | | | | | | DLGAP4-pS15 | PN1022 |
| DLK (DAPK; | S269 | Q12852 | PSTK | | | | | | | | | | | | | | | DAPK-pS269 | PK590 |
| DLK (DAPK; | S308+Pan | Q12852 | PSTK | | | | | | | | | | | | | | | DAPK1-pS308 | PK900 |
| DMPK1 (DMPK) | Pan | Q09013 | PSTK | | | | | | | | | | | | | | | DMPK1-AKCD | NK264-1 |
| DMPK2 (MRCK- | Pan | Q6DT37 | PSTK | | | | | | | | | | | | | | | DMPK2-NT | NK265-1 |
| DNAPK | Pan | P78527 | PSTK | | | | | | | | | | | | | | | PRKDC-1 (DNAPK) | NK048-4 |
| DNAPK | Pan | P78527 | PSTK | | | | | | | | | | | | | | | PRKDC-3 (DNAPK) | NK048-6 |
| DNAPK | Pan | P78527 | PSTK | | | | | | | | | | | | | | | PRKDC-4 (DNAPK) | NK048-7 |
| DNAPK | Pan | P78527 | PSTK | | | | | | | | | | | | | | | PRKDC-2 (DNAPK) | NK048-5 |
| DNAPK | Y883 | P78527 | PSTK | | | | | | | | | | | | | | | DNAPK-pY883 | PK596 |
| DNAPK | S2056 | P78527 | PSTK | | | | | | | | | | | | | | | DNA-PK-pS2056 | PK925 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DNAPK | T2609 | P78527 | PSTK | | | | | | | | | | | | | | | DNAPK-pT2609 | PK595 |
| DNM2 | Y597 | P50570 | | | | | | | | | | | | | | | ● | DNM2-pY597 | PN951 |
| DNM2 | S764 | P50570 | | | | | | | | | | | | | | | ● | DNM2-pS764 | PN950 |
| DNMT3A | S105 | Q9Y6K1 | | | | | | | | | | | | | | | | DNMT3A-pS105 | PN746 |
| DOK3 | Y398 | Q7L591 | | | | | | | | | | | ● | | | | | Dok3-pY398 | PN508 |
| DOK7 | Y395 | Q18PE1 | | | | | | | | | | | ● | | | | | DOK7-pY395 | PN952 |
| DOK7 | Y405 | Q18PE1 | | | | | | | | | | | ● | | | | | DOK7-pY405 | PN953 |
| DOR1 | T358+T361 | P41143 | | | | ● | | | | | | | | | | | | DOR1-pT358+pT36 | PN795 |
| DPYD | S766+T768 | Q12882 | | | | | | | | ● | | | | | | | | DPYD-pS766+pT76 | PN747 |
| DTNA | T504 | Q9Y4J8 | | | | | | | | | | | | | | | | DTNA-pT504 | PN954 |
| DUSP1 (MKP1; | Pan | P28562 | | DSP | | | | | | | | | | | | | | DUSP1-3 (MKP-1) | NP006-3 |
| DUSP1 (MKP1; | Pan | P28562 | | DSP | | | | | | | | | | | | | | DUSP1-1 (MKP-1) | NP006-4 |
| DUSP1 (MKP1) | Pan | P28562 | | DSP | | | | | | | | | | | | | | DUSP1-2 (MKP-1) | NP006-2 |
| DUSP2 (PAC1) | Pan | Q05923 | | DSP | | | | | | | | | | | | | | DUSP2-2 | NP008-3 |
| DUSP2 (PAC1) | Pan | Q05923 | | DSP | | | | | | | | | | | | | | DUSP2-3 | NP008-4 |
| DUSP2 (PAC1) | Pan | Q05923 | | DSP | | | | | | | | | | | | | | DUSP2-1 | NP008-2 |
| DUSP3 (VHR) | Pan | P51452 | | DSP | | | | | | | | | | | | | | DUSP3-2 | NP030-3 |
| DUSP3 (VHR) | Pan | P51452 | | DSP | | | | | | | | | | | | | | DUSP3-3 | NP030-4 |
| DUSP3 (VHR) | Pan | P51452 | | DSP | | | | | | | | | | | | | | DUSP3-1 | NP030-2 |
| DUSP4 (MKP2; | Pan | Q13115 | | DSP | | | | | | | | | | | | | | DUSP4-2 | NP007-3 |
| DUSP4 (MKP2; | Pan | Q13115 | | DSP | | | | | | | | | | | | | | DUSP4-3 | NP007-4 |
| DUSP4 (MKP2; | Pan | Q13115 | | DSP | | | | | | | | | | | | | | DUSP4-1 | NP007-2 |
| DUSP5 | Pan | Q16690 | | DSP | | | | | | | | | | | | | | DUSP5-2 | NP039-2 |
| DUSP5 | Pan | Q16690 | | DSP | | | | | | | | | | | | | | DUSP5-3 | NP039-3 |
| DUSP5 | Pan | Q16690 | | DSP | | | | | | | | | | | | | | DUSP5-1 | NP039-1 |
| DUSP6 | Pan | Q16828 | | DSP | | | | | | | | | | | | | | DUSP6-2 | NP040-2 |
| DUSP6 | Pan | Q16828 | | DSP | | | | | | | | | | | | | | DUSP6-3 | NP040-3 |
| DUSP6 | Pan | Q16828 | | DSP | | | | | | | | | | | | | | DUSP6-1 | NP040-1 |
| DUSP7 | Pan | Q16829 | | DSP | | | | | | | | | | | | | | DUSP7-2 | NP041-2 |
| DUSP7 | Pan | Q16829 | | DSP | | | | | | | | | | | | | | DUSP7-3 | NP041-3 |
| DUSP7 | Pan | Q16829 | | DSP | | | | | | | | | | | | | | DUSP7-1 | NP041-1 |
| DUSP8 | Pan | Q13202 | | DSP | | | | | | | | | | | | | | DUSP8-3 | NP042-3 |
| DUSP8 | Pan | Q13202 | | DSP | | | | | | | | | | | | | | DUSP8-1 | NP042-1 |
| DUSP9 | Pan | Q99956 | | DSP | | | | | | | | | | | | | | DUSP9-3 | NP043-3 |
| DUSP9 | Pan | Q99956 | | DSP | | | | | | | | | | | | | | DUSP9-1 | NP043-1 |
| DUSP9 | Pan | Q99956 | | DSP | | | | | | | | | | | | | | DUSP9-2 | NP043-2 |
| DUSP10 (MKP5) | Pan | Q9Y6W6 | | DSP | | | | | | | | | | | | | | DUSP10-2 | NP047-2 |
| DUSP10 (MKP5) | Pan | Q9Y6W6 | | DSP | | | | | | | | | | | | | | DUSP10-1 | NP047-1 |
| DUSP11 | Pan | O75319 | | DSP | | | | | | | | | | | | | | DUSP11-2 | NP048-2 |
| DUSP11 | Pan | O75319 | | DSP | | | | | | | | | | | | | | DUSP11-3 | NP048-3 |
| DUSP11 | Pan | O75319 | | DSP | | | | | | | | | | | | | | DUSP11-1 | NP048-1 |
| DUSP12 | Pan | Q9UNI6 | | DSP | | | | | | | | | | | | | | DUSP12-2 | NP046-2 |
| DUSP12 | Pan | Q9UNI6 | | DSP | | | | | | | | | | | | | | DUSP12-3 | NP046-3 |
| DUSP12 | Pan | Q9UNI6 | | DSP | | | | | | | | | | | | | | DUSP12-1 | NP046-1 |
| Dvl1 | S93 | O14640 | | | | | | | | | | | | | | | | Dvl1-pS93 | PN955 |
| DYRK1A | Y321 | Q13627 | DSK | | | | | | | | | | | | | | | DYRK1A-pY321 | PK597 |
| DYRK2 | Pan | Q92630 | DSK | | | | | | | | | | | | | | | DYRK2-ANT | NK266-1 |
| DYRK2 | Y382 | Q92630 | DSK | | | | | | | | | | | | | | | DYRK2-pY382 | PK598 |
| EEF1A1 | Y141 | P68104 | | | | | | ● | | | | | | | | | | EEF1A1-pY141 | PN509 |
| EEF2 | T57 | P13639 | | | | | | ● | | | | | | | | | | EEF2-pT57 | PN555 |
| EGFR (ErbB1) | Pan | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-1 | NK052-5 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EGFR (ErbB1) | Pan | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-2 | NK052-6 |
| EGFR (ErbB1) | Pan | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-3 | NK052-4 |
| EGFR (ErbB1) | Pan | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-4 | NK052-7 |
| EGFR (ErbB1) | Pan | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-5 | NK052-8 |
| EGFR (ErbB1) | Y869 | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-pY869 | PK602 |
| EGFR (ErbB1) | Y998 | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-pY998 | PK603 |
| EGFR (ErbB1) | Y1069 | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-pY1069 | PK599 |
| EGFR (ErbB1) | Y1110 | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-pY1110 | PK600 |
| EGFR (ErbB1) | Y1172 | P00533 | PYK | | | ● | | | | | | | | | | | | EGFR-pY1172 | PK601 |
| eIF2a | S52+Pan | Q9BY44 | | | | | | ● | | | | | | | | | | eIF2α-pS52 | PN820 |
| EIF2AK3 (PERK; | S555 | Q9NZJ5 | PSTK | | | | | | | | | | | | | | | EIF2AK3-pS555 | PK926 |
| EIF2AK3 (PERK; | S715 | Q9NZJ5 | PSTK | | | | | | | | | | | | | | | EIF2AK3-pS715 | PK927 |
| EIF2AK3 (PERK; | T982 | Q9NZJ5 | PSTK | | | | | | | | | | | | | | | EIF2AK3-pT982 | PK604 |
| eIF4B | S504 | P23588 | | | | | | ● | | | | | | | | | | eIF4B-pS504 | PN819 |
| eIF4E | S209 | P06730 | | | | | | ● | | | | | | | | | | eIF4E-pS209 | PN956 |
| eIF4G1 | T205+T207 | Q04637 | | | | | | ● | | | | | | | | | | eIF4G1-pT205+pT2 | PN1008 |
| eIF4G1 | S1185+S11 | Q04637 | | | | | | ● | | | | | | | | | | eIF4G1-pS1185+pS | PN1004 |
| Elk1 | S324+Pan | P19419 | | | ● | | | | | | | | | | | | | Elk1-pS324 | PN581 |
| EML4 | Y226 | Q9HC35 | | | | | | | | | | | | ● | | | | EML4-pY226 | PN510 |
| ENO1 (NNE) | Y44 | P06733 | | | | | | | | ● | | | | | | | | ENO1-pY44 | PN511 |
| ENO2 (ENOG) | Y25 | P09104 | | | | | | | | ● | | | | | | | | ENO2-pY25 | PN512 |
| EP300 (p300) | S2279 | Q09472 | | | | | | | | | | | | | | | | EP300-pS2279 | PN748 |
| EphA1 | Y599 | P21709 | PYK | | | ● | | | | | | | | | | | | EphA1-pY599 | PK928 |
| EphA1 | Y781 | P21709 | PYK | | | ● | | | | | | | | | | | | EphA1-pY781 | PK605 |
| EphA2 | Y588 | P29317 | PYK | | | ● | | | | | | | | | | | | EphA2-pY588 | PK606 |
| EphA3 | Y779 | P29320 | PYK | | | ● | | | | | | | | | | | | EphA3-pY779 | PK608 |
| EphA4 | Y602 | P54764 | PYK | | | ● | | | | | | | | | | | | EphA4-pY596 | PK929 |
| EphA4 | Y602 | P54764 | PYK | | | ● | | | | | | | | | | | | EphA4-pY602 | PK930 |
| EphA4 | Y779 | P54764 | PYK | | | ● | | | | | | | | | | | | EphA4-pY779 | PK931 |
| EphB1 | Y594 | P54762 | PYK | | | ● | | | | | | | | | | | | EphB1-pY594 | PK609 |
| EphB2 | Pan | P29323 | PYK | | | ● | | | | | | | | | | | | EphB2-BKCD | NK267-1 |
| EphB2 | Pan | P29323 | PYK | | | ● | | | | | | | | | | | | EphB2-PCT | NK267-2 |
| EphB2 | Y780 | P29323 | PYK | | | ● | | | | | | | | | | | | EphB2-pY780 | PK610 |
| ERa (ESR1; ER- | S167 | P03372 | | | ● | ● | | | | | | | | | | | | ERa-pS167 | PN583 |
| ErbB2 (Neu; | Pan | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-1 | NK054-4 |
| ErbB2 (Neu; | Pan | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-2 | NK054-5 |
| ErbB2 (Neu; | Pan | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-3 | NK054-6 |
| ErbB2 (Neu; | Pan | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-4 | NK054-7 |
| ErbB2 (Neu; | Y735 | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-pY735 | PK614 |
| ErbB2 (Neu; | Y877 | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-pY877 | PK615 |
| ErbB2 (Neu; | Y1248 | P04626 | PYK | | | ● | | | | | | | | | | | | ErbB2-pY1248 | PK613 |
| ERBB2IP (Erbin) | Y1104 | Q96RT1 | | | | | | | | | | | ● | | | | | ERBB2IP-pY1104 | PN513 |
| ErbB3 (HER3) | Pan | P21860 | PYK | | | ● | | | | | | | | | | | | ErbB3-1 | NK231-2 |
| ErbB3 (HER3) | Pan | P21860 | PYK | | | ● | | | | | | | | | | | | ErbB3-2 | NK231-3 |
| ErbB3 (HER3) | Y1289 | P21860 | PYK | | | ● | | | | | | | | | | | | ErbB3-pY1289 | PK616 |
| ErbB3 (HER3) | Y1307 | P21860 | PYK | | | ● | | | | | | | | | | | | ErbB3-pY1307 | PK617 |
| ErbB3 (HER3) | Y1328 | P21860 | PYK | | | ● | | | | | | | | | | | | ErbB3-pY1328 | PK618 |
| ErbB4 (HER4) | Pan | Q15303 | PYK | | | ● | | | | | | | | | | | | ErbB4-1 | NK235-1 |
| ErbB4 (HER4) | Pan | Q15303 | PYK | | | ● | | | | | | | | | | | | ErbB4-3 | NK235-3 |
| ErbB4 (HER4) | Y733 | Q15303 | PYK | | | ● | | | | | | | | | | | | ErbB4-pY733 | PK619 |
| ErbB4 (HER4) | Y875 | Q15303 | PYK | | | ● | | | | | | | | | | | | ErbB4-pY875 | PK620 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ERF | T526 | P50548 | | | ● | | | | | | | | | | | | | ERF-pT526 | PN584 |
| ERK1 (MAPK3) | Pan | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-1 | NK055-1 |
| ERK1 (MAPK3) | Pan | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-2 | NK055-2 |
| ERK1 (MAPK3) | Pan | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-3 | NK055-3 |
| ERK1 (MAPK3) | Pan | P27361 | PSTK | | | | | | | | | | | | | | | Erk1-III (ERK1-5) | NK055-5 |
| ERK1 (MAPK3) | Pan | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-NT (ERK1-4) | NK055-4 |
| ERK1 (MAPK3) | Pan | P27361 | PSTK | | | | | | | | | | | | | | | Erk1-NT (ERK1-6) | NK055-6 |
| ERK1 (MAPK3) | Pan | P28482 | PSTK | | | | | | | | | | | | | | | ERK1-I | NK055-7 |
| ERK1 (MAPK3) | Pan | P28482 | PSTK | | | | | | | | | | | | | | | ERK2-1 | NK056-2 |
| ERK1 (MAPK3) | Pan | P28482 | PSTK | | | | | | | | | | | | | | | ERK2-2 | NK056-3 |
| ERK1 (MAPK3) | Pan | P28482 | PSTK | | | | | | | | | | | | | | | ERK2-3 | NK056-4 |
| ERK1 (MAPK3) | T202 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pT202 | PK967 |
| ERK1 (MAPK3) | Y204 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pY204 | PK864 |
| ERK1 (MAPK3) | T207 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pT207 | PK950 |
| ERK1 (MAPK3) | T207 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pT207 | PK865 |
| ERK1 (MAPK3) | S265 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pS265 | PK878 |
| ERK1 (MAPK3) | S283 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pS283 | PK879 |
| ERK1 (MAPK3) | T202+Y204 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pT202+pY20 | PK621 |
| ERK1 (MAPK3) | Y204+T207 | P27361 | PSTK | | | | | | | | | | | | | | | ERK1-pY204+pT20 | PK866 |
| ERK1 (MAPK3) | Y263+S266 | P28482 | PSTK | | | | | | | | | | | | | | | ERK2-pY263+S266 | PK880 |
| ERK2 (MAPK1) | T185+Y187 | P28482 | PSTK | | | | | | | | | | | | | | | ERK2-pT185+pY18 | PK622 |
| ERK3 (MAPK6) | S189 | Q16659 | PSTK | | | | | | | | | | | | | | | ERK3-pS189 | PK623 |
| ERK4 (MAPK4) | S186 | P31152 | PSTK | | | | | | | | | | | | | | | ERK4-pS186 | PK624 |
| ERK5 (MAPK7; | Pan | Q13164 | PSTK | | | | | | | | | | | | | | | ERK5-5 (Erk5 -PNT | NK206-1 |
| ERK5 (MAPK7; | Pan | Q13164 | PSTK | | | | | | | | | | | | | | | ERK5-2 | NK206-4 |
| ERK5 (MAPK7; | T219 | Q13164 | PSTK | | | | | | | | | | | | | | | ERK5-pT219 | PK968 |
| ERK5 (MAPK7; | T219+Y221 | Q13164 | PSTK | | | | | | | | | | | | | | | ERK5-pT219+pY22 | PK625 |
| ERK5 (MAPK7; | Y221 | Q13164 | PSTK | | | | | | | | | | | | | | | ERK5-pY221 | PK626 |
| ESRRA (ERR1) | S19+S22 | P11474 | | | ● | ● | | | | | | | | | | | | ESRRA-pS19+pS22 | PN585 |
| ESYT1 | Y822 | Q9BSJ8 | | | | | | | | | | | | | | ● | | ESYT1-pY822 | PN514 |
| Ets-1 | S282 | P14921 | | | ● | | | | | | | | | | | | | Ets-1-pS282 | PN586 |
| ETV6 (Tel) | S22 | P41212 | | | ● | | | | | | | | | | | | | ETV6-pS22 | PN587 |
| FAK (PTK2) | Y397 | Q05397 | PYK | | | | | | | | | | | | | | | FAK-pY397 | PK627 |
| FAK (PTK2) | Y576+Y577 | Q05397 | PYK | | | | | | | | | | | | | | | FAK-pY576+pY577 | PK628 |
| FAK (PTK2) | Y577 | Q05397 | PYK | | | | | | | | | | | | | | | FAK-pY577 | PK629 |
| FASN (FAS) | Y45 | P49327 | | | | | | | | ● | | | | | | | | FASN-pY45 | PN749 |
| FASN (FAS) | S207 | P49327 | | | | | | | | ● | | | | | | | | FASN-pS207 | PN698 |
| FBPase (FBP1) | S88 | P09467 | | | | | | | | ● | | | | | | | | FBPase-pS88 | PN750 |
| FBPase 2 (FBP2) | Y216 | O00757 | | | | | | | | ● | | | | | | | | FBPase2-pY216 | PN700 |
| FBPase 2 (FBP2) | Y259 | O00757 | | | | | | | | ● | | | | | | | | FBPase2-pY259 | PN751 |
| Fer (TYK3) | Y402 | P16591 | PYK | | | | | | | | | | | | | | | FER-pY402 | PK630 |
| Fes | Y713 | P07332 | PYK | | | | | | | | | | | | | | | FES-pY713 | PK632 |
| Fes | Y713+S716 | P07332 | PYK | | | | | | | | | | | | | | | FES-pY713+pS716 | PK633 |
| FGFR1 (FLT2) | Pan | P11362 | PYK | | | ● | | | | | | | | | | | | FGFR1-1 | NK062-2 |
| FGFR1 (FLT2) | Pan | P11362 | PYK | | | ● | | | | | | | | | | | | FGFR1-3 | NK062-3 |
| FGFR1 (FLT2) | Y653+Y654 | P11362 | PYK | | | ● | | | | | | | | | | | | FGFR1-pY653+pY6 | PK634 |
| FGFR2 (BEK) | Pan | P21802 | PYK | | | ● | | | | | | | | | | | | FGFR2-1 | NK063-3 |
| FGFR2 (BEK) | Pan | P21802 | PYK | | | ● | | | | | | | | | | | | FGFR2-2 | NK063-4 |
| FGFR2 (BEK) | Pan | P21802 | PYK | | | ● | | | | | | | | | | | | FGFR2-3 | NK063-2 |
| FGFR2 (BEK) | Y656+Y657 | P21802 | PYK | | | ● | | | | | | | | | | | | FGFR2-pY656+pY6 | PK635 |
| FGFR3 | Pan | P22607 | PYK | | | ● | | | | | | | | | | | | FGFR3-1 | NK236-1 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FGFR3 | Pan | P22607 | PYK | | | ● | | | | | | | | | | | | FGFR3-2 | NK236-2 |
| FGFR3 | Pan | P22607 | PYK | | | ● | | | | | | | | | | | | FGFR3-3 | NK236-3 |
| FGFR3 | Y647+Y648 | P22607 | PYK | | | ● | | | | | | | | | | | | FGFR3-pY647+pY6 | PK637 |
| FGFR3 | Y647+Y648 | P22607 | PYK | | | ● | | | | | | | | | | | | FGFR3-pY647+pY6 | PK636 |
| FGFR4 | Pan | P22455 | PYK | | | ● | | | | | | | | | | | | FGFR4-2 | NK239-1 |
| FGFR4 | Pan | P22455 | PYK | | | ● | | | | | | | | | | | | FGFR4-4 | NK239-3 |
| Fgr | Pan | P09769 | PYK | | | | | | | | | | | | | | | Fgr-ANT | NK268-1 |
| Fgr | Y208+Y209 | P09769 | PYK | | | | | | | | | | | | | | | FGR-pY208+pY209 | PK638 |
| Fgr | Y412 | P09769 | PYK | | | | | | | | | | | | | | | FGR-pY412 | PK639 |
| FLT3 (STK1; | Pan | P36888 | PYK | | | ● | | | | | | | | | | | | Flt3-1 | NK240-1 |
| FLT3 (STK1; | Pan | P36888 | PYK | | | ● | | | | | | | | | | | | Flt3-2 | NK240-2 |
| Fos | T232 | P01100 | | | ● | | | | | | | | | | | | | Fos-pT232 | PN588 |
| Fos | S362+S363 | P01100 | | | ● | | | | | | | | | | | | | Fos-pS362+pS363 | PN589 |
| FOXK1 | S441+S445 | P85037 | | | ● | | | | | | | | | | | | | FOXK1-pS441+pS4 | PN590 |
| FOXK2 | S424+S428 | Q01167 | | | ● | | | | | | | | | | | | | FOXK2-pS424+pS4 | PN591 |
| FOXM1 | T611 | Q08050 | | | ● | | | | | | | | | | | | | FOXM1-pT611 | PN592 |
| FOXO1A (FKHR; | S256 | Q12778 | | | ● | | | | | | | | | | | | | FOXO1-pS256 | PN593 |
| FOXO1A (FKHR; | S329 | Q12778 | | | ● | | | | | | | | | | | | | FOXO1-pS329 | PN595 |
| FOXO1A (FKHR; | S319+Pan | Q12778 | | | ● | | | | | | | | | | | | | FOXO1-pS319 | PN594 |
| FOXO3 | T32 | O43524 | | | ● | | | | | | | | | | | | | FOXO3-pT32 | PN596 |
| FOXO3 | S253 | O43524 | | | ● | | | | | | | | | | | | | FOXO3-pS253 | PN821 |
| FOXO3 | S294 | O43524 | | | ● | | | | | | | | | | | | | FOXO3-pS294 | PN597 |
| FRA1 | S265 | P15407 | | | ● | | | | | | | | | | | | | FRA1-pS265 | PN599 |
| Frk | Pan | P42685 | PYK | | | | | | | | | | | | | | | Frk-ANT | NK269-1 |
| Frk | Pan | P42685 | PYK | | | | | | | | | | | | | | | Frk-NT | NK269-2 |
| Frk | Y387 | P42685 | PYK | | | | | | | | | | | | | | | Frk-pY387 | PK641 |
| Frk | Y497 | P42685 | PYK | | | | | | | | | | | | | | | Frk-pY497 | PK642 |
| FUS | S277 | P35637 | | | | | | | | | | | | | | | | FUS-pS277 | PN876 |
| FUS | S340 | P35637 | | | | | | | | | | | | | | | | FUS -pS340 | PN877 |
| FUS | Y468 | P35637 | | | | | | | | | | | | | | | | FUS-pY468 | PN878 |
| Fused (STK36) | S159 | Q9NRP7 | PSTK | | | | | | | | | | | | | | | Fused-pS159 | PK643 |
| Fyn | Pan | P06241 | PYK | | | | | | | | | | | | | | | Fyn-ANT | NK065-2 |
| Fyn | T12 | P06241 | PYK | | | | | | | | | | | | | | | Fyn-pT12 | PK901 |
| Fyn | Y213+Y214 | P06241 | PYK | | | | | | | | | | | | | | | Fyn-pY213+pY214 | PK644 |
| Fyn | Y420 | P06241 | PYK | | | | | | | | | | | | | | | Fyn-pY420 | PK881 |
| Fyn | Y531 | P06241 | PYK | | | | | | | | | | | | | | | Fyn-pY531 | PK645 |
| G6PD | Y401 | P11413 | | | | | | | | ● | | | | | | | | G6PD-pY401 | PN515 |
| G6PD | Y503+Y507 | P11413 | | | | | | | | ● | | | | | | | | G6PD-pY503+pY50 | PN701 |
| GABBR1 (GABA | T873 | Q9UBS5 | | | | ● | | | | | | | | | | | | GABBR1-pT873 | PN796 |
| GABPA | S303 | Q06546 | | | ● | | | | | | | | | | | | | GABPA-pS303 | PN957 |
| GABPA | Y380+Y381 | Q06546 | | | ● | | | | | | | | | | | | | GABPA-pY380+pY3 | PN958 |
| GABPB1 | Y364 | Q06547 | | | ● | | | | | | | | | | | | | GABPB1-pY364 | PN959 |
| GAP43 | S142+T144 | | | | | | | | | | | | | | | | | GAP43-pS142+pT1 | PN1026 |
| GATA3 | S369 | P23771 | | | ● | | | | | | | | | | | | | GATA3-pS369 | PN702 |
| GATAD2B | T120+S122 | Q8WXI9 | | | ● | | | | | | | | | | | | | GATAD2B-pT120+p | PN600 |
| GCK | S411+Pan | P35557 | | | | | | | | ● | | | | | | | | GCK-pS411 | PK893 |
| GCK (MAP4K2) | S170 | Q12851 | PSTK | | | | | | | | | | | | | | | GCK-pS170 | PK646 |
| GCLC | S5+S8 | P48506 | | | | | | | | | | | | | | | | GCLC-pS5+pS8 | PN752 |
| GCN2 (EIF2AK4) | T667 | Q9P2K8 | PSTK | | | | | | | | | | | | | | | EIF2AK4-pT667 | PK877 |
| GFAP | Pan | P14136 | | | | | | | | | | | | ● | | | | GFAP-CT | NN260-3 |
| GFAP | S133 | P14136 | | | | | | | | | | | | ● | | | | GFAP-pS13 | PN932 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GIT1 | Y545 | Q9Y2X7 | | | | | | | | | | | | | | | | GIT1-pY545 | PN517 |
| GluR1 | S849 | P42261 | | | | ● | | | | | | | | | | | | GluR1-pS849 | PN822 |
| GluR2 | Y876 | P42262 | | | | ● | | | | | | | | | | | | GluR2-pY876 | PN823 |
| GR (NR3C1) | S226+Pan | P04150 | | | ● | ● | | | | | | | | | | | | GR-pS226 | PN601 |
| GRK2 (BARK1; | Y356 | P25098 | PSTK | | | | | | | | | | | | | | | BARK1-Y356 | PK537 |
| GRK2 (BARK1; | S670 | P25098 | PSTK | | | | | | | | | | | | | | | BARK1-pS670 | PK536 |
| Grp170 (HYOU1; | Pan | Q9Y4L1 | | | | | | | | | ● | | | | | | | GRP170-1 | NN265-3 |
| GSK3a | Pan | P49840 | PSTK | | | | | | | | | | | | | | | GSK3a-BKCD | NK069-3 |
| GSK3a | T19+S21 | P49840 | PSTK | | | | | | | | | | | | | | | GSK3a-pT19+pS21 | PK648 |
| GSK3a | S278+Y279 | P49840 | PSTK | | | | | | | | | | | | | | | GSK3a-pS278+pY2 | PK647 |
| GSK3a | Y279 | P49840 | PSTK | | | | | | | | | | | | | | | GSK3a-pY279 | PK882 |
| GSK3a | Y284+Y285 | P49840 | PSTK | | | | | | | | | | | | | | | GSK3a-pY284+pY2 | PK650 |
| GSK3b | Pan | P49841 | PSTK | | | | | | | | | | | | | | | GSK3b-ANT | NK270-3 |
| GSK3b | Pan | P49841 | PSTK | | | | | | | | | | | | | | | GSK3b-XI (GSK3b- | NK070 |
| GSK3b | T43 | P49841 | PSTK | | | | | | | | | | | | | | | GSK3b-pT43 | PK933 |
| GSK3b | T275+T277 | P49841 | PSTK | | | | | | | | | | | | | | | GSK3b-pT275+pT2 | PK883 |
| GSK3b | T390 | P49841 | PSTK | | | | | | | | | | | | | | | GSK3b-pT390 | PK932 |
| GTF2F1 | S385+T389 | P35269 | | | ● | | | | | | | | | | | | | GTF2F1-pS385+pT | PK651 |
| GTF2I | S412 | P78347 | | | ● | | | | | | | | | | | | | GTF2I-pS412 | PN602 |
| GUK1 | Y53 | Q16774 | | | | | | | | ● | | | | | | | | GUK1-pY53 | PK652 |
| GYS1 | S641+S645 | P13807 | | | | | | | | ● | | | | | | | | GYS1-pS641+pS64 | PN703 |
| H2AFX (H2AX; | S140 | P16104 | | | | | | | | | | | | | | | | H2AX-pS140 | PN824 |
| H3F3A | S10 | P84243 | | | | | | | | | | | | | | | | HIST1H3A-pS10 | PN826 |
| HBS1L | Y56+Y58 | Q9Y450 | | | ● | | | | | | | | | | | | | HBS1L-pY56+pY58 | PN603 |
| HCA59 | Y147 | Q9NZ63 | | | | | | | | | | | | | | | | HCA59-pY147 | PN518 |
| HCFC1 | S1507 | P51610 | | | ● | | | | | | | | | | | | | HCFC1-pS1507 | PN604 |
| Hck | Pan | P08631 | PYK | | | | | | | | | | | | | | | Hck-ANT | NK271-1 |
| HDAC4 | S632 | P56524 | | | | | | | | | | | | | | | | HDAC4-pS632 | PN825 |
| HePTP (PTPN7) | S44 | P35236 | | PYP | | | | | | | | | | | | | | HePTP-pS44 | PP500 |
| HePTP (PTPN7) | S143 | P35236 | | PYP | | | | | | | | | | | | | | HePTP-pS143 | PP528 |
| HGK (MAP4K4; | Pan | O95819 | PSTK | | | | | | | | | | | | | | | HGK-NT | NK300-1 |
| HGK (MAP4K4; | T187 | O95819 | PSTK | | | | | | | | | | | | | | | HGK-pT187 | PK653 |
| HGS (Hrs) | Y216 | O14964 | PYK | | | | | | | | | | | | | | | HGS-pY216 | PN519 |
| HIPK1 | Y352 | Q86Z02 | PSTK | | | | | | | | | | | | | | | HIPK1-pY352 | PK654 |
| HIPK2 | Pan | Q9H2X6 | PSTK | | | | | | | | | | | | | | | HIPK2-BCT | NK272-1 |
| HMGA1 | S36+T39 | P17096 | | | ● | | | | | | | | | | | | | HMGA1-pS36+pT3 | PN605 |
| HMGA1 | T53 | P17096 | | | ● | | | | | | | | | | | | | HMGA1-pT53 | PN606 |
| HMGB1 | S35+S39 | P09429 | | | ● | | | | | | | | | | | | | HMGB1-pS35+pS3 | PN607 |
| HMGCR | S872 | P04035 | | | | | | | | ● | | | | | | | | HMGCR-pS872 | PN705 |
| HMGCS1 | S495 | Q01581 | | | | | | | | ● | | | | | | | | HMGCS1-pS495 | PN754 |
| HNF4A | S167 | P41235 | | | ● | | | | | | | | | | | | | HNF4A-pS167 | PN608 |
| HNRNPA1 | Y347 | P09651 | | | | | | | | | | | | | | | | HNRNPA1-pY347 | PN880 |
| HOMER1 | S315 | Q86YM7 | | | | | | | | | | | | | | | | HOMER1-pS315 | PN1020 |
| HOMER3 | S120 | Q9NSC5 | | | | | | | | | | | | | | | | HOMER3-pS120 | PN1017 |
| HRAS (H-Ras) | Pan | P01112 | | | | | | | | | | | | | | | | HRAS-Pan | NN281-3 |
| HRAS (H-Ras) | Y157 | P01112 | | | | | | | | | | | | | | | | HRAS-pY157 | PN755 |
| HRI (HCR; | S258 | Q9BQI3 | PSTK | | | | | | | | | | | | | | | EIF2AK1-pS258 | PK876 |
| HSF1 | S303+S307 | Q00613 | | | ● | | | | | | | | | | | | | HSF1-pS303+pS30 | PN609 |
| HSP90AB1 | Y484 | P08238 | | | | | | | | | ● | | | | | | | HSP90AB1-pY484 | PN520 |
| Huntingtin (HTT) | S13+S16+ | P42858 | | | | | | | | | | | | ● | | | | HTT-pS13+pS16 | PN827 |
| Huntingtin (HTT) | S417+S419 | P42858 | | | | | | | | | | | | ● | | | | HTT-pS417+pS419 | PN828 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Huntingtin (HTT) | S421 | P42858 | | | | | | | | | | | | ● | | | | HTT-pS421 | PN829 |
| ICK | Pan | Q9UPZ9 | PSTK | | | | | | | | | | | | | | | ICK-PCT | NK073-5 |
| ICK | Pan | Q9UPZ9 | PSTK | | | | | | | | | | | | | | | ICK-1 | NK073-3 |
| ICK | Pan | Q9UPZ9 | PSTK | | | | | | | | | | | | | | | ICK-2 | NK073-4 |
| ICK | Y159 | Q9UPZ9 | PSTK | | | | | | | | | | | | | | | ICK-pY159 | PK656 |
| ICK | Y156+T157 | Q9UPZ9 | PSTK | | | | | | | | | | | | | | | ICK-pY156+pT157 | PK655 |
| IDH1 | T75+T77 | O75874 | | | | | | | | ● | | | | | | | | IDH1-pT75+pT77 | PN706 |
| IDH1 | Y391 | O75874 | | | | | | | | ● | | | | | | | | IDH1-pY391 | PN757 |
| IGF1R | Pan | P08069 | PYK | | | ● | | | | | | | | | | | | IGF1R-BKCD | NK074-2 |
| IGF1R | Pan | P08069 | PYK | | | ● | | | | | | | | | | | | IGF1R-CT | NK074-3 |
| IGF1R | Y1161+T11 | P08069 | PYK | | | ● | | | | | | | | | | | | IGF1R-pY1161+pT | PK657 |
| IGF1R | Y1346 | P08069 | PYK | | | ● | | | | | | | | | | | | IGF1R-pY1346 | PK658 |
| IKKa (IkBKA; | T179+S180 | O15111 | PSTK | | | | | | | | | | | | | | | IKKa-pT179+pS180 | PK659 |
| IKKb (IkBKB; | Pan | O14920 | PSTK | | | | | | | | | | | | | | | IKKb-NT | NK076-6 |
| IKKb (IkBKB; | Pan | O14920 | PSTK | | | | | | | | | | | | | | | IKKb-BCT | NK076-5 |
| IKKe (IkBKE) | S172 | Q14164 | PSTK | | | | | | | | | | | | | | | IKKe-pS172 | PK660 |
| IKKg (NEMO) | S377 | Q9Y6K9 | PSTK | | | | | | | | | | | | | | | IKKg-pS377 | PN758 |
| IKZF1 | S361+S364 | Q13422 | | | ● | | | | | | | | | | | | | IKZF1-pS361+pS36 | PN797 |
| IKZF1 | Y413 | Q13422 | | | ● | | | | | | | | | | | | | IKZF1-pY413 | PN707 |
| ILK1 (ILK) | S343 | Q13418 | PSTK | | | | | | | | | | | | | | | ILK1-pS343 | PK661 |
| ILK1 (ILK) | Y351 | Q13418 | PSTK | | | | | | | | | | | | | | | ILK1-pY351 | PK662 |
| InsR (IR) | Pan | P06213 | PYK | | | ● | | | | | | | | | | | | InsR-BCT | NK079-2 |
| InsR (IR) | Y1185 | P06213 | PYK | | | ● | | | | | | | | | | | | InsR-pY1185 | PK951 |
| InsR (IR) | Y1189 | P06213 | PYK | | | ● | | | | | | | | | | | | InsR-pY1189 | PK663 |
| InsR (IR) | Y1361 | P06213 | PYK | | | ● | | | | | | | | | | | | InsR-pY1361 | PK952 |
| IQGAP1 | S1443 | | | | | | | | | | | | | | | | | IQGAP1-pS1443 | PN1029 |
| IQGAP2 | S1358 | | | | | | | | | | | | | | | | | IQGAP2-pS1358 | PN1030 |
| IRAK1 | T387 | P51617 | PSTK | | | | | | | | | | | | | | | IRAK1-pT387 | PK664 |
| IRAK4 | T345+S346 | Q9NWZ | PSTK | | | | | | | | | | | | | | | IRAK4-pT345+pS34 | PK665 |
| IRF3 | T135 | Q14653 | | | ● | | | | | | | | | | | | | IRF3-pT135 | PN610 |
| IRR (INSRR) | Pan | P14616 | PYK | | | ● | | | | | | | | | | | | IRR-BCT | NK273-1 |
| IRS1 | Y612 | P35568 | | | | | | | | | | | ● | | | | | IRS1-pY612 | PN960 |
| IRS1 | Y632 | P35568 | | | | | | | | | | | | | | | | IRS1-pY632 | PN1032 |
| IRS1 | S636+S639 | P35568 | | | | | | | | | | | ● | | | | | IRS1-pS636+pS639 | PN831 |
| ITK | Pan | Q08881 | PYK | | | | | | | | | | | | | | | ITK-BCT | NK274-1 |
| ITK | Pan | Q08881 | PYK | | | | | | | | | | | | | | | ITK-1 | NK274-2 |
| ITK | Y512 | Q08881 | PYK | | | | | | | | | | | | | | | ITK-pY512 | PK666 |
| ITSN2 | Y968 | Q9NZM3 | | | | | | | | | | | ● | | | | | ITSN2-pY968 | PN521 |
| IWS1 | S720+T721 | Q96ST2 | | | ● | | | | | | | | | | | | | IWS1-S720+T721+ | PN611 |
| JAK1 | Pan | P23458 | PYK | | | | | | | | | | | | | | | JAK1-1 | NK084-3 |
| JAK1 | Pan | P23458 | PYK | | | | | | | | | | | | | | | JAK1-3 | NK084-5 |
| JAK1 | Y1034+Y10 | P23458 | PYK | | | | | | | | | | | | | | | JAK1-pY1034+pY1 | PK884 |
| JAK1 | T1107 | P23458 | PYK | | | | | | | | | | | | | | | JAK1-pT1107 | PK895 |
| JAK2 | Pan | O60674 | PYK | | | | | | | | | | | | | | | JAK2-3 | NK085-3 |
| JAK2 | Pan | O60674 | PYK | | | | | | | | | | | | | | | JAK2 | NK085-4 |
| JAK2 | Pan | O60674 | PYK | | | | | | | | | | | | | | | JAK2-2 | NK085-2 |
| JAK2 | Y570 | O60674 | PYK | | | | | | | | | | | | | | | JAK2-pY570 | PK668 |
| JAK3 | Pan | P52333 | PYK | | | | | | | | | | | | | | | JAK3-2 | NK086-3 |
| JAK3 | Pan | P52333 | PYK | | | | | | | | | | | | | | | JAK3-3 | NK086-4 |
| JAK3 | Pan | P52333 | PYK | | | | | | | | | | | | | | | JAK2-4 | NK086-2 |
| JAK3 | Y785 | P52333 | PYK | | | | | | | | | | | | | | | JAK3-pY785 | PK934 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JAK3 | Y980+Y981 | P52333 | PYK | | | | | | | | | | | | | | | JAK3-pY980+pY98 | PK669 |
| JNK1 (MAPK8; | Pan | P45983 | PSTK | | | | | | | | | | | | | | | JNK1-1 | NK217-2 |
| JNK1 (MAPK8; | Pan | P45983 | PSTK | | | | | | | | | | | | | | | JNK1-2 | NK217-3 |
| JNK1 (MAPK8; | T183 | P45983 | PSTK | | | | | | | | | | | | | | | JNK1-pT183 | PK969 |
| JNK1 (MAPK8; | Y185 | P45983 | PSTK | | | | | | | | | | | | | | | JNK1-pY185 | PK670 |
| JNK2 (MAPK9) | Pan | P45984 | PSTK | | | | | | | | | | | | | | | JNK2-1 | NK189-2 |
| JNK2 (MAPK9) | Pan | P45984 | PSTK | | | | | | | | | | | | | | | JNK2-2 | NK189-3 |
| JNK2 (MAPK9) | Pan | P45984 | PSTK | | | | | | | | | | | | | | | JNK2-3 | NK189-4 |
| JNK2 (MAPK9) | Pan | P45984 | PSTK | | | | | | | | | | | | | | | JNK2-4 (SAPKa/b) | NK196 |
| JNK2 (MAPK9) | T183+Y185 | P45984 | PSTK | | | | | | | | | | | | | | | JNK2-pT183+pY18 | PK902 |
| JNK3 (MAPK10) | Pan | P53779 | PSTK | | | | | | | | | | | | | | | JNK3-3 | NK197-4 |
| JNK3 (MAPK10) | Pan | P53779 | PSTK | | | | | | | | | | | | | | | JNK3-4 (SAPKb-NT | NK197 |
| JNK3 (MAPK10) | Pan | P53779 | PSTK | | | | | | | | | | | | | | | JNK3-1 | NK197-2 |
| Jun (c-Jun) | S63 | P05412 | | | ● | | | | | | | | | | | | | Jun-pS63 | PN557 |
| Jun (c-Jun) | S73 | P05412 | | | ● | | | | | | | | | | | | | Jun-pS73 | PN612 |
| Jun (c-Jun) | T239 | P05412 | | | ● | | | | | | | | | | | | | Jun-pT239 | PN613 |
| Jun (c-Jun) | S243 | P05412 | | | ● | | | | | | | | | | | | | Jun-pS243 | PN614 |
| KCC2 (SLC12A5) | S963 | Q9H2X9 | | | | | | | | | | | | | | ● | | Kv4.2-pS963 | PN832 |
| KHS1 (MAP4K5; | Pan | Q9Y4K4 | PSTK | | | | | | | | | | | | | | | KHS1-ANT | NK089-2 |
| KHS1 (MAP4K5; | S174 | Q9Y4K4 | PSTK | | | | | | | | | | | | | | | KHS1-pS174 | PK671 |
| KIF5A | S155 | Q12840 | | | | | | | | | | | | | | | | KIF5A-pS155 | PN881 |
| KIF5A | S176 | Q12840 | | | | | | | | | | | | | | | | KIF5A-pS176 | PN882 |
| Kit | Pan | P10721 | PYK | | | ● | | | | | | | | | | | | KIT-1 | NK241-1 |
| Kit | Pan | P10721 | PYK | | | ● | | | | | | | | | | | | KIT-2 | NK241-2 |
| Kit | Y721 | P10721 | PYK | | | ● | | | | | | | | | | | | Kit-pY721 | PK885 |
| Kit | S821+Y823 | P10721 | PYK | | | ● | | | | | | | | | | | | Kit-pS821+pY823 | PK674 |
| Kit | Y936 | P10721 | PYK | | | ● | | | | | | | | | | | | Kit-pY936 | PK673 |
| KMT2C | S4267 | Q8NEZ4 | | | | | | | | | | | | | | | | KMT2C-pS4267 | PN798 |
| KOR-1 (MSL-1) | Y369 | P41145 | | | | ● | | | | | | | | | | | | KOR1-pY369 | PN799 |
| KRAS (K-Ras; | Pan | P01116 | | | | | | | | | | | | | | | | KRAS-Pan | NN281-2 |
| KRAS (K-Ras; | S181 | P01116 | | | | | | | | | | | | | | | | KRas-pS181 | PN862 |
| Ksr1 | S406 | Q8IVT5 | PSTK | | | | | | | | | | | | | | | Ksr1-pS406 | PK675 |
| Ksr2 | S490 | Q6VAB6 | PSTK | | | | | | | | | | | | | | | Ksr2-pS490 | PK676 |
| Kv4.2 | T602+T607 | Q9NZV8 | | | | | ● | | | | | | | | | | | Kv4.2-pT602+pT60 | PN833 |
| L1CAM (CD171) | T1172 | P32004 | | | | | | | | | | | | | ● | | | L1CAM-pT1172 | PN961 |
| L1CAM (CD171) | Y1176 | P32004 | | | | | | | | | | | | | ● | | | L1CAM-pY1176 | PN962 |
| LASS2 | T346+S348 | Q96G23 | | | | | | | | | | | | | | | | LASS2-pT346+pS3 | PN1005 |
| LATS1 | Pan | O95835 | PSTK | | | | | | | | | | | | | | | LATS1-CT | NK091-2 |
| LATS1 | S464 | O95835 | PSTK | | | | | | | | | | | | | | | LATS1-pS464 | PK677 |
| LATS1 | S909 | O95835 | PSTK | | | | | | | | | | | | | | | LATS1-pS909 | PK678 |
| LATS2 (KPM) | Pan | Q9NRM | PSTK | | | | | | | | | | | | | | | LATS2-CT | NK092-2 |
| LATS2 (KPM) | Pan | Q9NRM | PSTK | | | | | | | | | | | | | | | LATS2-ANT | NK092-1 |
| Lck | Y192 | P06239 | PYK | | | | | | | | | | | | | | | Lck-pY192 | PK679 |
| Lck | Y263+Y264 | P06239 | PYK | | | | | | | | | | | | | | | Lck-pY263+pY264 | PK680 |
| LEF1 | T155+Pan | Q9UJU2 | | | ● | | | | | | | | | | | | | LEF1-pT155 | PN616 |
| LIMK1 | T508 | P53667 | PSTK | | | | | | | | | | | | | | | LIMK1-pT508 | PK681 |
| LKB1 (STK11; | Pan | Q15831 | PSTK | | | | | | | | | | | | | | | LKB1-2 | NK227-3 |
| LKB1 (STK11; | Pan | Q15831 | PSTK | | | | | | | | | | | | | | | LKB1-3 | NK227-4 |
| LKB1 (STK11; | Pan | Q15831 | PSTK | | | | | | | | | | | | | | | LKB1 (STK11) | NK227-1 |
| LKB1 (STK11; | Pan | Q15831 | PSTK | | | | | | | | | | | | | | | LKB1-1 | NK227-2 |
| LKB1 (STK11; | S31 | Q15831 | PSTK | | | | | | | | | | | | | | | LKB1 (STK11)-pS3 | PK682 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LKB1 (STK11; | S428 | Q15831 | PSTK | | | | | | | | | | | | | | | LKB1 (STK11)-pS4 | PK683 |
| LMNA | T19+S22 | P02545 | | | | | | | | | | | | ● | | | | LMNA-pT19+S22 | PN966 |
| LMNA | S301 | P02545 | | | | | | | | | | | | ● | | | | LMNA-pS301 | PN963 |
| LMNA | S458 | P02545 | | | | | | | | | | | | ● | | | | LMNA-pS458 | PN965 |
| LMR2 (LMTK2; | S1450 | Q8IWU2 | PSTK | | | | | | | | | | | | | | | LMR2-pS1450 | PK684 |
| LOK | S191 | O94804 | PSTK | | | | | | | | | | | | | | | LOK-pS191 (PK685 | PK685-2 |
| LOK | S191 | O94804 | PSTK | | | | | | | | | | | | | | | LOK-pS191 | PK685 |
| LOK | T952 | O94804 | PSTK | | | | | | | | | | | | | | | LOK-pT952 | PK686 |
| LRP4 (LRP10; | S1887 | O75096 | | | | ● | | | | | | | | | | | | LRP4-pS1887 | PN967 |
| LRRK2 (PARK8) | S935 | Q5S007 | PSTK | | | | | | | | | | | | | | | LRRK2-pS935 | PK905 |
| LRRK2 (PARK8) | S935 | Q5S007 | PSTK | | | | | | | | | | | | | | | LRRK2-pS955 | PK935 |
| LRRK2 (PARK8) | S973 | Q5S007 | PSTK | | | | | | | | | | | | | | | LRRK2-pS973 | PK936 |
| LRRK2 (PARK8) | T1410 | Q5S007 | PSTK | | | | | | | | | | | | | | | LRRK2-pT1410 | PK937 |
| LRRK2 (PARK8) | T1503 | Q5S007 | PSTK | | | | | | | | | | | | | | | LRRK2-pT1503 | PK938 |
| LRRK2 (PARK8) | T2031+S20 | Q5S007 | PSTK | | | | | | | | | | | | | | | LRRK2- | PK939 |
| LTB4R | T308+S310 | Q15722 | | | | ● | | | | | | | | | | | | LTB4R-pT308+pS3 | PN800 |
| LTK | Y672 | P29376 | | | | ● | | | | | | | | | | | | LTK-pY672 | PK687 |
| Lyn | Pan | P07948 | PYK | | | | | | | | | | | | | | | Lyn-ANT | NK095-2 |
| Lyn | Y508 | P07948 | PYK | | | | | | | | | | | | | | | Lyn-pY508 | PK688 |
| MAFG | S124+Pan | O15525 | | | ● | | | | | | | | | | | | | MAFG-pS124 | PN617 |
| MAK | T157 | P20794 | PSTK | | | | | | | | | | | | | | | MAK-pT157 | PK689 |
| MAP2 | S1782 | P11137 | | | | | | | | | | | | ● | | | | MAP2-pS1782 | PN835 |
| MAPKAPK2 | T222 | P49137 | PSTK | | | | | | | | | | | | | | | MAPKAPK2-pT222 | PK690 |
| MAPKAPK2 | Y225+T226 | P49137 | PSTK | | | | | | | | | | | | | | | MAPKAPK2-pY225 | PK691 |
| MAPKAPK3 | Y76 | Q16644 | PSTK | | | | | | | | | | | | | | | MAPKAPK3-pY76 | PK692 |
| MAPKAPK5 | T186 | Q8IW41 | PSTK | | | | | | | | | | | | | | | MAPKAPK5-pT186 | PK693 |
| MARCKS | S27+S29 | | | | | | | | | | | | | | | | | MARCKS-pS27+pS | PN1023 |
| MARK1 | Pan | Q9P0L2 | PSTK | | | | | | | | | | | | | | | MARK1-ANT | NK098-2 |
| MARK1 | T215 | Q9P0L2 | PSTK | | | | | | | | | | | | | | | MARK1-pT215 | PK694 |
| MARK1 | T215 | Q9P0L2 | PSTK | | | | | | | | | | | | | | | MARK1-pT215 | PK695 |
| MARK2 | Pan | Q7KZI7 | PSTK | | | | | | | | | | | | | | | MARK2-BCT | NK275-2 |
| MARK2 | Pan | Q7KZI7 | PSTK | | | | | | | | | | | | | | | MARK2-ANT | NK275-1 |
| MARK3 | Pan | P27448 | PSTK | | | | | | | | | | | | | | | MARK3-BCT | NK276-2 |
| MARK3 | Pan | P27448 | PSTK | | | | | | | | | | | | | | | MARK3-ANT | NK276-1 |
| MARK3 | T507 | P27448 | PSTK | | | | | | | | | | | | | | | MARK3-pT530 | PK697 |
| MARK4 | Pan | Q96L34 | PSTK | | | | | | | | | | | | | | | MARK4-NT | NK277-2 |
| MARK4 | Pan | Q96L34 | PSTK | | | | | | | | | | | | | | | MARK4-ANT | NK277-1 |
| MAT1A | T341 | Q00266 | | | | | | | | ● | | | | | | | | MAT1A-pT341 | PN759 |
| MATR3 | T130 | P43243 | | | | | | | | | | | | | | | | MATR3-pT150 | PN887 |
| MATR3 | S188 | P43243 | | | | | | | | | | | | | | | | MATR3-pS188 | PN883 |
| MATR3 | S248+Y250 | P43243 | | | | | | | | | | | | | | | | MATR3- | PN884 |
| MATR3 | S533 | P43243 | | | | | | | | | | | | | | | | MATR3-pS533 | PN885 |
| MATR3 | S596+S598 | P43243 | | | | | | | | | | | | | | | | MATR3- | PN886 |
| MBP | Y203 | P02686 | | | | | | | | | | | | ● | | | | MBP-pY203 | PN968 |
| MBP | T229+T232 | P02686 | | | | | | | | | | | | | | | | MBP-pT229+pT232 | PN1024 |
| MBP | T232 | P02686 | | | | | | | | | | | | ● | | | | MBP-pT232 | PN558 |
| MCM2 | Y137+S139 | P49736 | | | ● | | | | | | | | | | | | | MCM2-pY137+pS1 | PN620 |
| MEF2A | T108 | Q02078 | | | ● | | | | | | | | | | | | | MEF2A-pT108 | PN622 |
| MEF2C | S396 | Q06413 | | | ● | | | | | | | | | | | | | MEF2C-pS396 | PN623 |
| MEF2D | S121 | Q14814 | | | ● | | | | | | | | | | | | | MEF2D-pS121 | PN624 |
| MEF2D | S180 | Q14814 | | | ● | | | | | | | | | | | | | MEF2D-pS180 | PN625 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEK1 (MAP2K1; | Pan | Q02750 | DSK | | | | | | | | | | | | | | | MEK1-1 | NK099-8 |
| MEK1 (MAP2K1; | Pan | Q02750 | DSK | | | | | | | | | | | | | | | MEK1-3 (MEK1-7) | NK099-7 |
| MEK1 (MAP2K1; | Pan | Q02750 | DSK | | | | | | | | | | | | | | | MEK1-CT | NK099-2 |
| MEK1 (MAP2K1; | Pan | Q02750 | DSK | | | | | | | | | | | | | | | MEK1-5 (MEK1-XI) | NK099-3 |
| MEK1 (MAP2K1; | Pan | Q02750 | DSK | | | | | | | | | | | | | | | MEK1-6 (MEK1-CT | NK099-4 |
| MEK1 (MAP2K1; | S222+Pan | Q02750 | DSK | | | | | | | | | | | | | | | MEK1-pS222 | PK698 |
| MEK2 (MAP2K2; | Pan | P36507 | DSK | | | | | | | | | | | | | | | MEK2-1 | NK100-5 |
| MEK2 (MAP2K2; | Pan | P36507 | DSK | | | | | | | | | | | | | | | MEK2-2 | NK100-4 |
| MEK2 (MAP2K2; | Pan | P36507 | DSK | | | | | | | | | | | | | | | MEK2-3 | NK100-6 |
| MEK5 (MAP2K5; | Pan | Q13163 | DSK | | | | | | | | | | | | | | | MEK5-2 | NK104-4 |
| MEK5 (MAP2K5; | Pan | Q13163 | DSK | | | | | | | | | | | | | | | MEK5-3 | NK104-5 |
| MEK5 (MAP2K5; | Pan | Q13163 | DSK | | | | | | | | | | | | | | | MEK5-PNT (MEK5- | NK104-2 |
| MEK5 (MAP2K5; | Pan | Q13163 | DSK | | | | | | | | | | | | | | | MEK5-1 | NK104-3 |
| MEK5 (MAP2K5; | S311 | Q13163 | DSK | | | | | | | | | | | | | | | MEK5-pS311 | PK699 |
| MEKK1 | Pan | Q13233 | PSTK | | | | | | | | | | | | | | | MEKK-NT (MEKK1- | NK107-3 |
| MEKK2 | Pan | Q9Y2U5 | PSTK | | | | | | | | | | | | | | | MEKK2-1 | NK108-3 |
| MEKK2 | Pan | Q9Y2U5 | PSTK | | | | | | | | | | | | | | | MEKK2-2 | NK108-4 |
| MEKK2 | Pan | Q9Y2U5 | PSTK | | | | | | | | | | | | | | | MEKK2-3 | NK108-5 |
| MEKK2 | S239+Pan | Q9Y2U5 | PSTK | | | | | | | | | | | | | | | MEKK2-pS239 | PK700 |
| MEKK6 | Pan | O95382 | PSTK | | | | | | | | | | | | | | | MEKK6-2 | NK225-2 |
| MEKK6 | Pan | O95382 | PSTK | | | | | | | | | | | | | | | MEKK6-3 | NK225-3 |
| MEKK6 | Pan | O95382 | PSTK | | | | | | | | | | | | | | | MEKK6-1 | NK225-4 |
| MELK | Pan | Q14680 | PSTK | | | | | | | | | | | | | | | MELK-2 | NK229-3 |
| MELK | Pan | Q14680 | PSTK | | | | | | | | | | | | | | | MELK-1 | NK229-2 |
| MELK | Y438 | Q14680 | PSTK | | | | | | | | | | | | | | | MELK-pY438 | PK701 |
| MERTK (MER) | Y749 | Q12866 | PYK | | | ● | | | | | | | | | | | | MERTK-pY749 | PK702 |
| MERTK (MER) | Y749+Y753 | Q12866 | PYK | | | ● | | | | | | | | | | | | MERTK-pY749+pY | PK703 |
| MERTK (MER) | Y753 | Q12866 | PYK | | | ● | | | | | | | | | | | | MERTK-pY753 | PK704 |
| Met (HGF | Pan | P08581 | PYK | | | ● | | | | | | | | | | | | Met-2 | NK110-3 |
| Met (HGF | Pan | P08581 | PYK | | | ● | | | | | | | | | | | | Met-3 | NK110-4 |
| Met (HGF | Pan | P08581 | PYK | | | ● | | | | | | | | | | | | Met-1 | NK110-2 |
| Met (HGF | Y1003 | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pY1003 | PK708 |
| Met (HGF | Y1230+Pan | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pY1230 | PK709 |
| Met (HGF | Y1234 | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pY1234 | PK710 |
| Met (HGF | S1236 | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pS1236 | PK705 |
| Met (HGF | Y1234+Y12 | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pY1234+pY123 | PK711 |
| Met (HGF | Y1234+Y12 | P08581 | PYK | | | ● | | | | | | | | | | | | Met - | PK712 |
| Met (HGF | T1355+Y13 | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pT1355+pY135 | PK707 |
| Met (HGF | T1241 | P08581 | PYK | | | ● | | | | | | | | | | | | Met-pT1241 | PK706 |
| MITF | S414 | O75030 | | | ● | | | | | | | | | | | | | MITF-pS414 | PN626 |
| MKK3 (MAP2K3; | Pan | P46734 | DSK | | | | | | | | | | | | | | | MKK3-1 | NK101-4 |
| MKK3 (MAP2K3; | Pan | P46734 | DSK | | | | | | | | | | | | | | | MKK3-2 | NK101-5 |
| MKK3 (MAP2K3; | Pan | P46734 | DSK | | | | | | | | | | | | | | | MKK3-3 | NK101-6 |
| MKK3 (MAP2K3; | S218 | P46734 | DSK | | | | | | | | | | | | | | | MKK3-pS218 | PK713 |
| MKK3 (MAP2K3; | Y230 | P46734 | DSK | | | | | | | | | | | | | | | MKK3-pY230 | PK714 |
| MKK4 (MAP2K4; | Pan | P45985 | DSK | | | | | | | | | | | | | | | MKK4-1 | NK103-4 |
| MKK4 (MAP2K4; | Pan | P45985 | DSK | | | | | | | | | | | | | | | MKK4-2 | NK103-5 |
| MKK4 (MAP2K4; | Pan | P45985 | DSK | | | | | | | | | | | | | | | MKK4-3 | NK103-6 |
| MKK4 (MAP2K4; | S257 | P45985 | DSK | | | | | | | | | | | | | | | MKK4-pS257 | PK715 |
| MKK4 (MAP2K4; | S80+Pan | P45985 | DSK | | | | | | | | | | | | | | | MKK4-pS80 | PK716 |
| MKK6 (MAP2K6; | Pan | P52564 | DSK | | | | | | | | | | | | | | | MKK6-2 | NK105-4 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MKK6 (MAP2K6; | Pan | P52564 | DSK | | | | | | | | | | | | | | | MKK6-4 | NK105-5 |
| MKK6 (MAP2K6; | Pan | P52564 | DSK | | | | | | | | | | | | | | | MKK6-1 | NK105-3 |
| MKK7 (MAP2K7; | Pan | O14733 | DSK | | | | | | | | | | | | | | | MKK7-2 | NK106-4 |
| MKK7 (MAP2K7; | Pan | O14733 | DSK | | | | | | | | | | | | | | | MKK7-3 | NK106-5 |
| MKK7 (MAP2K7; | T275 | O14733 | DSK | | | | | | | | | | | | | | | MKK7-pT275 | PK717 |
| MLK1 (MAP3K9) | Pan | P80192 | PSTK | | | | | | | | | | | | | | | MLK1-CT | NK278-1 |
| MLK3 | S281 | Q16584 | PSTK | | | | | | | | | | | | | | | MLK3-pS281 | PK718 |
| MLK3 | T277+S281 | Q16584 | PSTK | | | | | | | | | | | | | | | MLK3-pT277+pS28 | PK870 |
| MLK4 | Pan | Q5TCX8 | PSTK | | | | | | | | | | | | | | | MLK4-CT | NK280-1 |
| MLL | S2196 | Q03164 | | | | | | | | | | | | | | | | MLL-pS2196 | PN801 |
| MLTK | T161+T162 | Q9NYL2 | PSTK | | | | | | | | | | | | | | | MLTK-pT161+pT16 | PK719 |
| MOK (RAGE) | Pan | Q9UQ07 | PSTK | | | | | | | | | | | | | | | MOK-AKCD | NK281-1 |
| MOK (RAGE) | Y167 | Q9UQ07 | PSTK | | | | | | | | | | | | | | | MOK-pY167 | PK721 |
| MOK (RAGE) | T159+Y161 | Q9UQ07 | PSTK | | | | | | | | | | | | | | | MOK-pT159+pY161 | PK720 |
| MOR1 (mu opiod | T372+S377 | P35372 | | | | ● | | | | | | | | | | | | MOR1-pT372+pS37 | PN802 |
| Mos | Pan | P00540 | PSTK | | | | | | | | | | | | | | | Mos (Mos-1) | NK112 |
| Mos | Y263 | P00540 | PSTK | | | | | | | | | | | | | | | Mos-pY263 | PK722 |
| MPL | Y591 | P40238 | | | | ● | | | | | | | | | | | | MPL-pY591 | PN760 |
| MRCKa (PK428) | Pan | Q5VT25 | PSTK | | | | | | | | | | | | | | | MRCKa-AKCD | NK282-1 |
| MRLC1 | T19+S20 | P24844 | | | | | | | | | | | | ● | | | | MRLC1-pT19+pS20 | PN836 |
| MSH6 | S14 | P52701 | | | | | | | | | ● | | | | | | | MSH6-pS14 | PN708 |
| MSK1 | S212 | O75582 | PSTK | | | | | | | | | | | | | | | MSK1-pS212 | PK723 |
| MSK2 | T194+S196 | O75676 | PSTK | | | | | | | | | | | | | | | MSK2-pT194+pS19 | PK868 |
| MSK2 | T687 | O75676 | PSTK | | | | | | | | | | | | | | | MSK2-pT687 | PK725 |
| MST1 (STK4; | T183 | Q13043 | PSTK | | | | | | | | | | | | | | | MST1-pT183 | PK871 |
| MST3 (STK24) | T184+Pan | Q9Y6E0 | PSTK | | | | | | | | | | | | | | | MST3-pT184 | PK727 |
| MST3 (STK24) | T190 | Q9Y6E0 | PSTK | | | | | | | | | | | | | | | MST3-pT190 | PK728 |
| mTOR (FRAP) | Pan | P42345 | PSTK | | | | | | | | | | | | | | | mTOR-2 | NK116-4 |
| mTOR (FRAP) | Pan | P42345 | PSTK | | | | | | | | | | | | | | | mTOR-3 | NK116-3 |
| mTOR (FRAP) | Pan | P42345 | PSTK | | | | | | | | | | | | | | | mTOR-1 | NK116-5 |
| mTOR (FRAP) | S2448 | P42345 | PSTK | | | | | | | | | | | | | | | mTOR-pS2448 | PK729 |
| mTOR (FRAP) | S2478+S24 | P42345 | PSTK | | | | | | | | | | | | | | | mTOR-pS2478+pS2 | PK730 |
| MuSK | Y554 | O15146 | PYK | | | ● | | | | | | | | | | | | MuSK-pY554 | PK953 |
| MuSK | Y756 | O15146 | PYK | | | ● | | | | | | | | | | | | MUSK-pY756 | PK872 |
| Myb | S532+Pan | P10242 | | | ● | | | | | | | | | | | | | Myb-pS532 | PN627 |
| Myc (c-Myc) | T58+S62 | P01106 | | | ● | | | | | | | | | | | | | Myc-pT58+pS62 | PN628 |
| MYT1 (PLPB1) | S143 | Q99640 | PSTK | | | | | | | | | | | | | | | MYT1-pS143 | PK887 |
| Nav1.2 | S568 | Q99250 | | | | | ● | | | | | | | | | | | Nav1.2-pS568 | PN837 |
| NCAM1 (CD56) | S784 | P13591 | | | | | | | | | | | | | ● | | | NCAM1-pS784 | PN969 |
| NCOA3 (SRC-3) | S867 | Q9Y6Q9 | | | ● | | | | | | | | | | | | | NCoA3-pS867 | PN629 |
| NDR1 (NDR; | S281+T282 | Q15208 | PSTK | | | | | | | | | | | | | | | NDR1-pS281+pT28 | PK731 |
| Nek1 | S1052 | Q96PY6 | PSTK | | | | | | | | | | | | | | | NEK1-pS1052 | PK940 |
| Nek2 | T170+S171 | P51955 | PSTK | | | | | | | | | | | | | | | Nek2-pT170+pS171 | PK733 |
| Nek2 | S171 | P51955 | PSTK | | | | | | | | | | | | | | | Nek2-pS171 | PK732 |
| Nek6 | S206 | Q9HC98 | PSTK | | | | | | | | | | | | | | | Nek6-pS206 | PK734 |
| Nek7 | T191+S195 | Q8TDX7 | PSTK | | | | | | | | | | | | | | | Nek7-pT191+pS195 | PK735 |
| NF-H (NEFH) | Pan | P12036 | | | | | | | | | | | | ● | | | | NF-H-CT | NN583-1 |
| NF-H (NEFH) | S532 | P12036 | | | | | | | | | | | | ● | | | | NFH-pS532 | PN970 |
| NF-H (NEFH) | S606 | P12036 | | | | | | | | | | | | ● | | | | NFH-pS606 | PN971 |
| NF-H (NEFH) | S648 | P12036 | | | | | | | | | | | | ● | | | | NFH-pS648 | PN972 |
| NF-L (NEFL) | Pan | P07196 | | | | | | | | | | | | ● | | | | NF-L-CT | NN582-1 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NF-M (NEFM) | Y320 | P07197 | | | | | | | | | | | | ● | | | | NF-M-pY320 | PN894 |
| NF-M (NEFM) | S620 | P07197 | | | | | | | | | | | | ● | | | | NF-M-pS620 | PN893 |
| NF1 | Y2577 | P21359 | | | | | | | | | | | | | | | | NF1-pY2577 | PN761 |
| NF2 | S518 | P35240 | | | | | | | | | | | | ● | | | | NF2-pS518 | PN709 |
| NFAT1 | S217+S221 | Q13469 | | | ● | | | | | | | | | | | | | NFAT1-pS217+pS2 | PN630 |
| NFAT3 (NFATc4) | S213+S217 | Q14934 | | | ● | | | | | | | | | | | | | NFAT3-pS213+pS2 | PN631 |
| NFAT5 | T135 | O94916 | | | ● | | | | | | | | | | | | | NFAT5-pT135 | PN632 |
| NFKB1 | S903+S907 | P19838 | | | ● | | | | | | | | | | | | | NFKB1-pS903+pS9 | PN634 |
| NGFR | T293 | P08138 | | | | ● | | | | | | | | | | | | NGFR-pT293 | PN973 |
| NLK | T298 | Q9UBE8 | PSTK | | | | | | | | | | | | | | | NLK-pT298 | PK736 |
| NMDAR2A | Y943 | Q12879 | | | | | | | | | ● | | | | | | | NMDAR2A-pY943 | PN838 |
| NMDAR2A | Y943 | Q12879 | | | | | | | | | ● | | | | | | | NMDAR2A-pY943 | PN710 |
| NMDAR2A | Y1325 | Q12879 | | | | | | | | | ● | | | | | | | NMDAR2A-pY1325 | PN839 |
| NOLC1 | T607+T610 | Q14978 | | | ● | | | | | | | | | | | | | NOLC1-pT607+pT6 | PN635 |
| NOS1 (nNos) | S746 | P29475 | | | | | | | | ● | | | | | | | | NOS1-pS746 | PN762 |
| NOS2 | Y151 | P35228 | | | | | | | | ● | | | | | | | | NOS2-pY151 | PN763 |
| NOS2 | S745+Pan | P35228 | | | | | | | | ● | | | | | | | | NOS2-pS745 | PN711 |
| NOS3 (eNOS) | T1175+S11 | P29474 | | | | | | | | ● | | | | | | | | NOS3-pT1175+pS1 | PN712 |
| NPM1 (B23) | S4 | P06748 | | | | | | | | | | | | | | | | NPM-pS4 | PN975 |
| NPM1 (B23) | T199 | P06748 | | | | | | | | | | | | | | | | NPM-pT199 | PN976 |
| NR1 (NMDAR1) | S897 | Q05586 | | | | ● | ● | | | | | | | | | | | NR1-pS897 | PN841 |
| NR2B (GRIN2B) | S281 | Q13224 | | | | ● | ● | | | | | | | | | | | NR2B-pS281 | PN1027 |
| NR2B (GRIN2B) | Y1474 | Q13224 | | | | ● | ● | | | | | | | | | | | NR2B-pY1474 | PN843 |
| NRAS (N-Ras) | S40 | P01111 | | | | | | | | | | | | | | | | NRF2-pS40 | PN842 |
| NRP1 (CD304) | Pan | O14786 | | | | ● | | | | | | | | | | | | NRP1[343-356] | NN604-2 |
| NRP1 (CD304) | Pan | O14786 | | | | ● | | | | | | | | | | | | NRP1[293-309] | NN604-1 |
| NuaK1 | T211 | O60285 | PSTK | | | | | | | | | | | | | | | NuaK1-pT211 | PK737 |
| Nur77 | S351+Pan | P22736 | | | ● | | | | | | | | | | | | | Nur77-pS351 | PN636 |
| Obscn | Pan | Q5VST9 | PSTK | | | | | | | | | | | | | | | Obscn-2 | NK247-2 |
| Obscn | Pan | Q5VST9 | PSTK | | | | | | | | | | | | | | | Obscn-3 | NK247-3 |
| Obscn | Pan | Q5VST9 | PSTK | | | | | | | | | | | | | | | Obscn-1 | NK247-1 |
| ODC1 | T93 | P11926 | | | | | | | | ● | | | | | | | | ODC1-pT93 | PN766 |
| OPTN | S177 | Q96CV9 | | | | | | | | | | | | | | | | OPTN-pS177 | PN895 |
| OPTN | S342 | Q96CV9 | | | | | | | | | | | | | | | | OPTN-pS342 | PN896 |
| OPTN | S526+S528 | Q96CV9 | | | | | | | | | | | | | | | | OPTN- | PN897 |
| OSBP (Oxysterol- | S240 | P22059 | | | | | | | | | | | | | | ● | | OSBP-pS240 | PN844 |
| OSBP (Oxysterol- | S379+S382 | P22059 | | | | | | | | | | | | | | ● | | OSBP-pS379+pS38 | PN1006 |
| OSR1 (OXSR1) | T185 | O95747 | PSTK | | | | | | | | | | | | | | | OSR1-pT185 | PK738 |
| P2RY1 (P2Y | S352+S354 | P47900 | | | | ● | | | | | | | | | | | | P2RY1-pS352+pS3 | PN803 |
| p38a MAPK | Pan | Q15759 | PSTK | | | | | | | | | | | | | | | p38a-2 | NK120-8 |
| p38a MAPK | Pan | Q16539 | PSTK | | | | | | | | | | | | | | | p38HOG-NT (p38a- | NK120-10 |
| p38a MAPK | T180+Y182 | Q16539 | PSTK | | | | | | | | | | | | | | | p38a-pT180+pY182 | PK739 |
| p38a MAPK | T180+Y182 | Q15759 | PSTK | | | | | | | | | | | | | | | p38a-pT180+pY182 | PK740 |
| p38a MAPK | Y182 | Q15759 | PSTK | | | | | | | | | | | | | | | p38-pY182 | PK959 |
| p38b MAPK | Pan | Q15759 | PSTK | | | | | | | | | | | | | | | p38b-2 | NK248-2 |
| p38b MAPK | Pan | Q15759 | PSTK | | | | | | | | | | | | | | | p38b-1 | NK248-1 |
| p38b MAPK | T180+Y182 | Q15759 | PSTK | | | | | | | | | | | | | | | p38b-pT180+pY182 | PK741 |
| p38d MAPK | Pan | O15264 | PSTK | | | | | | | | | | | | | | | p38d-2 | NK121-3 |
| p38d MAPK | Pan | O15264 | PSTK | | | | | | | | | | | | | | | p38d-3 | NK121-4 |
| p38d MAPK | Pan | O15264 | PSTK | | | | | | | | | | | | | | | p38d-1 | NK121-2 |
| p38d MAPK | T180 | O15264 | PSTK | | | | | | | | | | | | | | | p38d-pT180 | PK966 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| p38d MAPK | T180+Y182 | Q15759 | PSTK | | | | | | | | | | | | | | | p38d-pT180+pY182 | PK742 |
| p38d MAPK | T180+Y182 | O15264 | PSTK | | | | | | | | | | | | | | | p38d-pT180+pY182 | PK960 |
| p38d MAPK | Y182 | O15264 | PSTK | | | | | | | | | | | | | | | p38d-pY182 | PK743 |
| p38d MAPK | S261+T265 | O15264 | PSTK | | | | | | | | | | | | | | | p38d-pS261+pT265 | PK888 |
| p38g MAPK | Pan | P53778 | PSTK | | | | | | | | | | | | | | | p38g-1 | NK059-3 |
| p38g MAPK | Pan | P53778 | PSTK | | | | | | | | | | | | | | | p38g-2 | NK059-4 |
| p38g MAPK | Pan | P53778 | PSTK | | | | | | | | | | | | | | | p38g-3 | NK059-5 |
| p70S6K (S6Ka; | Pan | P23443 | PSTK | | | | | | | | | | | | | | | p70S6K-1 (S6K-PN | NK223-2 |
| p70S6K (S6Ka; | Pan | P23443 | PSTK | | | | | | | | | | | | | | | S6K-III | NK223-4 |
| p70S6K (S6Ka; | T252 | P23443 | PSTK | | | | | | | | | | | | | | | p70S6K-pT252 | PK744 |
| p70S6K (S6Ka; | T412 | P23443 | PSTK | | | | | | | | | | | | | | | p70S6K-pT412 | PK745 |
| p70S6K (S6Ka; | T444+S447 | P23443 | PSTK | | | | | | | | | | | | | | | p70S6K-pT444+pS | PK746 |
| p70S6Kb | S423 | Q9UBS0 | PSTK | | | | | | | | | | | | | | | p70S6KB-pS423 | PK747 |
| p73 (TRP73) | Y99 | O15350 | | | ● | | | | | | | | | | | | | TP73-pY99 | PN861 |
| PAH | S16 | P00439 | | | | | | | | ● | | | | | | | | PAH-pS16 | PN713 |
| PAK1 (PAKa) | Pan | Q13153 | PSTK | | | | | | | | | | | | | | | PAK1-NT (PAK1-1) | NK122-2 |
| PAK1 (PAKa) | S144 | Q13153 | PSTK | | | | | | | | | | | | | | | PAK1-pS144 | PK748 |
| PAK1 (PAKa) | T423 | Q13153 | PSTK | | | | | | | | | | | | | | | PAK1-pT423 | PK749 |
| PAK2 (PAKg) | Pan | Q13177 | PSTK | | | | | | | | | | | | | | | PAK2-1 (PAK2-NT) | NK200 |
| PAK2 (PAKg) | Y130 | Q13177 | PSTK | | | | | | | | | | | | | | | PAK2-pY130 | PK751 |
| PAK2 (PAKg) | S141 | Q13177 | PSTK | | | | | | | | | | | | | | | PAK2-pS141 | PK750 |
| PAK4 | S474 | O96013 | PSTK | | | | | | | | | | | | | | | PAK4-pS474 | PK752 |
| PAK5 (PAK7) | Pan | Q9P286 | PSTK | | | | | | | | | | | | | | | PAK5-APBD | NK190-3 |
| PAK5 (PAK7) | S602 | Q9P286 | PSTK | | | | | | | | | | | | | | | PAK5-pS602 | PK753 |
| PAK6 | Pan | Q9NQU | PSTK | | | | | | | | | | | | | | | PAK6-APBD | NK124-2 |
| PBK (TOPK) | Y74 | Q96KB5 | PSTK | | | | | | | | | | | | | | | PBK-pY74 | PK754 |
| PBK (TOPK) | Y272 | Q96KB5 | PSTK | | | | | | | | | | | | | | | PBK-pY272 | PK889 |
| PBRM1 | S303+Pan | Q86U86 | | | ● | | | | | | | | | | | | | PBRM1-pS303 | PN767 |
| PCK1 | S118 | P35558 | | | | | | | | ● | | | | | | | | PCK1-pS118 | PN768 |
| PCTAIRE1 | Y176 | Q00536 | PSTK | | | | | | | | | | | | | | | PCTK1-pY176 | PK755 |
| PCTK2 | Pan | Q00537 | PSTK | | | | | | | | | | | | | | | PCTK2-ANT | NK285-1 |
| PCTK2 | S180 | Q00537 | PSTK | | | | | | | | | | | | | | | PCTK2-pS180 | PK756 |
| PCTK3 | Pan | Q07002 | PSTK | | | | | | | | | | | | | | | PCTK3-ANT | NK286-1 |
| PCYT1A | Pan | P49585 | | | | | | | | ● | | | | | | | | PCYT1A-PNT | NN606-1 |
| PCYT1A | S329+S331 | P49585 | | | | | | | | ● | | | | | | | | PCYT1A-pS329+pS | PN561 |
| PCYT1A | T342+S343 | P49585 | | | | | | | | ● | | | | | | | | PCYT1A-pT342+pS | PN547 |
| PCYT1A | Y359+S362 | P49585 | | | | | | | | ● | | | | | | | | PCYT1A-pY359+pS | PN548 |
| PCYT1B (CCTB) | Pan | Q9Y5K3 | | | | | | | | ● | | | | | | | | PCYT1B-PNT | NN605-1 |
| PCYT1B (CCTB) | S315+S319 | Q9Y5K3 | | | | | | | | ● | | | | | | | | PCYT1B-pS315+pS | PN546 |
| PDGFRA | Pan | P16234 | PYK | | | ● | | | | | | | | | | | | PDGFRA-2 | NK242-2 |
| PDGFRA | Pan | P16234 | PYK | | | ● | | | | | | | | | | | | PDGFRA-1 | NK242-1 |
| PDGFRA | Y762 | P16234 | PYK | | | ● | | | | | | | | | | | | PDGFRa-pY762 | PK758 |
| PDGFRA | Y768 | P16234 | PYK | | | ● | | | | | | | | | | | | PDGFRa-pY768 | PK759 |
| PDGFRA | S847+Y849 | P16234 | PYK | | | ● | | | | | | | | | | | | PDGFRa-pS847+pY | PK757 |
| PDGFRB | Pan | P09619 | PYK | | | ● | | | | | | | | | | | | PDGFRB-4 | NK243-3 |
| PDGFRB | Pan | P09619 | PYK | | | ● | | | | | | | | | | | | PDGFRB-2 | NK243-1 |
| PDK1 (PDHK1) | Pan | Q15118 | PSTK | | | | | | | | | | | | | | | PDK1-3 | NN179-2 |
| PDK1 (PDHK1) | Pan | Q15118 | PSTK | | | | | | | | | | | | | | | PDK1-2 | NN179-1 |
| PDK1 (PDPK1) | S241 | O15530 | PSTK | | | | | | | | | | | | | | | PDK1-pS241 | PK760 |
| PDK2 (PDHK2; | Pan | Q15119 | PSTK | | | | | | | | | | | | | | | PDK2-3 | NN180-2 |
| PDK2 (PDHK2; | Pan | Q15119 | PSTK | | | | | | | | | | | | | | | PDK2-1 | NN180-1 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PDK3 (PDHK3) | Pan | Q15120 | PSTK | | | | | | | | | | | | | | | PDK3-1 | NN181-1 |
| PDK3 (PDHK3) | Pan | Q15120 | PSTK | | | | | | | | | | | | | | | PDK3-3 | NN181-2 |
| PDK4 (PDHK4) | Pan | Q16654 | PSTK | | | | | | | | | | | | | | | PDK4-3 | NN178-3 |
| PDK4 (PDHK4) | Pan | Q16654 | PSTK | | | | | | | | | | | | | | | PDK4-1 | NN178-2 |
| PDLIM5 (LIM) | Y251 | Q96HC4 | | | | | | | | | | | ● | | | | | PDLIM5-pY251 | PN522 |
| PECAM-1 | Y713 | P16284 | | | | | | | | | | | | | ● | | | PECAM-1-pY713 | PN523 |
| PFKFB3 | S461 | Q16875 | | | | | | | | ● | | | | | | | | PFKFB3-pS461 | PN715 |
| PFKFB3 | S467 | Q16875 | | | | | | | | ● | | | | | | | | PFKFB3-pS467 | PN769 |
| PFKL | S775 | P17858 | | | | | | | | ● | | | | | | | | PFKL-pS775 | PN770 |
| PFKP | S386 | Q01813 | | | | | | | | ● | | | | | | | | PFKP-pS386 | PN716 |
| PFKP | Y651+Pan | Q01813 | | | | | | | | ● | | | | | | | | PFKP-pY651 | PN771 |
| PFN1 | Y60 | P07737 | | | | | | | | | | | | ● | | | | PFN1-pY60 | PN898 |
| PGK1 | Y196 | P00558 | | | | | | | | ● | | | | | | | | PGK1-pY196 | PN525 |
| PHLPP1 | Pan | O60346 | | PSTP | | | | | | | | | | | | | | PHLPP1-Pan | NP049-1 |
| PHLPP1 | Y1712+Y17 | O60346 | | PSTP | | | | | | | | | | | | | | PHLPP1-pY1712+p | PP529 |
| PHLPP2 | Pan | Q6ZVD8 | | PSTP | | | | | | | | | | | | | | PHLPP2-Pan | NP050-1 |
| PIK3CA | Y317 | P42336 | PI-K | | | | | | | | | | | | | | | PIK3CA-pY317 | PK894 |
| PIK3R1 (PI3K | Y467 | P27986 | PI-K- | | | | | | | | | | | | | | | PIK3R1-pY467 | PN526 |
| PIK3R1 (PI3K | Y580 | P27986 | PI-K- | | | | | | | | | | | | | | | PIK3R1-pY580 | PN527 |
| Pim1 | Pan | P11309 | PSTK | | | | | | | | | | | | | | | Pim1-III | NK258-1 |
| Pim1 | Pan | P11309 | PSTK | | | | | | | | | | | | | | | Pim1-BKCD | NK258-2 |
| Pim2 | Pan | Q9P1W9 | PSTK | | | | | | | | | | | | | | | Pim2-CT | NK288-2 |
| Pim2 | Pan | Q9P1W9 | PSTK | | | | | | | | | | | | | | | Pim2-BKCD | NK288-1 |
| Pim2 | T195 | Q9P1W9 | PSTK | | | | | | | | | | | | | | | Pim2-pT195 | PK761 |
| Pim3 | Pan | Q86V86 | PSTK | | | | | | | | | | | | | | | Pim3-ANT | NK289-1 |
| PINK1 (BRPK) | S228 | Q9BXM7 | PSTK | | | | | | | | | | | | | | | PINK1-pS228 | PK906 |
| PINK1 (BRPK) | T257 | Q9BXM7 | PSTK | | | | | | | | | | | | | | | PINK1-pT257 | PK942 |
| PINK1 (BRPK) | T313 | Q9BXM7 | PSTK | | | | | | | | | | | | | | | PINK1-pT313 | PK907 |
| PINK1 (BRPK) | S402 | Q9BXM7 | PSTK | | | | | | | | | | | | | | | PINK1-pS402 | PK908 |
| PIP5K | S307 | Q9Y2I7 | PSTK | | | | | | | | | | | | | | | PIP5K-pS307 | PK762 |
| PKCa (PRKCA) | Pan | P17252 | PSTK | | | | | | | | | | | | | | | PKCa-1 (PKC-III) | NK201 |
| PKCa (PRKCA) | Y195 | P17252 | PSTK | | | | | | | | | | | | | | | PKCa-pY195 | PK764 |
| PKCa (PRKCA) | S226+T228 | P17252 | PSTK | | | | | | | | | | | | | | | PKCa- | PK944 |
| PKCa (PRKCA) | T497 | P17252 | PSTK | | | | | | | | | | | | | | | PKCa-pT497 | PK763 |
| PKCa (PRKCA) | T638 | P17252 | PSTK | | | | | | | | | | | | | | | PKCa-pT638 | PK909 |
| PKCb (PRKCB1) | Pan | P05771 | PSTK | | | | | | | | | | | | | | | PKCb (PKCb-1) | NK133-2 |
| PKCb (PRKCB1) | T500 | P05771 | PSTK | | | | | | | | | | | | | | | PKCb-pT500 | PK766 |
| PKCb (PRKCB1) | S661 | P05771 | PSTK | | | | | | | | | | | | | | | PKCb-pS661 | PK765 |
| PKCd (PRKCD) | Y313 | Q05655 | PSTK | | | | | | | | | | | | | | | PKCd-pY313 | PK768 |
| PKCd (PRKCD) | T507 | Q05655 | PSTK | | | | | | | | | | | | | | | PKCd-pT507 | PK767 |
| PKCt (PRKCQ; | S320 | Q04759 | PSTK | | | | | | | | | | | | | | | PKCg-pS320 | PK972 |
| PKCt (PRKCQ; | Y545 | Q04759 | PSTK | | | | | | | | | | | | | | | PKCq-pY545 | PK773 |
| PKCt (PRKCQ; | S662 | Q04759 | PSTK | | | | | | | | | | | | | | | PKCq-pS662 | PK971 |
| PKCt (PRKCQ; | S685 | Q04759 | PSTK | | | | | | | | | | | | | | | PKCq-pS685 | PK961 |
| PKCt (PRKCQ; | S695 | Q04759 | PSTK | | | | | | | | | | | | | | | PKCq-pS695 | PK772 |
| PKCz (PRKCZ) | S262+Y263 | Q05513 | PSTK | | | | | | | | | | | | | | | PKCz-pS262+pY26 | PK774 |
| PKCz (PRKCZ) | T410 | Q05513 | PSTK | | | | | | | | | | | | | | | PKCz-pT410 | PK775 |
| PKD1 (PRKCM; | S205 | Q15139 | PSTK | | | | | | | | | | | | | | | PKCm-pS205 | PK770 |
| PKD1 (PRKCM; | S738+S742 | Q15139 | PSTK | | | | | | | | | | | | | | | PKCm-pS738+pS7 | PK771 |
| PKD1 (PRKCM; | S910 | Q15139 | PSTK | | | | | | | | | | | | | | | PRKD1-pS910 | PK912 |
| PKD2 (PRKD2) | S197+S198 | Q9BZL6 | PSTK | | | | | | | | | | | | | | | PRKD2-pS197+pS1 | PK784 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PKD3 (PRKCN) | Pan | O94806 | PSTK | | | | | | | | | | | | | | | PKD3-BKCD | NK139-2 |
| PKG1a | Pan | Q13976 | PSTK | | | | | | | | | | | | | | | PKG1-BKCD | NK202-2 |
| PKG1a | Pan | Q13976 | PSTK | | | | | | | | | | | | | | | PKG1a-1 (PKG1a-N | NK202 |
| PKG1a | T515+T517 | Q13976 | PSTK | | | | | | | | | | | | | | | PKG1-pT515+pT51 | PK776 |
| PKG1a | T517 | Q13976 | PSTK | | | | | | | | | | | | | | | PKG1-pT517 (PK77 | PK776-2 |
| PKG2 (PRKG2) | Pan | Q13237 | PSTK | | | | | | | | | | | | | | | PKG2-BKCD | NK290-2 |
| PKG2 (PRKG2) | Pan | Q13237 | PSTK | | | | | | | | | | | | | | | PKG2-AcNMP2 | NK290-1 |
| PKM2 | S37 | P14618 | | | | | | | | ● | | | | | | | | PKM2-pS37 | PN718 |
| PKM2 | Y105 | P14618 | | | | | | | | ● | | | | | | | | PKM2-pY105 | PN772 |
| PKM2 | Y148 | P14618 | | | | | | | | ● | | | | | | | | PKM2-pY148 | PN717 |
| PKM2 | Y370 | P14618 | | | | | | | | ● | | | | | | | | PKM2-pY370 | PN773 |
| PKM2 | Y390 | P14618 | | | | | | | | ● | | | | | | | | PKM2-pY390 | PN529 |
| PKN1 (PRK1) | T774 | Q16512 | PSTK | | | | | | | | | | | | | | | PRK1-pT774 | PK781 |
| PKN2 (PRK2) | Pan | Q16513 | PSTK | | | | | | | | | | | | | | | PKN2-BKCD | NK149-3 |
| PKR1 (PRKR; | T446+Pan | P19525 | PSTK | | | | | | | | | | | | | | | PKR1-pT446 | PK777 |
| PKR1 (PRKR; | T451 | P19525 | PSTK | | | | | | | | | | | | | | | PKR-pT451 | PK910 |
| PLCB3 | S1105 | Q01970 | | | | | | | | ● | | | | | | | | PLCB3-pS1105 | PN719 |
| PLCE1 | S1096+T11 | Q9P212 | | | | | | | | ● | | | | | | | | PLCE1-pS1096+pT | PN721 |
| PLCG1 | Y771+Y775 | P19174 | | | | | | | | ● | | | | | | | | PLCG1-pY771+pY7 | PN774 |
| PLCG1 | Y783 | P19174 | | | | | | | | ● | | | | | | | | PLCG1-pY783 | PN530 |
| PLCG1 | Y977 | P19174 | | | | | | | | ● | | | | | | | | PLCG1-pY977 | PN722 |
| PLCG2 (PLC R) | Y753 | P16885 | | | | | | | | ● | | | | | | | | PLCG2-pY753 | PN723 |
| PLCG2 (PLC R) | Y759 | P16885 | | | | | | | | ● | | | | | | | | PLCG2-pY759 | PN775 |
| PLCG2 (PLC R) | Y759 | P16885 | | | | | | | | ● | | | | | | | | PLCG2-pY759 | PN531 |
| PLCG2 (PLC R) | Y1217 | P16885 | | | | | | | | ● | | | | | | | | PLCG2-pY1217 | PN776 |
| Plk1 (PLK) | Pan | P53350 | PSTK | | | | | | | | | | | | | | | Plk1-BKCD | NK145-2 |
| Plk1 (PLK) | T210 | P53350 | PSTK | | | | | | | | | | | | | | | Plk1-pT210 | PK778 |
| Plk1 (PLK) | Y217 | P53350 | PSTK | | | | | | | | | | | | | | | Plk1-pY217 | PK779 |
| Plk3 (CNK; FNK) | Pan | Q9H4B4 | PSTK | | | | | | | | | | | | | | | Plk3-AKCD | NK147-2 |
| Plk4 (SAK; | Pan | O00444 | PSTK | | | | | | | | | | | | | | | Plk4-MID | NK291-1 |
| Plk4 (SAK; | T170 | O00444 | PSTK | | | | | | | | | | | | | | | Plk4-pT170 | PK780 |
| PML | S518+Pan | P29590 | | | ● | | | | | | | | | | | | | PML-pS518 | PN641 |
| POU2F1 | S385 | P14859 | | | ● | | | | | | | | | | | | | POU2F1-pS385 | PN643 |
| PPARg-1 | S112 | P37231 | | | ● | ● | | | | | | | | | | | | PPARg-1-pS112 | PN644 |
| PPFIBP1 | S599+S601 | Q86W92 | | | | | | | | | | | ● | | | | | PPFIBP1-pS599+pS | PN777 |
| PPP1CA | Y306 | P62136 | | PSTP | | | | | | | | | | | | | | PPP1CA-pY306 | PP542 |
| PPP1CA | Y134+Y137 | P62136 | | PSTP | | | | | | | | | | | | | | PPP1CA-pY134+pY | PP541 |
| PPP1CB | Y306 | P62140 | | PSTP | | | | | | | | | | | | | | PPP1CB-pY306 | PP530 |
| PPP1CB | T316 | P62140 | | PSTP | | | | | | | | | | | | | | PPP1CB-pT316 | PP502 |
| PPP1R11 (HCG | Y64 | O60927 | | PSTPR | | | | | | | | | | | | | | PPP1R11-pY64 | PN532 |
| PPP1R12A | Y496 | O14974 | | PSTPR | | | | | | | | | | | | | | PPP1R12A-pY496 | PP543 |
| PPP1R12A | Y766 | O14974 | | PSTPR | | | | | | | | | | | | | | PPP1R12A-pY766 | PP544 |
| PPP1R12B | T646 | O60237 | | PSTPR | | | | | | | | | | | | | | PPP1R12B-pT646 | PP503 |
| PPP1R14B (PHI- | Y29 | Q96C90 | | PSTPR | | | | | | | | | | | | | | PPP1R14B-pY29 | PP546 |
| PPP1R14B (PHI- | T57 | Q96C90 | | PSTPR | | | | | | | | | | | | | | PPP1R14B-pT57 | PP545 |
| PPP1R16A | Y434 | Q96I34 | | PSTPR | | | | | | | | | | | | | | PPP1R16A-pY434 | PP547 |
| PPP1R1A (I-1; | T35 | Q13522 | | PSTPR | | | | | | | | | | | | | | PPP1R1A-pT35 | PP548 |
| PPP1R1B | S45+S46 | Q9UD71 | | PSTPR | | | | | | | | | | | | | | PPP1R1B-pS45+pS | PP558 |
| PPP2CA | Y284 | P67775 | | PSTP | | | | | | | | | | | | | | PPP2CA-pY284 | PP549 |
| PPP2CA | Y307 | P67775 | | PSTP | | | | | | | | | | | | | | PPP2CA-pY307 | PP504 |
| PPP2CB | T304 | P62714 | | PSTP | | | | | | | | | | | | | | PPP2CB-pT304 | PP505 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PPP2R4 (PP2A | Y223 | Q15257 | | PSTP | | | | | | | | | | | | | | PPP2R4-pY223 | PP550 |
| PPP2R5D | Y580 | Q14738 | | PSTP | | | | | | | | | | | | | | PPP2R5D-pY580 | PP551 |
| PPP2R5E | Y99 | Q16537 | | PSTP | | | | | | | | | | | | | | PPP2R5E-pY99 | PP552 |
| PPP3CA | S469 | Q08209 | | PSTP | | | | | | | | | | | | | | PPP3CA-pS469 | PP557 |
| PPP3CC | S463+Pan | P48454 | | PSTP | | | | | | | | | | | | | | PPP3CC-pS463 | PP506 |
| PPP5C (PP5C; | Y119 | P53041 | | PSTP | | | | | | | | | | | | | | PPP5C-pY119 | PP507 |
| PPP6C | Y261 | O00743 | | PSTP | | | | | | | | | | | | | | PPP6C-pY261 | PP553 |
| PPPM1A | Y362 | P35813 | | PSTP | | | | | | | | | | | | | | PPPM1A-pY362 | PP508 |
| PPPM1B | Y367 | O75688 | | PSTP | | | | | | | | | | | | | | PPM1B-pY367 | PP540 |
| PRKACA/B | T196+T198 | P17612 | PSTK | | | | | | | | | | | | | | | PRKACA-pT196+p | PK782 |
| PRKX | Pan | P51817 | PSTK | | | | | | | | | | | | | | | PRKX-CT | NK292-1 |
| PRKX | T201+T203 | P51817 | PSTK | | | | | | | | | | | | | | | PRKX-p T201+pT2 | PK785 |
| PRKY | Pan | O43930 | PSTK | | | | | | | | | | | | | | | PRKY-ANT | NK293-1 |
| PRMT5 | T634 | O14744 | | | | | | | | | | | | | | | | PRMT5-pT634 | PN549 |
| PRP4K (PRP4; | Y849 | Q13523 | PSTK | | | | | | | | | | | | | | | PRP4K-pY849 | PK786 |
| PSEN1 | T354 | P49768 | | | | | | | ● | | | | | | | | | PSEN1-pT354 | PN977 |
| PTEN | Pan | P60484 | | PI-P | | | | | | | | | | | | | | PTEN-1 | NP023-3 |
| PTEN | Pan | P60484 | | PI-P | | | | | | | | | | | | | | PTEN-2 | NP023-4 |
| PTEN | Pan | P60484 | | PI-P | | | | | | | | | | | | | | PTEN-3 | NP023-5 |
| PTEN | Y315 | P60484 | | PI-P | | | | | | | | | | | | | | PTEN-pY315 | PP531 |
| PTEN | Y336 | P60484 | | PI-P | | | | | | | | | | | | | | PTEN-pY336 | PP556 |
| PTPN1 (PTP1B) | Y46 | P18031 | | PYP | | | | | | | | | | | | | | PTP1B-pY46 | PP533 |
| PTPN1 (PTP1B) | S50 | P18031 | | PYP | | | | | | | | | | | | | | PTP1B-pS50 | PP509 |
| PTPN1 (PTP1B) | Y66 | P18031 | | PYP | | | | | | | | | | | | | | PTP1B-pY66 | PP510 |
| PTPN1 (PTP1B) | Y20+Pan | P18031 | | PYP | | | | | | | | | | | | | | PTP1B-pY20 | PP532 |
| PTPN2 (TC-PTP) | S304 | P17706 | | PYP | | | | | | | | | | | | | | PTPN2-pS304 | PP515 |
| PTPN3 (PTP-H1) | S357+S359 | P26045 | | PYP | | | | | | | | | | | | | | PTPN3-pS357+pS3 | PP519 |
| PTPN6 (PTP1C; | Y564 | P29350 | | PYP | | | | | | | | | | | | | | PTPN6-pY564 | PP538 |
| PTPN11 | Y62 | Q06124 | | PYP | | | | | | | | | | | | | | PTPN11-pY62 | PP512 |
| PTPN11 | Y546 | Q06124 | | PYP | | | | | | | | | | | | | | PTPN11-pY546 | PP534 |
| PTPN11 | Y584 | Q06124 | | PYP | | | | | | | | | | | | | | PTPN11-pY584 | PP535 |
| PTPN12 (PTP- | S39 | Q05209 | | PYP | | | | | | | | | | | | | | PTPN12-pS39 | PP513 |
| PTPN12 (PTP- | S435 | Q05209 | | PYP | | | | | | | | | | | | | | PTPN12-pS435 | PP536 |
| PTPN14 | S486+Pan | Q15678 | | PYP | | | | | | | | | | | | | | PTPN14-pS486 | PP514 |
| PTPN21 | S637 | Q16825 | | PYP | | | | | | | | | | | | | | PTPN21-pS637 | PP516 |
| PTPN22 | Y499 | Q9Y2R2 | | PYP | | | | | | | | | | | | | | PTPN22-pY499 | PP517 |
| PTPN23 (HD- | Y1165 | Q9H3S7 | | PYP | | | | | | | | | | | | | | PTPN23-pY1165 | PP518 |
| PTPN23 (HD- | Y1229 | Q9H3S7 | | PYP | | | | | | | | | | | | | | PTPN23-pY1229 | PP537 |
| PTPRA (PTP- | Y798 | P18433 | | PYP | | ● | | | | | | | | | | | | PTPRA-pY798 | PP521 |
| PTPRB (PTP- | Y1981 | P23467 | | PYP | | ● | | | | | | | | | | | | PTPRB-pY1981 | PP522 |
| PTPRE (PTP- | Y696 | P23469 | | PYP | | ● | | | | | | | | | | | | PTPRE-pY696 | PP554 |
| PTPRF (LAR) | Y1621 | P10586 | | PYP | | ● | | | | | | | | | | | | PTPRF-pY1621 | PP523 |
| PTPRK (PTP- | Y858 | Q15262 | | PYP | | ● | | | | | | | | | | | | PTPRK-pY858 | PP539 |
| PTPRK (PTP- | Y916 | Q15262 | | PYP | | ● | | | | | | | | | | | | PTPRK-pY916 | PP524 |
| PTPRM | Y929 | P28827 | | PYP | | ● | | | | | | | | | | | | PTPRM-pY929 | PP526 |
| PTRF | Y308 | Q6NZI2 | | | ● | | | | | | | | | | | | | PTRF-pY308 | PN646 |
| PTRF | Y308 | Q6NZI2 | | | ● | | | | | | | | | | | | | PTRF-pY308 | PN533 |
| PU.1 | S146 | P17947 | | | ● | | | | | | | | | | | | | PU.1-pS146 | PN647 |
| PYK2 (PTK2B; | Y402 | Q14289 | PYK | | | | | | | | | | | | | | | PYK2-pY402 | PK788 |
| PYK2 (PTK2B; | Y402 | Q14289 | PYK | | | | | | | | | | | | | | | PYK2-pY402 | PK787 |
| PYK2 (PTK2B; | Y579+Y580 | Q14289 | PYK | | | | | | | | | | | | | | | PYK2-pY579+pY58 | PK789 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raf-A (ARaf) | Pan | P10398 | PSTK | | | | | | | | | | | | | | | ARaf-2 | NK205-3 |
| Raf-A (ARaf) | Pan | P10398 | PSTK | | | | | | | | | | | | | | | ARaf-3 | NK205-4 |
| Raf-A (ARaf) | Pan | P10398 | PSTK | | | | | | | | | | | | | | | ARaf-1 | NK205-5 |
| Raf-A (ARaf) | Y302 | P10398 | PSTK | | | | | | | | | | | | | | | A-Raf-pY302 | PK500 |
| Raf-B (B-Raf; | Pan | P15056 | PSTK | | | | | | | | | | | | | | | BRaf-3 | NK156-4 |
| Raf-B (B-Raf; | Pan | P15056 | PSTK | | | | | | | | | | | | | | | BRaf-2 | NK156-6 |
| Raf-B (B-Raf; | S446+S447 | P15056 | PSTK | | | | | | | | | | | | | | | B-Raf-pS446+pS44 | PK534 |
| Raf-B (B-Raf; | S729 | P15056 | PSTK | | | | | | | | | | | | | | | B-Raf-pS729 | PK535 |
| Raf1 (c-Raf; | Pan | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-1 | NK155-5 |
| Raf1 (c-Raf; | Pan | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-3 | NK155-7 |
| Raf1 (c-Raf; | Pan | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-6 | NK155-8 |
| Raf1 (c-Raf; | Pan | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-CT | NK155-9 |
| Raf1 (c-Raf; | Pan | P04049 | PSTK | | | | | | | | | | | | | | | RAF1-III (Raf1-4) | NK155-2 |
| Raf1 (c-Raf; | Pan | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-2 | NK155-6 |
| Raf1 (c-Raf; | S259 | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-pS259 | PK790 |
| Raf1 (c-Raf; | S296 | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-pS296 | PK791 |
| Raf1 (c-Raf; | S301+T303 | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-pS301+pT303 | PK792 |
| Raf1 (c-Raf; | S338 | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-pS338 | PK913 |
| Raf1 (c-Raf; | Y340+Y341 | P04049 | PSTK | | | | | | | | | | | | | | | Raf1-pY340+pY341 | PK914 |
| RARA | S77 | P10276 | | | ● | ● | | | | | | | | | | | | RARA-pS77 | PN648 |
| Rb (RB1) | S249+T252 | P06400 | | | | | | | | | | | ● | | | | | RB1-pS249+pT252 | PN724 |
| Rb (RB1) | T373 | P06400 | | | | | | | | | | | ● | | | | | RB-pT373 | PN978 |
| Rb (RB1) | S807+S811 | P06400 | | | | | | | | | | | ● | | | | | RB-pS807+pS811 | PN847 |
| RBM9iso6 | T7 | O43251 | | | ● | | | | | | | | ● | | | | | RBM9-pT7 | PN649 |
| RDBP | S89+T91 | P18615 | | | ● | | | | | | | | | | | | | RDBP-pS89+pT91 | PN650 |
| Ret (GDNF | Pan | P07949 | PYK | | | ● | | | | | | | | | | | | Ret-2 | NK244-2 |
| Ret (GDNF | Pan | P07949 | PYK | | | ● | | | | | | | | | | | | Ret-3 | NK244-3 |
| Ret (GDNF | Pan | P07949 | PYK | | | ● | | | | | | | | | | | | Ret-1 | NK244-1 |
| Ret (GDNF | Y905 | P07949 | PYK | | | ● | | | | | | | | | | | | Ret-pY905 | PK793 |
| Ret (GDNF | Y1062 | P07949 | PYK | | | ● | | | | | | | | | | | | Ret-pY1062 | PK915 |
| Rictor | S21 | Q6R327 | | | | | | | | | | | ● | | | | | Rictor-pS21 | PN979 |
| Rictor | T1135 | Q6R327 | | | | | | | | | | | ● | | | | | Rictor-pT1135 | PN980 |
| RIOK1 | Y466 | Q9BRS2 | PSTK | | | | | | | | | | | | | | | RIOK1-pY466 | PK794 |
| RIOK2 | S332+S335 | Q9BVS4 | PSTK | | | | | | | | | | | | | | | RIOK2-pS332+pS3 | PK890 |
| RIPK1 (RIP; | S166 | Q13546 | PSTK | | | | | | | | | | | | | | | RIPK1-pS166 | PK945 |
| RIPK1 (RIP; | S320 | Q13546 | PSTK | | | | | | | | | | | | | | | RIPK1-pS320 | PK946 |
| RIPK1 (RIP; | Y384 | Q13546 | PSTK | | | | | | | | | | | | | | | RIPK1-pY384 | PK795 |
| RIPK2 (RICK; | S176 | O43353 | PSTK | | | | | | | | | | | | | | | RIPK2-pS176 | PK796 |
| RIPK2 (RICK; | Y381 | O43353 | PSTK | | | | | | | | | | | | | | | RIPK2-pY381 | PK797 |
| ROCK1 (ROKb) | T233 | Q13464 | PSTK | | | | | | | | | | | | | | | ROCK1-pT233 | PK947 |
| ROCK1 (ROKb) | Y913 | Q13464 | PSTK | | | | | | | | | | | | | | | ROCK1-pY913 | PK798 |
| ROCK2 (ROKa) | Y722 | O75116 | PSTK | | | | | | | | | | | | | | | ROCK2-pY722 | PK799 |
| Ron (RONa; | Pan | Q04912 | PYK | | | ● | | | | | | | | | | | | Ron-2 | NK161-3 |
| Ron (RONa; | Pan | Q04912 | PYK | | | ● | | | | | | | | | | | | Ron-3 | NK161-4 |
| Ron (RONa; | Pan | Q04912 | PYK | | | ● | | | | | | | | | | | | Ron-1 | NK161-2 |
| Ron (RONa; | Y1238 | Q04912 | PYK | | | ● | | | | | | | | | | | | Ron-pY1238 | PK800 |
| Ron (RONa; | Y1238+Y12 | Q04912 | PYK | | | ● | | | | | | | | | | | | Ron-pY1238 +pY12 | PK801 |
| ROR2 (RON2) | Y645+Y646 | Q01974 | PYK | | | ● | | | | | | | | | | | | ROR2-pY645+pY64 | PK802 |
| RORA | S35 | P35398 | | | ● | ● | | | | | | | | | | | | RORA-pS35 | PN651 |
| Ros (ROS1) | Pan | P08922 | PYK | | | ● | | | | | | | | | | | | Ros-2 | NK163-3 |
| Ros (ROS1) | Pan | P08922 | PYK | | | ● | | | | | | | | | | | | Ros-3 | NK163-4 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ros (ROS1) | Pan | P08922 | PYK | | | ● | | | | | | | | | | | | Ros-1 | NK163-2 |
| Ros (ROS1) | Y2114+Y21 | P08922 | PYK | | | ● | | | | | | | | | | | | Ros-pY2114+pY21 | PK803 |
| RPS6 | S235+S236 | P62753 | | | | | | ● | | | | | | | | | | RPS6-pS235+pS23 | PN685 |
| RPS6 | S235+S236 | P62753 | | | | | | ● | | | | | | | | | | RPS6-pS235+pS23 | PN559 |
| RPS6 | S240+S244 | | | | | | | | | | | | | | | | | RPS6-pS240+pS24 | PN1025 |
| RPTOR (RAPTOF | T706 | Q8N122 | | | | | | | | | | | ● | | | | | RPTOR-pT706 | PN982 |
| RPTOR (RAPTOF | S859+S863 | Q8N122 | | | | | | | | | | | ● | | | | | RPTOR-pS859+pS | PN981 |
| RSK1 | Pan | Q15418 | PSTK | | | | | | | | | | | | | | | RSK1-CT | NK164-3 |
| RSK1 | Y220+S221 | Q15418 | PSTK | | | | | | | | | | | | | | | RSK1-pY220+pS22 | PK807 |
| RSK1 | S221 | Q15418 | PSTK | | | | | | | | | | | | | | | RSK1-pS221 | PK804 |
| RSK1 | S380 | Q15418 | PSTK | | | | | | | | | | | | | | | RSK1-pS380 | PK805 |
| RSK1 | T573 | Q15418 | PSTK | | | | | | | | | | | | | | | RSK1-pT573 | PK806 |
| RSK2 | Pan | P51812 | PSTK | | | | | | | | | | | | | | | RSK2-PCT | NK165-3 |
| RSK3 | Y217+S218 | Q15349 | PSTK | | | | | | | | | | | | | | | RSK3-pY217+pS21 | PK808 |
| RTN4 (NOGO) | S107 | Q9NQC | | | | | | | | | | | | | | | | RTN4-pS107 | PN983 |
| RUNX1 (AML1) | S276+Pan | Q01196 | | | ● | | | | | | | | | | | | | RUNX1-pS276 | PN778 |
| RXRa | S260 | P19793 | | | ● | ● | | | | | | | | | | | | RXRa-pS260 | PN652 |
| S100A9 (CAGB; | Pan | P06702 | | | | | | | | | | | | | | ● | | S100A9-3 | NN459-3 |
| SAA2 | Pan | P0DJI9 | | | | | | | | | ● | | | | | | | SAA2-3 | NN460-3 |
| SAC3 (FIG4) | Y631 | Q92562 | | | | | | | | ● | | | | | | | | SAC3-pY631 | PN984 |
| SAP97 | T657 | | | | | | | | | | | | | | | | | SAP97-pT657 | PN1021 |
| SARS-CoV2-1a | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_1a:151 | NNCOV2-1 |
| SARS-CoV2-1a | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_1a:735 | NNCOV2-1 |
| SARS-CoV2-1a | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_1a:876 | NNCOV2-1 |
| SARS-CoV2-1b | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_1b:560 | NNCOV2-1 |
| SARS-CoV2-1b | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_1b:605 | NNCOV2-1 |
| SARS-CoV2-1b | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_1b:671 | NNCOV2-1 |
| SARS-CoV2-Mem | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_M:3-23 | NNCOV2M-1 |
| SARSCoV2-Nucle | Pan | | | | | | | | | | | | | | | | | SARSCoV2-N-156-1 | NNCOV2N |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV-2- | NNCOV2S-1 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV-2- | NNCOV2S-2 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:41-5 | NNCOV2S-3 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:193-2 | NNCOV2S-4 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:333-3 | NNCOV2S-5 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:450-4 | NNCOV2S-6 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:480-4 | NNCOV2S-7 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:566-5 | NNCOV2S-9 |
| SARSCoV2-Spike | Pan | | | | | | | | | | | | | | | | | SARSCoV2-S:574-5 | NNCOV2S-1 |
| SARSCoV2-Spike | Pan | | | | | | | | | | | | | | | | | SARSCoV2-S:643-6 | NNCOV2S-1 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:829-8 | NNCOV2S-1 |
| SARSCoV2-Spike | Pan | | | | | | | | | | | | | | | | | SARSCoV2-S:895-9 | NNCOV2S-1 |
| SARS-CoV2-Spik | Pan | | | | | | | | | | | | | | | | | SARS-CoV2_S:1159 | NNCOV2S-1 |
| SATB1 | S38 | Q01826 | | | ● | | | | | | | | | | | | | SATB1-pS38 | PN653 |
| SCYL1 | S754 | Q96KG9 | PSTK | | | | | | | | | | | | | | | SCYL1-pS754 | PK809 |
| SETD2 | S2080+S20 | Q9BYW2 | | | | | | | | | | | | | | | | SETD2-pS2080+pS | PN779 |
| SGK1 | Pan | O00141 | PSTK | | | | | | | | | | | | | | | SGK1-NT | NK294-1 |
| SgK223 | Y413 | Q86YV5 | PSTK | | | | | | | | | | | | | | | Sgk223-pY413 | PK810 |
| SgK269 (PEAK1) | Y635 | Q9H792 | PSTK | | | | | | | | | | | | | | | SgK269-pY635 | PK811 |
| SgK288 (ANKK1) | Pan | Q8NFD2 | PSTK | | | | | | | | | | | | | | | SgK288-ANT | NK295-1 |
| SGK3 (CISK; | Pan | Q96BR1 | PSTK | | | | | | | | | | | | | | | SGK3-2 | NK170-4 |
| SGK3 (CISK; | Pan | Q96BR1 | PSTK | | | | | | | | | | | | | | | SGK3-1 | NK170-3 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SH2BP1 | T925 | Q6PD62 | | | ● | | | | | | | | | | | | | SH2BP1-pT925 | PN654 |
| Shc1 (Shc) | Y427 | P29353 | | | | | | | | | | | ● | | | | | Shc1-pY427 | PN986 |
| Shc1 (Shc) | Y349+Y350 | P29353 | | | | | | | | | | | ● | | | | | Shc1-pY349+pY35( | PN985 |
| Shc3 | Y406 | Q92529 | | | | | | | | | | | ● | | | | | Shc3-pY406 | PN987 |
| Shc4 | Y424 | Q6S5L8 | | | | | | | | | | | ● | | | | | Shc4-pY424 | PN988 |
| SHIP1 (INPP5D) | Pan | Q92835 | | PI-P | | | | | | | | | | | | | | SHIP1-2 | NP044-2 |
| SHIP1 (INPP5D) | Pan | Q92835 | | PI-P | | | | | | | | | | | | | | SHIP1-3 | NP044-3 |
| SHIP1 (INPP5D) | Pan | Q92835 | | PI-P | | | | | | | | | | | | | | SHIP1-1 | NP044-1 |
| SHIP1 (INPP5D) | Y187 | Q92835 | | PI-P | | | | | | | | | | | | | | SHIP1-pY187 | PN560 |
| SHIP2 (INPPL1) | Pan | O15357 | | PI-P | | | | | | | | | | | | | | SHIP2-2 | NP045-2 |
| SHIP2 (INPPL1) | Pan | O15357 | | PI-P | | | | | | | | | | | | | | SHIP2-3 | NP045-3 |
| SHIP2 (INPPL1) | Pan | O15357 | | PI-P | | | | | | | | | | | | | | SHIP2-1 | NP045-1 |
| SHIP2 (INPPL1) | Y886 | O15357 | | PI-P | | | | | | | | | | | | | | SHIP2-pY886 | PN534 |
| SIK (SNF1LK) | Pan | P57059 | PSTK | | | | | | | | | | | | | | | SNF1LK-2 (SIK-1) | NK251-2 |
| SIK (SNF1LK) | Pan | P57059 | PSTK | | | | | | | | | | | | | | | SNF1LK-3 (SIK-1) | NK251-3 |
| SIK (SNF1LK) | Pan | P57059 | PSTK | | | | | | | | | | | | | | | SNF1LK-1 (SIK-1) | NK251-1 |
| SIK (SNF1LK) | T182 | P57059 | PSTK | | | | | | | | | | | | | | | SIK-pT182 | PK812 |
| SIK2 (QIK) | Pan | Q9H0K1 | PSTK | | | | | | | | | | | | | | | SIK2-2 | NK249-2 |
| SIK2 (QIK) | Pan | Q9H0K1 | PSTK | | | | | | | | | | | | | | | SIK2-3 | NK249-3 |
| SIK2 (QIK) | Pan | Q9H0K1 | PSTK | | | | | | | | | | | | | | | SIK2-1 | NK249-1 |
| SIK2 (QIK) | S358 | Q9H0K1 | PSTK | | | | | | | | | | | | | | | SIK2-pS358 | PK813 |
| SIK3 (QSK) | Pan | Q9Y2K2 | PSTK | | | | | | | | | | | | | | | SIK3-2 | NK250-2 |
| SIK3 (QSK) | Pan | Q9Y2K2 | PSTK | | | | | | | | | | | | | | | SIK3-3 | NK250-3 |
| SIK3 (QSK) | Pan | Q9Y2K2 | PSTK | | | | | | | | | | | | | | | SIK3-1 | NK250-1 |
| SIK3 (QSK) | T163 | Q9Y2K2 | PSTK | | | | | | | | | | | | | | | SIK3-pT163 | PK814 |
| SIK3 (QSK) | T411 | Q9Y2K2 | PSTK | | | | | | | | | | | | | | | SIK3-pT411 | PK815 |
| SIN3A | S832+Pan | Q96ST3 | | | ● | | | | | | | | | | | | | SIN3A-pS832 | PN655 |
| SIT | Y90 | Q9Y3P8 | | | | | | | | | | | ● | | | | | SIT-pY90 | PN535 |
| SIT | Y95 | Q9Y3P8 | | | | | | | | | | | ● | | | | | SIT-pY95 | PN536 |
| SLC2A1 (GLUT-1 | T478 | P11166 | | | | | | | | | | | | | | ● | | SLC2A1-pT478 | PN989 |
| SLK | S189 | Q9H2G2 | PSTK | | | | | | | | | | | | | | | SLK-pS189 | PK816 |
| Smad3 | T8+Pan | P84022 | | | ● | | | | | | | | | | | | | Smad3-pT8 | PN658 |
| Smad4 | Y513 | Q13485 | | | ● | | | | | | | | | | | | | SMAD4-pY513 | PN725 |
| SMARCA4 | S610+S613 | P51532 | | | ● | | | | | | | | | | | | | SMARCA4-pS610+ | PN726 |
| SMARCB1 | T134 | Q12824 | | | ● | | | | | | | | | | | | | SMARCB1-pT134 | PN727 |
| SMG1 | Pan | Q96Q15 | PYK | | | | | | | | | | | | | | | SMG1-2 | NK233-1 |
| SMG1 | Pan | Q96Q15 | PYK | | | | | | | | | | | | | | | SMG1-3 | NK233-3 |
| SMG1 | Pan | Q96Q15 | PYK | | | | | | | | | | | | | | | SMG1-1 | NK233-2 |
| SNAP25 | S28+T29 | P60880 | | | | | | | | | | | | | | | ● | SNAP25-pS28+pT2 | PN1003 |
| SNAP25 | T138 | P60880 | | | | | | | | | | | | | | | ● | SNAP25-pT138 | PN991 |
| SNAP25 | S187 | P60880 | | | | | | | | | | | | | | | ● | SNAP25-pS187 | PN990 |
| SNCA (a- | Y39 | P37840 | | | | | | | | | | | | ● | | | | SNCA-pY39 | PN850 |
| SNCA (a- | S129+Pan | P37840 | | | | | | | | | | | | ● | | | | SNCA-pS129 | PN849 |
| SND1 | Y908 | Q7KZF4 | | | ● | | | | | | | | | | | | | SND1-pY908 | PN661 |
| snRNP70 | Y126 | P08621 | | | | | | | | | | | | | | | | snRNP70-pY126 | PN537 |
| SOCS7 | Y561 | O14512 | | | ● | | | | | | | | | | | | | SOCS7-pY561 | PN728 |
| SOD1 (hSod1) | T40 | P00441 | | | | | | | | | ● | | | | | | | SOD1 -pT40 | PN905 |
| SOD1 (hSod1) | S99 | P00441 | | | | | | | | | ● | | | | | | | SOD1 -pS99 | PN904 |
| SOD1 (hSod1) | S108 | P00441 | | | | | | | | | ● | | | | | | | SOD1 -pS108 | PN903 |
| SOX9 | S181+Pan | P48436 | | | ● | | | | | | | | | | | | | SOX9-pS181 | PN662 |
| SP4 | S770 | Q02446 | | | ● | | | | | | | | | | | | | SP4-pS770 | PN851 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPG11 | S1955 | Q96JI7 | | | | | | | | | | | | | | | | SPG11-pS1955 | PN906 |
| SPG11 | S1961 | Q96JI7 | | | | | | | | | | | | | | | | SPG11-pS1961 | PN907 |
| SPT5 | T791 | O00267 | | | ● | | | | | | | | | | | | | SPT5-pT791 | PN663 |
| SQSTM1 | T269+S272 | Q13501 | | | | | | | | | | | ● | | | | | SQSTM1- | PN909 |
| SQSTM1 | T339+S342 | Q13501 | | | | | | | | | | | ● | | | | | SQSTM1- | PN910 |
| SQSTM1 | S403 | Q13501 | | | | | | | | | | | ● | | | | | SQSTM1-pS403 | PN908 |
| Src | Y419 | P12931 | PYK | | | | | | | | | | | | | | | Src-pY419 | PK818 |
| Src | Y419 | P12931 | PYK | | | | | | | | | | | | | | | Src-pY419 (PK818) | PK818-2 |
| Src | Y530 | P12931 | PYK | | | | | | | | | | | | | | | Src-pY530 | PK948 |
| SRF | S224 | P11831 | | | ● | | | | | | | | | | | | | SRF-pS224 | PN664 |
| SRPK1 | S222 | Q96SB4 | PSTK | | | | | | | | | | | | | | | SRPK1-pS222 | PK819 |
| SRPK1 | S587 | Q96SB4 | PSTK | | | | | | | | | | | | | | | SRPK1-pS587 | PK891 |
| SRPK2 | Pan | P78362 | PSTK | | | | | | | | | | | | | | | SRPK2-IKCD | NK296-1 |
| SSTR2 | S341+S343 | P30874 | | | | ● | | | | | | | | | | | | SSTR2-pS341+pS3 | PN804 |
| STAG2 | Y433 | Q8N3U4 | | | | | | | | | | | | | | | | STAG2-pY433 | PN729 |
| STAM2 | Y374 | O75886 | | | | | | | | | | | ● | | | | | STAM2-pY374 | PN538 |
| STAT1 | Y701 | P42224 | | | ● | | | | | | | | | | | | | STAT1-pY701 | PN666 |
| STAT1 | S727+Pan | P42224 | | | ● | | | | | | | | | | | | | STAT1-pS727 | PN667 |
| STAT2 | Y690 | P52630 | | | ● | | | | | | | | | | | | | STAT2-pY690 | PN668 |
| STAT3 | Y705+T708 | P40763 | | | ● | | | | | | | | | | | | | STAT3-pY705+pT7 | PN539 |
| STAT3 | S727 | P40763 | | | ● | | | | | | | | | | | | | STAT3-pS727 | PN669 |
| STAT4 | Y693 | Q14765 | | | ● | | | | | | | | | | | | | STAT4-pY693 | PN670 |
| STAT5A | Y694 | P42229 | | | ● | | | | | | | | | | | | | STAT5A-pY694 | PN671 |
| STAT5A | S780 | P42229 | | | ● | | | | | | | | | | | | | STAT5A-pS780 | PN672 |
| STAT6 | Y641 | P42226 | | | ● | | | | | | | | | | | | | STAT6-pY641 | PN673 |
| STLK3 (DCHT) | T231 | Q9UEW8 | PSTK | | | | | | | | | | | | | | | STLK3-pT231 | PK916 |
| STLK6 (ALS2CR2 | S304+S306 | Q9C0K7 | PSTK | | | | | | | | | | | | | | | STLK6- | PN911 |
| STX1B | S14 | P61266 | | | | | | | | | | | | | | | ● | STX1B-pS14 | PN852 |
| STXBP1 (HUNC1 | S313 | P61764 | | | | | | | | | | | | | | | ● | STXBP1-pS313 | PN992 |
| STXBP1 (HUNC1 | Y473 | P61764 | | | | | | | | | | | | | | | ● | STXBP1-pY473 | PN994 |
| STXBP1 (HUNC1 | T574 | P61764 | | | | | | | | | | | | | | | ● | STXBP1-pT574 | PN993 |
| Syk | Y323 | P43405 | PYK | | | | | | | | | | | | | | | Syk-pY323 | PK821 |
| Syk | Y525+Y526 | P43405 | PYK | | | | | | | | | | | | | | | Syk-pY525+pY526 | PK823 |
| SYN1 (Synapsin | S605 | P17600 | | | | | | | | | | | | | | | ● | SYN1-pS605 | PN854 |
| SYNJ1 (INPP5G) | Y784+Y786 | O43426 | | | | | | | | | | | | | | | ● | SYNJ1-pY784+pY7 | PN996 |
| SYNJ1 (INPP5G) | S1084 | O43426 | | | | | | | | | | | | | | | ● | SYNJ1-pS1084 | PN995 |
| SYT1 (SVP65) | T129 | P21579 | | | | | | | | | | | | | | | ● | SYT1-pT129 | PN997 |
| SYT1 (SVP65) | Y312 | P21579 | | | | | | | | | | | | | | | ● | SYT1-pY312 | PN998 |
| SYT1 (SVP65) | Y381 | P21579 | | | | | | | | | | | | | | | ● | SYT1-pY381 | PN999 |
| TAK1 (MAP3K7) | Pan | O43318 | PSTK | | | | | | | | | | | | | | | TAK1-CT (TAK1-4) | NK175-3 |
| TAK1 (MAP3K7) | T184+T187 | O43318 | PSTK | | | | | | | | | | | | | | | TAK1-pT184+pT18 | PK825 |
| TAK1 (MAP3K7) | S439 | O43318 | PSTK | | | | | | | | | | | | | | | TAK1-pS439 | PK824 |
| TAO1 (TAOK1) | S181 | Q7L7X3 | PSTK | | | | | | | | | | | | | | | TAO1-pS181 | PK826 |
| TAO1 (TAOK1) | Y309 | Q7L7X3 | PSTK | | | | | | | | | | | | | | | TAO1-pY309 | PK827 |
| TAO3 (JIK, | Pan | Q9H2K8 | PSTK | | | | | | | | | | | | | | | TAOK3-AKCD | NK087-2 |
| TARDBP | S409+S410 | Q13148 | | | ● | | | | | | | | | | | | | TARDBP-pS409+p | PN674 |
| Tau (MAPT) | T498 | P10636 | | | | | | | | | | | | ● | | | | Tau -pT498 | PN855 |
| Tau (MAPT) | S515+S516 | P10636 | | | | | | | | | | | | ● | | | | Tau-pS515+pS516- | PN856 |
| Tau (MAPT) | T529+T534 | P10636 | | | | | | | | | | | | ● | | | | Tau-pT529+pT534 | PN857 |
| Tau (MAPT) | S713+Pan | P10636 | | | | | | | | | | | | ● | | | | Tau-pS713 | PN858 |
| TBC1D7 | Y14 | Q9P0N9 | | | | | | | | | | | | | | | | TBC1D7-pY14 | PN540 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TBK1 (IKKd) | S172 | Q9UHD2 | PSTK | | | | | | | | | | | | | | | TBK1-pS172 | PK828 |
| TBK1 (IKKd) | S716 | Q9UHD2 | PSTK | | | | | | | | | | | | | | | TBK1-pS716 | PK949 |
| TBXA2R | S329+S331 | P21731 | | | | ● | | | | | | | | | | | | TBXA2R-pS329+pS | PN805 |
| TDP-43 (TADBP) | S48 | Q13148 | | | | | | | | | | | | | | | | TDP-43 -pS48 | PN914 |
| TDP-43 (TADBP) | S403+S404 | Q13148 | | | | | | | | | | | | | | | | TDP-43 - | PN913 |
| Tec | Y519 | P42680 | PYK | | | | | | | | | | | | | | | TEC-pY519 | PK829 |
| TERF1 | T371 | P54274 | | | ● | | | | | | | | | | | | | TERF1-pT371 | PN675 |
| TGM2 | Y369 | P21980 | | | | | | | | | | | | | | | | TGM2-pY369 | PN541 |
| THRAP3 | S253 | Q9Y2W1 | | | ● | | | | | | | | | | | | | THRAP3-pS253 | PN676 |
| TIE2 (TEK) | Y897 | Q02763 | PYK | | | ● | | | | | | | | | | | | TIE2-pY897 | PK830 |
| TIE2 (TEK) | Y992 | Q02763 | PYK | | | ● | | | | | | | | | | | | TIE2-pY992 | PK831 |
| TLN1 | Y70 | Q9Y490 | | | | | | | | | | | | ● | | | | TLN1-pY70 | PN542 |
| TNK1 | Y277 | Q13470 | PYK | | | | | | | | | | | | | | | TNK1-pY277 | PK832 |
| TORC2 (CRTC2) | S433 | Q53ET0 | | | ● | | | | | | | | | | | | | TORC2-pS433 | PN677 |
| TP53 (p53) | S6+S9 | P04637 | | | ● | | | | | | | | | | | | | p53-pS6+pS9 | PN637 |
| TP53 (p53) | S15 | P04637 | | | ● | | | | | | | | | | | | | p53-pS15 | PN859 |
| TP53 (p53) | T18+S20 | P04637 | | | ● | | | | | | | | | | | | | p53-pT18+pS20 | PN638 |
| TP53 (p53) | S392 | P04637 | | | ● | | | | | | | | | | | | | p53-pS392 | PN640 |
| TP53BP1 | T1056 | Q12888 | | | ● | | | | | | | | | | | | | TP53BP1-pT1056 | PN678 |
| TPH1 | T225+S228 | P17752 | | | | | | | | ● | | | | | | | | TPH1-pT225+pS22 | PN780 |
| TRHR | S364+T365 | P34981 | | | | ● | | | | | | | | | | | | TRHR-pS364+pT36 | PN806 |
| TRIM28 (TIF1B) | Y458 | Q13263 | PSTK | | ● | | | | | | | | | | | | | TRIM28-pY458 | PK834 |
| TRIM28 (TIF1B) | Y517 | Q13263 | PSTK | | ● | | | | | | | | | | | | | TRIM28-pY517 | PK835 |
| TRIM33 (TIF1G) | S1119 | Q9UPN9 | PSTK | | ● | | | | | | | | | | | | | TRIM33-pS1119 | PK836 |
| TrkA (NGFR; | Y680+Y681 | P04629 | PYK | | | ● | | | | | | | | | | | | TrkA-pY680+pY681 | PK837 |
| TrkB (NTRK2) | Y516 | Q16620 | PYK | | | ● | | | | | | | | | | | | TrkB-pY516 | PK838 |
| TrkB (NTRK2) | Y702 | Q16620 | PYK | | | ● | | | | | | | | | | | | TrkB-pY702 | PK839 |
| TrkB (NTRK2) | Y706+Y707 | Q16620 | PYK | | | ● | | | | | | | | | | | | TrkB-pY706+pY707 | PK917 |
| TrkC (NTRK3) | Y709+Y710 | Q16288 | PYK | | | ● | | | | | | | | | | | | TrkC-pY709+pY710 | PK840 |
| TRRAP | Pan | Q9Y4A5 | PSTK | | | | | | | | | | | | | | | TRRAP | NK232 |
| TRRAP | Pan | Q9Y4A5 | PSTK | | | | | | | | | | | | | | | TRRAP-2 | NK232-3 |
| TSC1 | S505 | Q92574 | | | | | | | | | | | ● | | | | | TSC1-pS505 | PN781 |
| TSSK3 | T168 | Q96PN8 | PSTK | | | | | | | | | | | | | | | TSSK3-pT168 | PK841 |
| TTBK1 | Pan | Q5TCY1 | PSTK | | | | | | | | | | | | | | | TTBK1-CT | NK306-1 |
| TTBK1 | Pan | Q5TCY1 | PSTK | | | | | | | | | | | | | | | TTBK1-NT | NK306-2 |
| TTBK1 | T186 | Q5TCY1 | PSTK | | | | | | | | | | | | | | | TTBK1-pT186 | PK955 |
| TTBK2 | Pan | Q6IQ55 | PSTK | | | | | | | | | | | | | | | TTBK2-CT | NK307-2 |
| TTK (MPS1) | S677 | P33981 | DSK | | | | | | | | | | | | | | | TTK-pS677 | PK842 |
| TUBA4A | Y103 | P68366 | | | | | | | | | | | | ● | | | | TUBA4A-pY103 | PN915 |
| TUBA4A | Y210 | P68366 | | | | | | | | | | | | ● | | | | TUBA4A-pY210 | PN916 |
| TXK | Y420 | P42681 | PYK | | | | | | | | | | | | | | | TXK-pY420 | PK844 |
| TYK2 | Pan | P29597 | PYK | | | | | | | | | | | | | | | TYK2-1 | NK181-3 |
| TYK2 | Pan | P29597 | PYK | | | | | | | | | | | | | | | TYK2-2 | NK181-4 |
| TYK2 | Pan | P29597 | PYK | | | | | | | | | | | | | | | TYK2-3 | NK181-5 |
| Tyro3 | Y681 | Q06418 | PYK | | | ● | | | | | | | | | | | | Tyro3-pY681 | PK847 |
| Tyro3 | Y685+Y686 | Q06418 | PYK | | | ● | | | | | | | | | | | | Tyro3-pY685+pY68 | PK848 |
| UBF | T201 | P17480 | | | ● | | | | | | | | | | | | | UBF-pT201 | PN680 |
| UBF | S484 | P17480 | | | ● | | | | | | | | | | | | | UBF-pS484 | PN679 |
| UBQLN2 | T128 | Q9UHD9 | | | | | | | ● | | | | | | | | | UBQLN2-pT128 | PN920 |
| UBQLN2 | S222 | Q9UHD9 | | | | | | | ● | | | | | | | | | UBQLN2-pS222 | PN918 |
| UBQLN2 | S256 | Q9UHD9 | | | | | | | ● | | | | | | | | | UBQLN2-pS256 | PN919 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGDH | Y352 | O60701 | | | | | | | | ● | | | | | | | | UGDH-pY352 | PN782 |
| UTRN | Y3197 | P46939 | | | | | | | | | | | | ● | | | | UTRN-pY3197 | PN1000 |
| VACAMKL | Y245 | Q8NCB2 | PSTK | | | | | | | | | | | | | | | VACAMKL-pY245 | PK892 |
| VAMP1 | S63 | P23763 | | | | | | | | | | | | | | | ● | VAMP1-pS63 | PN1001 |
| VAMP4 | S30 | O75379 | | | | | | | | | | | | | | | ● | VAMP4-pS30 | PN1002 |
| VAPB | T46 | O95292 | | | | | | | | | | | | | | | ● | VAPB-pT46 | PN924 |
| VAPB | T150 | O95292 | | | | | | | | | | | | | | | ● | VAPB-pT150 | PN922 |
| VAPB | T164 | O95292 | | | | | | | | | | | | | | | ● | VAPB-pT164 | PN923 |
| VAPB | S206 | O95292 | | | | | | | | | | | | | | | ● | VAPB-pS206 | PN921 |
| VAV1 (Vav) | Y826 | P15498 | | | | | | | | | | | | | | | | VAV1-pY826 | PN543 |
| VCP | S37 | P55072 | | | | | | | | | ● | | | | | | | VCP-pS37 | PN925 |
| VCP | T56 | P55072 | | | | | | | | | ● | | | | | | | VCP-pT56 | PN929 |
| VCP | T316 | P55072 | | | | | | | | | ● | | | | | | | VCP-pT316 | PN927 |
| VCP | T509 | P55072 | | | | | | | | | ● | | | | | | | VCP-pT509 | PN928 |
| VCP | S702 | P55072 | | | | | | | | | ● | | | | | | | VCP-pS702 | PN926 |
| VCP | T761 | P55072 | | | | | | | | | ● | | | | | | | VCP-pT761 | PN930 |
| VCP | Y805 | P55072 | | | | | | | | | ● | | | | | | | VCP-pY805 | PN1007 |
| VEGFR1 (Flt1) | Pan | P17948 | PYK | | | | | | | | | | | | | | | VEGFR1-1 | NK226-2 |
| VEGFR1 (Flt1) | Pan | P17948 | PYK | | | | | | | | | | | | | | | VEGFR1-2 | NK226-1 |
| VEGFR1 (Flt1) | Y1048 | P17948 | PYK | | | | | | | | | | | | | | | VEGFR1-pY1048 | PK850 |
| VEGFR1 (Flt1) | Y1053 | P17948 | PYK | | | | | | | | | | | | | | | VEGFR1-pY1053 | PK851 |
| VEGFR2 (KDR) | Pan | P35968 | PYK | | | | | | | | | | | | | | | VEGFR2-2 | NK245-2 |
| VEGFR2 (KDR) | Pan | P35968 | PYK | | | | | | | | | | | | | | | VEGFR2-3 | NK245-3 |
| VEGFR2 (KDR) | Pan | P35968 | PYK | | | | | | | | | | | | | | | VEGFR2-1 | NK245-1 |
| VEGFR2 (KDR) | Y1054 | P35968 | PYK | | | | | | | | | | | | | | | VEGFR2-pY1054 | PK852 |
| VEGFR3 (Flt4) | Pan | P35916 | PYK | | | | | | | | | | | | | | | VGFR3-2 | NK064-3 |
| VEGFR3 (Flt4) | Pan | P35916 | PYK | | | | | | | | | | | | | | | VGFR3-1 | NK064-2 |
| VEGFR3 (Flt4) | Y1068 | P35916 | PYK | | | | | | | | | | | | | | | VEGFR3-pY1068 | PK853 |
| VHL | S111 | P40337 | | | | | | | ● | | | | | | | | | VHL-pS111 | PN783 |
| VIM (Vimentin) | Y117 | P08670 | | | | | | | | | | | | ● | | | | VIM-pY117 | PN544 |
| WASP | Y291 | P42768 | | | | | | | | | | | ● | | | | | WASP-pY291 | PN545 |
| Wee1 | S642 | P30291 | DSK | | | | | | | | | | | | | | | Wee1-pS642 | PK854 |
| WNK1 | Pan | Q9H4A3 | PSTK | | | | | | | | | | | | | | | WNK1-2 | NK252-2 |
| WNK1 | Pan | Q9H4A3 | PSTK | | | | | | | | | | | | | | | WNK1-3 | NK252-3 |
| WNK1 | Pan | Q9H4A3 | PSTK | | | | | | | | | | | | | | | WNK1-1 | NK252-1 |
| WNK1 | T60 | Q9H4A3 | PSTK | | | | | | | | | | | | | | | WNK1-pT60 | PK856 |
| WNK1 | S382+Pan | Q9H4A3 | PSTK | | | | | | | | | | | | | | | WNK1-pS382 | PK855 |
| WNK1 | T2245 | Q9H4A3 | PSTK | | | | | | | | | | | | | | | WNK1-pT2245 | PK857 |
| WNK2 | Pan | Q9Y3S1 | PSTK | | | | | | | | | | | | | | | WNK2-2 | NK253-2 |
| WNK2 | Pan | Q9Y3S1 | PSTK | | | | | | | | | | | | | | | WNK2-3 | NK253-3 |
| WNK2 | Pan | Q9Y3S1 | PSTK | | | | | | | | | | | | | | | WNK2-1 | NK253-1 |
| WNK3 | Pan | Q9BYP7 | PSTK | | | | | | | | | | | | | | | WNK3-1 | NK254-1 |
| WNK4 | Pan | Q96J92 | PSTK | | | | | | | | | | | | | | | WNK4-3 | NK255-3 |
| WNK4 | Pan | Q96J92 | PSTK | | | | | | | | | | | | | | | WNK4-1 | NK255-1 |
| WT1 | S365 | P19544 | | | ● | | | | | | | | | | | | | WT1-pS365 | PN732 |
| YAP1 | S109 | P46937 | | | ● | | | | | | | | | | | | | YAP1-pS109 | PN681 |
| YAP1 | T119 | P46937 | | | ● | | | | | | | | | | | | | YAP1-pT119 | PN682 |
| YAP1 | S127 | P46937 | | | ● | | | | | | | | | | | | | YAP1-pS127 | PN683 |
| Yes | Y222+Y223 | P07947 | PYK | | | | | | | | | | | | | | | Yes-pY222+pY223 | PK858 |
| YLPM1 | S561 | P49750 | | | ● | | | | | | | | | | | | | YLPM1-pS561 | PN684 |
| YSK1 (STK25; | T174 | O00506 | PSTK | | | | | | | | | | | | | | | YSK1-pT174 | PK859 |

| Target Protein Name | Pan-specific or P-Site | Human UniProt ID | Protein Kinase | Protein Phosphatase | Transcription | Receptor | Ion Channel | Protein Synthesis | Protein Degradation | Metabolic | Stress Protein | Apoptosis | Adapter/ Scaffold | Cytoskeletal | Cell Adhesion | Ca/ Lipid / Solute | Vesicle Protein | Antibody Name | Kinexus Antibody Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YSK4 | Pan | Q56UN5 | PSTK | | | | | | | | | | | | | | | YSK4-2 | NK256-2 |
| YSK4 | Pan | Q56UN5 | PSTK | | | | | | | | | | | | | | | YSK4-3 | NK256-3 |
| YSK4 | Pan | Q56UN5 | PSTK | | | | | | | | | | | | | | | YSK4-1 | NK256-1 |
| ZAP70 | Y248 | P43403 | PYK | | | | | | | | | | | | | | | ZAP70-pY248 | PK860 |
| ZAP70 | Y292 | P43403 | PYK | | | | | | | | | | | | | | | ZAP70-pY292 | PK861 |
| ZAP70 | Y319 | P43403 | PYK | | | | | | | | | | | | | | | ZAP70-pY319 | PK862 |
| ZAP70 | Y492+Y493 | P43403 | PYK | | | | | | | | | | | | | | | ZAP70-pY492+pY4 | PK863 |
| ZC2 (TNIK; GK) | Pan | Q9UKE5 | PSTK | | | | | | | | | | | | | | | ZC2-CT | NK301-1 |

## Appendix 6

# Lysate Sample Preparation and Shipping

## 1. QUANTITY OF LYSATE

The amount of protein recommended for submission for our Custom Antibody Macroarray services is 200 μg per antibody macroarray 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 macroarrays 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.

## 2. LYSIS BUFFER

Sample preparation is critical in order to obtain optimal results with antibody arrays, and the phosphorylation of phosphoproteins is particularly labile if precautions are not taken to preserve them from the action of phosphatases and proteases. 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.

For lysate samples that will be used for antibody array analysis where protein phosphorylation is monitors **– and these samples will not be examined by Western blotting** – we highly recommend chemical cleavage of the lysate proteins at the time of preparation to stabilize the phosphorylation status of these proteins.

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 NTCB (2-nitro-5-thiocyanatobenzoic acid) (added after sonication)

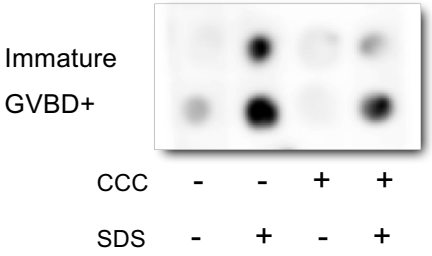
*Protease Inhibitors and Dithiothreitol*

13. 0.5 µM aprotinin (to inhibit proteases);
14. 3 mM benzamidine (to inhibit proteases);
15. 1 mM Petabloc (to inhibit proteases);
16. 10 µM 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 1. 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 µM 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.
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.

## 3. 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 a 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.

## 4. PROTEIN LYSATE PREPARATION WITH AND WITHOUT CHEMICAL CLEAVAGE

The optimum amount of protein recommended for antibody array analysis 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 is 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 antibody arrays as well as any follow-up services. Other lysis buffers commonly used for protein lysate preparation containing detergents may be compatible with the Kinexus antibody arrays. **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 $1\times10^6$ to $2\times10^6$ 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 $1\times10^6$ to $2\times10^6$ cells for each sample to be analyzed using antibody arrays.
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 2. 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 μg 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 μg 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 2**.** Add 25 μL of 10 mM TCEP to 500 μL 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 μL 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 μL of 100 mM NTCB per 100 μL 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 2**.** 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 Lysate Preparation**

1. Note all cell lines are different so the suggested number of $1\times10^6$ to $2\times10^6$ 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 ($1\times10^7$ to $2\times10^7$ 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

## 5. 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 x $10^6$ cells) should be provided for each sample to be subjected to KAM-2025 analysis. If Kinetworks™ multi-immunoblotting is desired for validation of the antibody array results, the number of cells required is ten-fold higher (>2 x $10^7$ 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 x 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.

## 6. 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 antibody array analysis. (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 antibody array 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, parafilmed 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.

## 7. 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 sublimes 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.

## 8. 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