KINEXUS

iN ViVO SERViCES

CELL CULTURE & LYSATE PREPARATION
CUSTOMER INFORMATION PACKAGE

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SYSTEMS PROTEOMICS SERVICES

1. IN VIVO SERVICES

Kinexus is endeavoring to change the paradigm for cell signalling research by empowering our clients to undertake broad analyses of hundreds of signal transduction proteins at a time for an economical cost with our assistance. This section provides a broad overview of our unique and powerful platform of integrated proteomics services. In 2006, we first introduced our In Vivo Services to permit our clients to fully benefit from our unique proteomics services without the hassles of cell culture, treatment and harvesting, subcellular fractionation, protein assay and shipping of frozen lysates. Now we have made it possible for our clients to tap into the vast inventory of pre-made cell and tissue lysates that Kinexus has produced in-house. With our In Vivo Cell Preparation Service, customers can send us their experimental compounds (e.g. drugs), proteins (e.g. cytokines and hormones) or oligonucleotides (e.g. RNAsi), and we will perform the treatments of diverse human tumour cells according to their specifications and prepare lysates compatible for testing with our Kinex™ antibody microarray and Kinetworks™ multi-immunoblotting services. However, clients now have the option of using the lysates that we have generated from treating our panel of human tumour cell lines in dose response and time course studies with many commonly used growth factors and drugs. These pre-made lysates can serve as useful controls for comparative studies. In combination with our other proteomics services, which are described in the following sections, it is now possible for our clients to undertake signal transduction research from conception to publication without the need for a wet lab of their own.

For use in our in vivo services, we have selected 12 of the most commonly studied human tumour cells, which also provide broad representation for tissue source, gender and age of the originators. These cells were obtained at low passage number from the American Type Culture Collection. They have been extensively characterized by Kinetworks™ analysis, and this data is available upon subscription to our KiNET on-line databank (www.kinexus.ca/kinet). The following is a listing of the current Kinexus human cell line panel:

- A431 - Skin epidermoid carcinoma from a 85 year old female [ATCC# CRL-1555]
- A549 - Lung carcinoma from a 58 year old male [ATCC# CCL-185]
- HCT116 - Colon carcinoma from an adult male [ATCC# CCL-247]
- HEK 293 - Female fetal kidney cells transformed with adenovirus 5 [ATCC# CRL-1573]
- HeLa - Cervix epithelial adenocarcinoma from a 31 year old female [ATCC# CCL-2]
- HepG2 - Liver carcinoma from a 15 year old male [ATCC# HB-8065]
- HL-60 - Peripheral blood promyeloblasts from a 36 year old female [ATCC# CCL-240]
- HUV-EC - Umbilical vein endothelial cells from a normal adult female [ATCC# CRL-1730]
- Jurkat - T cell leukemia from a 14 year old male [ATCC# TIB-152]
- MCF-7- Breast epithelial adenocarcinoma from a 69 year old female [ATCC# HTB-22]
- PC-3 - Prostate adenocarcinoma from bone of 62 year old male [ATCC# CRL-1435]
- T98G - Brain glioblastoma from 61 year old male [ATCC# CRL-1690]

A listing of the over 235 cell and tissue lysates that are available from Kinexus for use in our proteomics services is provided in Appendix A. The tissue lysates from monkey, mouse and rat that we have produced should be particularly useful for characterizing the tissue distributions of lesser known proteins. We are providing access to these cell and tissue lysates for Kinex™ antibody microarray and custom Kinetworks™ multi-immunoblotting at no extra cost for our clients than our standard non-confidential pricing for these unique signal transduction protein profiling services. Moreover, we are giving the option for our clients to mix our cell/tissue lysate samples with their own for these analyses. Finally, we plan to make much of the data from these studies available in KiNET in the very near future so that the broad life sciences community may benefit.

2. KINEX™ ANTIBODY MICROARRAY SERVICES

In 2006, Kinexus launched our first Kinex™ antibody microarray service, and we plan to introduce several more antibody company-specific Kinex™ antibody microarrays in the future. The Kinex™ signal transduction protein profiling services are a convenient and very cost-effective solution to assist scientists in the broad discovery of productive research leads such as biomarkers. These services utilize microarrays of printed antibodies to track the differential binding of dye-labeled proteins in lysates from cells and tissues. The results can provide productive insights into differences in protein expression, phosphorylation and protein-protein interactions. However, as non-denatured proteins are analyzed by this method, there is increased opportunity for false positives and false negatives due to antibody cross-reactivity and blocked epitopes in protein complexes. Therefore, this technique is less accurate than our Kinetworks™ multi-immunoblotting service, and we highly recommend that any interesting Kinex™ results that clients wish to follow up be first validated by Western blotting. The availability of our Custom Kinetworks™ analyses is

an important distinguishing feature of our antibody microarray services as clients can have their research leads conveniently and cheaply confirmed by Kinexus. Further information about the expression or phosphorylation of leads may often be obtained through query of our KiNET™ on-line databank with results from over 6000 Kinetworks™ immunoblots. On-line access to KiNET is free.

In our internal studies with cells from different species, about 30 to 45% of the protein changes detected on the Kinex™ KAM-1.2 Antibody Microarray were reproduced by immunoblotting. About 15 to 20% of the Kinex™ detected protein changes could not be validated by immunoblotting, because no detectable immunoreactive proteins were evident in these studies as the antibody microarray appears to be much more sensitive than standard Western blotting. Since the Kinex™ KAM-1.2 chip has typically 20 times the antibody coverage, it uses 5-10-times less cell/tissue lysate protein, and it yields duplicate measurements at 10-30-times less cost than a Kinetworks™ immunoblot analysis, this antibody microarray is a particularly attractive route to begin a system biology, proteomics approach to studying human disease or an experimental model system.

At least 800 commercial antibodies from over 20 different vendors and which have been proven in-house by Kinexus to perform well in Western blotting applications, were incorporated into our proto-type antibody microarray, the Kinex™ KAM-1.0 chip. Our current Kinex™ Service with the KAM-1.2 chip with two samples analyzed at a time tracks around 650 distinct cell signalling proteins in duplicate for more than 270 different phospho-sites, 240 protein kinases and 110 other cell signalling proteins that regulate cell proliferation, stress and apoptosis; the complete list of target proteins tracked in the Kinex™ KAM-1.2 antibody microarray is provided in Appendix B. The KSAM-1.2 antibody microarray service has the added benefit above our regular KAM-1.2 service in that our clients can select any two of our more than 235 pre-made cell and tissue lysates for analysis at no additional cost.

With respect to the performance of the Kinex™ antibody microarrays, we have analyzed over 2500 Kinex™ Antibody Microarry chips to date. The antibodies used in the Kinex™ microarrays have been optimized to work in human, mouse and rat model systems, but have also been shown commonly to work in chicken, bovine, porcine, canine, rabbit, frog, sea star and other diverse model systems. In internal studies, we found that the median spread between duplicate measurements with the same antibody in printed pairs was about 12% (i.e. the median range from the average of the duplicates is ±7%). The frequency of inconsistent duplicate measurements for the same protein was less than 4.5%. The dynamic range between the highest and lowest reproducible dye-bound protein signals from these Kinex™ chips was over 130-fold. This performance exceeded that of antibody microarrays from our competitors tested in our hands. Moreover, we have determined that the costs of using our Kinex™ service is 20% to 55% less than the cost of purchasing competitor antibody microarrays and a researcher performing this kind of analysis in their own lab (the added costs of the chip scanners and quantification software license was not included in these comparisons).

One of the key differences between the Kinex™ antibody microarray chips and competitor microarrays that are available for purchase is that we label the control and treatment lysate samples with the same dye, and we analyze both samples separately, but on the same chip. In our experience, the use of two dye, competitive binding systems in which a control sample is labeled 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 high rate of false leads. Unlike oligonucleotides such as DNA, 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 labeled with different dyes are mixed prior to electrophoresis. Therefore, colour changes seen with spots evident on a DIGE 2D gel may not be related to differences in protein expression at all but rather dye binding to individual protein species. Clients should also be aware that cell signalling proteins are typically present at concentrations that are 100- to 1000-fold lower than structural proteins and metabolic pathway enzymes. Consequently, these low abundance proteins are usually not evident on 2D gels without some special pre-enrichment. This is why we feel that antibody-based detection of proteins with our Kinex™ antibody microarrays or Kinetworks™ multi-immunoblots are complementary and superior methods to undertake broad studies of proteins for signalling network analyses.

As part of the In Vivo Kinex™ KSAM-1.2 antibody microarray service, Kinexus provides both qualitative and semi-quantitative analyses of the expression and phosphorylation states of cell signalling proteins in cell and tissue samples as determined with the KAM-1.2 chip. The qualitative analysis includes a TIFF file of the scanned Kinex™ antibody microarray that features the detected target signalling proteins in control and experimental samples artificially labeled in two distinct colours by Adobe Photoshop and presented side-by-side in a coloured overlay. The quantitative analysis of the strength of the fluorescence signals for each target protein is provided in duplicate in a Microsoft Excel spreadsheet and includes the (average) percent change from the control sample and the percent range in error. To view example images or a sample of a Kinex™ Report, please contact a Customer Service Representative at info@kinexus.ca. If clients wish to use the Kinex™ KAM-1.2 antibody microarray with cell/tissue lysates that they only prepare in their own laboratories, then they should use the information and forms provided in the Kinex™ Services Customer Information Package.

3. CUSTOM KINETWORKS™ MULTI-IMMUNOBLOTTING SERVICES

The Kinetworks™ signal transduction protein profiling services are a convenient and cost-effective solution to assist scientists in the discovery of productive research leads. These services utilize a proprietary technology based on multi-immunoblotting that generates a unique identification pattern for each sample analyzed and can provide information about the quantitative expression level for each protein detected and its phosphorylation. It is highly accurate, since the detection of a target protein is based on its immunoreactivity and apparent molecular mass. Kinexus has undertaken the testing of more than 3,500 commercial antibodies from over 20

leading companies to select the most potent and specific antibodies for detecting low abundance proteins over a wide range of model systems. The Kinetworks™ approach, which has been under development and field-tested for over eight years, is faster and more sensitive for specific protein detection and offers greater versatility and reproducibility than many other proteomics methods. Presently, Kinexus can track more than 650 distinctcell signalling proteins and several hundred unknown cross-reactive proteins, and intends to increase the number of signalling proteins that it can track to over 1000 over the next year. Only our Kinex™ antibody microarray services provide a cheaper alternative to profiling changes in protein expression and phosphorylation than our Kinetworks™ protein profiling, but the microarray approach is less accurate and generates a high degree of false positives and false negatives.

Kinexus currently offers 6 different standard analytical signal transduction protein profiling services and 2 custom Kinetworks™ services. These are the custom Kinetworks™ KCPS 1.0 Multi-Antibody Protein Screen (which allows clients to choose *any* 18 antibodies of interest out of more than 650) and the Kinetworks™ KCSS 1.0 Multi-Sample Screen (which allows clients to choose up to 3 target proteins (of diverse molecular weight) quantified in 8 different samples side by side on the same immunoblot). Clients may access all of these multi-immunoblotting screens through our normal Kinetworks™ services (see the Kinetworks™ Services Customer Information Package). In combination with our In Vivo services with pre-made cell/tissue lysates available in Appendix A, we offer only the Kinetworks™ KCSS 1.0 Multi-Sample Screen.

Kinexus provides both qualitative and semi-quantitative analyses of the expression and phosphorylation states of protein kinases and cell signalling proteins in cell and tissue samples as part of the Custom Kinetworks™ screening service. The qualitative analyses include TIFF files of the immunoblots that feature the detected target signalling proteins (see example of a Kinetworks™ immunoblot image below). The Kinetworks™ analysis has been specially optimized to reveal band shifts in signalling proteins on SDS-PAGE gels that may arise from their phosphorylation. The quantitative analysis of the strength of the enhanced chemiluminescence signal for each target protein is provided in a Microsoft Excel spreadsheet. For multiple samples within the same profiles, Kinexus provides Comparison Reports for the target proteins and graphs the data against the control samples. To view a sample Kinetworks™ Report, please visit our website at www.kinexus.ca and select the links "*Our services*" and "*Kinetworks™*". All the Kinetworks™ Screens have been optimized to perform in human, mouse and rat model systems, but can also work for many protein targets in cow, pig, dog, rabbit, chicken, frog, sea star and other various model systems. Please view the examples of Custom Kinetworks™ immunoblots appended at the end of this package see examples of the Western blotting results with the human tumour cell lines and animal tissues available with our In Vivo services.

4. KiNET DATABANK

KiNET is the first Internet accessible subscription proteomics database of its kind. This powerful tool has built in bioinformatics searching capabilities for cell signalling research. Presently KiNET features over 200,000 measurements of the expression and phosphorylation states of hundreds

of signal transduction proteins from over 6000 multi-immunoblots blots performed with control and treated tissue/cell samples. This highly unique data set has been generated in-house over the last 10 years by Kinexus in part through our Kinetworks™ immunoblotting services. Over 95% of the data in KiNET is unpublished and not available elsewhere.

KiNET enables users to generate data tables that are tailored to their specific cell signalling research questions. KiNET can be queried for the regulation of a target protein in hundreds of well defined experimental model systems. Alternatively, a tissue, cell line or specific treatment can be interrogated for changes in the expression and phosphorylation of hundreds of different proteins. Since all of the KiNET data was produced with the same reagents, methodology and equipment by our highly experienced scientists and technicians, the results are highly comparable.

With the availability of KiNET, our Kinetworks™ immunoblotting services have become even more powerful for cell signalling research, since our clients can now view their Kinetworks™ results in a much broader context. Our clients can correlate changes that they observe in particular target proteins of interest in their experimental model systems with hundreds of other cells and tissues. KiNET is also a useful tool to plan out future Kinetworks™ experiments to maximize the prospects of research success. Clients can preview the expression levels and phosphorylation states of specific proteins in similar experimental model systems to better select the subset of proteins they should investigate. KiNET may also be useful for validation of some of the findings from our Kinex™ antibody microarray services.

As a community service, Kinexus permits free access to all of the data contained within KiNET. To get started with KiNET, simply go to the following website link http://www.kinet.ca.

5. CUSTOM GRAPHICS SERVICES

As part of our commitment to ensuring that our clients are able to fully benefit from their Kinetworks™ multi-immunoblotting services, we are pleased to offer custom graphics services to assist in the production of presentation and publication ready materials based on the results of our proteomics services. We can prepare colored slides suitable for Microsoft® PowerPoint presentation or black and white figures that are suitable for journal publication. Our standard charge is $89 per slide or figure. We offer such a low price for this service as it is partly subsidized by our Sales and Marketing program. We feel that if you present your Kinetworks™ results, then we also benefit from the increased exposure.

The PowerPoint slides can be produced with overlaid images of the Kinetworks™ immunoblot scans. In the case of the Kinetworks™ immunoblots, all of the detected target proteins are

provided both unlabeled and labeled with their names on the images. Powerpoint slides may also be generated for bar graph representation of the Kinetworks™ results. Furthermore, we can also prepare simple diagrammatic slides of cell signaling pathways.

For journal publication, we can prepare black, white and gray scale figures of either Kinetworks™ immunoblot images or Kinex™ microarray scans. We can also produce black and white figures of bar graph representation of the Kinetworks™ results. These figures can be supplied in Adobe® Illustrator, Adobe® Photoshop (eps, tiff) or Adobe® pdf format.

Turnaround time for these graphical services is typically within two weeks. All figures are delivered in electronic format by e-mail. Clients should view the Graphics Services Customer Information Package for more information about these services and ordering forms.

6. QUANTITY OF LYSATE REQUIRED (for Custom Kinetworks™ KCSS 1.0 only)

With our In Vivo services, it is expected that clients will opt to use the cell and tissue lysates prepared by Kinexus for Kinex™ and/or Kinetworks™ analyses. However, the following next group of sections are provided in case clients wish to include some of their own cell/tissue lysates or they are interested in the standard protocols used by Kinexus in preparation of our In Vivo cell/tissue lysates.

The KCSS-1.0 Multi-Sample Screen (8 samples/3 antibodies) requires 50 µg of protein for each sample submitted. The final protein concentration in SDS-sample buffer should be 1 mg/ml, although a range of 0.6 - 2.0 mg/ml is acceptable. If your concentration is higher or lower, please speak to our customer service representatives. The amount of protein required for the Kinex™ Antibody Microarray services is 100 µg per sample at a minimum concentration of 2 mg/ml. However, Kinexus does not accept client-prepared samples for the KSAM-1.2 antibody microarray service.

For Kinetworks™ analyses, the cell pellet or tissue should be homogenized in the following ice-cold lysis buffer:

1. 20 mM MOPS, pH 7.0 (any other buffer at this pH could be substituted);
2. 2 mM EGTA (to bind calcium);
3. 5 mM EDTA (to bind magnesium and manganese);
4. 30 mM sodium fluoride (to inhibit protein-serine phosphatases);
5. 60 mM β-glycerophosphate, pH 7.2 (to inhibit protein-serine phosphatases);
6. 20 mM sodium pyrophosphate (to inhibit protein-serine phosphatases);
7. 1 mM sodium orthovanadate (to inhibit protein-tyrosine phosphatases);
8. 1% Triton X-100 (can be substituted with 1% Nonidet P-40)
   Important Note: *Do not add if you intend to first prepare a cytosolic fraction.*
9. 1 mM phenylmethylsulfonylfluoride (to inhibit proteases);

10. 3 mM benzamidine (to inhibit proteases);
11. 5 µM pepstatin A (to inhibit proteases);
12. 10 µM leupeptin (to inhibit proteases);
13. 1 mM dithiothreitol.

The final pH of the homogenizing buffer should be adjusted to 7.2. Please note that Kinexus is willing to send an aliquot of our lysis buffer for a fee to any customer who provides a courier account number to charge for the shipping costs. Our lysis buffer contains components 1-7, including phosphatase inhibitors (components 4-7) but *no protease inhibitors* (components 9-12). Clients must add their own protease inhibitors to the lysis buffer immediately before use. For convenience, they may choose to use the Roche mini inhibitor tablet with the addition of pepstatin A as opposed to individual protease inhibitors.

Total cellular fractionation: For quantitation of total cellular levels of cell signalling proteins, lysis and homogenization should be performed in the presence of a non-ionic detergent. We recommend the use of 1% Triton X-100 or 1% Nonidet P40, but comparable detergents are acceptable.

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 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. Important things to remember are that the cells or tissues should be processed quickly at 4°C or less. Homogenization should not be performed in too large a volume to obtain lysates at the concentration required. The detergent-soluble fraction should be obtained as quickly as possible after the cells or tissues are homogenized. **Sonication is required and cannot be omitted**. The highest centrifugal forces available should be used to generate the detergent soluble fraction. The supernatants should be frozen as quickly as possible if a protein assay cannot be performed immediately.

7. PREPARATION OF CELL LYSATES (for Custom Kinetworks™ KCSS 1.0 only)

A. Adherent Cells

1. Remove medium from culture dishes containing about 1×10^7 to 2×10^7 cells;
2. Rinse the cells twice with ice-cold PBS to remove medium residue (serum must be completely removed from cells); remove as much PBS as possible after the last rinse;

3. Add 200 µl ice-cold lysis buffer to 150 mm culture dish per sample (more lysis buffer can be added if cells are concentrated), or add 100 µl ice-cold lysis buffer to 100 mm culture dish;
4. Scrape the cells in lysis buffer, collect the cell suspension from the dishes and transfer it into a 1.5-ml microcentrifuge tube;
5. Sonicate four times for 10 seconds each time (with 15-20 seconds cooling intervals) on ice to rupture the cells and to shear nuclear DNA.
   This is a crucial step and cannot be omitted;
6. Centrifuge the homogenate at 90,000 g or more for 30 min at 4°C in a Beckman Table Top TL-100 ultracentrifuge or Beckman Airfuge;
7. Transfer the resulting supernatant fraction to a 1.5-ml microcentrifuge tube;
8. Assay sample for protein concentration using a commercial Bradford assay reagent (available from Bio-Rad) or using 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) should be used as the protein standard. **Make sure that the protein concentration is determined before the addition of SDS-PAGE Sample Buffer**.

B. Suspension Cells

1. Place medium containing cells in appropriate sized tube and spin 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 once to ensure complete removal of serum;
3. Remove as much PBS as possible after the last wash;
4. Add 200 µl ice-cold lysis buffer per sample (more lysis buffer can be added if the number of cells is high);
5. Sonicate four times for 10 seconds each time on ice to rupture the cells and to shear nuclear DNA. **This step is crucial and cannot be omitted;**
6. Centrifuge the homogenate at 90,000 x g or more for 30 min at 4°C in a Beckman Table Top TL-100 ultracentrifuge or Beckman Airfuge;
7. Transfer the resulting supernatant fraction to a 1.5-ml microcentrifuge tube;
8. Assay sample for protein concentration using a commercial Bradford assay reagent (available from Bio-Rad) or using 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) should be used as the protein standard. **Make sure that the protein concentration is determined before the addition of SDS-PAGE Sample Buffer**.

8. PREPARATION OF CELL PELLETS (for Custom Kinetworks™ KCSS 1.0 only)

For an additional fee of $200 US per sample, Kinexus will process your cell pellets into a lysate for processing with any of our Kinetworks™ screens. To prepare your cell pellets for shipping to Kinexus, please follow steps 1-4 below and label the tubes containing your pellets accordingly. Cell pellets must be shipped on dry ice. Clients may need to prepare as much as 2 x 10^7 cells to ensure sufficient quantity.

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, followed by the addition of equal volume of medium;
3. Collect cells in a 15-ml conical tube and centrifuge at 500 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); **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);
5. Freeze the pellet for shipping. **Pellet must be shipped on dry ice at the expense of the client.**

B. Suspension cells:

Simply follow steps 1-3 in the section of "*For suspension cells"* and freeze the cell pellet immediately. **Pellets must be shipped on dry ice at the expense of the client.**

9. TISSUE PREPARATION (for Custom Kinetworks™ KCSS 1.0 only)

1. Use 1 ml of lysis buffer per 250 mg wet weight of the chopped tissue;
2. Rinse the tissue pieces in ice-cold PBS three times to remove blood contaminants;
3. Homogenize the tissue on ice with 15 strokes of a glass dounce (or 3 times for 15 seconds each time with a Brinkman Polytron Homogenizer or with a French Press as alternatives);
4. Sonciate the homogenate 4 times for 10 seconds on ice each time to shear nuclear DNA. **This step is crucial and cannot be omitted;**
5. Centrifuge the homogenate at 90,000 x g or more for 30 min at 4°C in a Beckman Table Top TL-100 ultracentrifuge or Beckman Airfuge;
6. Transfer the resulting supernatant fraction to a new tube and subject it to a protein assay using a commercial Bradford assay (available from Bio-Rad) or using 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) should be used as

the protein standard. **Make sure that the protein concentration is determined before the addition of SDS-PAGE Sample Buffer.**

10. SAMPLE BUFFER PREPARATION (for Custom Kinetworks™ KCSS 1.0 only)

We recommend the final composition of SDS-PAGE Sample Buffer in the sample be: 31.25 mM Tris-HCl (pH 6.8), 1% SDS (w/v), 12.5% glycerol (v/v), 0.02% bromophenol blue (w/v), and 1.25 % β-mercaptoethanol. The cell/tissue samples should be boiled for four (4) min at 100°C in the SDS-PAGE Sample Buffer. (See Appendix A for detailed instructions on preparing the Sample Buffer). Please note that Kinexus is willing to send customers an aliquot of Sample Buffer (but without the β-mercaptoethanol) for a small fee. If this option is of interest, please contact a customer services representative for details.

11. PREPARATION FOR STORAGE AND SHIPPING OF SAMPLES (Custom Kinetworks™ only)

The final protein concentration of the cell/tissue samples should be **1 mg/ml** in sodium dodecylsulphate-polyacrylamide gel electrophoresis (SDS-PAGE) Sample Buffer as specified by Laemmli *(Laemmli, U.K. (1970) Cleavage of structural proteins during the assembly of the head of bacteriophage T4. Nature 227:680-684).* For all screens, the minimum acceptable protein concentration of the cell/tissue samples in the SDS-PAGE Sample Buffer is **0.6 mg/ml** and the maximum concentration should not be higher than **2.0 mg/ml**. Please record the actual concentration and volume of each sample on the Sample Description Form (Box B of IVC-NSDF-01 or IVC-CSDF-01).

The Custom Kinetworks™ KCSS-1.0 Multi-Sample Screen requires at least 50 µg cell/tissue lysate per sample of (i.e. ≥50 µl of 1 mg/ml protein) boiled in the SDS-PAGE Sample Buffer and aliquoted into a 1.5 ml Eppendorf *screw cap* vial. The KCSS-1.0 Multi-Sample Custom Screen can have up to 8 different samples. The vials should be clearly labeled with an indelible marker with an unique identification number (recorded in the Sample Identification Form), parafilmed, and then put into a secondary support structure such as a conical or centrifuge tube to provide extra protection to prevent accidental leakage during shipping. It is not necessary to refrigerate or freeze the samples during shipping once they are in SDS-PAGE Sample Buffer.

12. SHIPPING INFORMATION (for Custom Kinetworks™ KCSS 1.0 only)

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. Clients are responsible for all shipping costs by courier. The sample vials should be sent to the address listed below. The samples may be shipped at room temperature if they are in SDS-PAGE Sample Buffer, but delivery on dry ice is acceptable. We recommend

shipping through Federal Express Courier. However, for dry ice shipments coming from outside of North America, the preferred choice is World Courier. Ship your samples to the following address:

Kinetworks™ Screening Services
Kinexus Bioinformatics Corporation
Suite 1, 8755 Ash Street
Vancouver, B.C. Canada V6P 6T3
Telephone: (604) 323-2547

Please ensure 3 copies of a signed commercial invoice accompany your shipment which specifies your samples are non hazardous and non infectious. Since the samples are not for resale, the value of your shipment should be priced at approximately $1.00 per sample in order to avoid paying additional duties and taxes on entry into Canada. It is also highly recommended that customers email their Federal Express 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. We will send a confirmation email once your shipment arrives at our facility.

13. PRICING INFORMATION

Kinexus offers the Kinex™ KSAM-1.2 services at only the non-confidential pricing level of $1,498 US per slide for each pair of pre-made Kinexus cell/tissue lysates available from Appendix A.

Kinexus offers the Custom Kinetworks™ KCSS-1.0 services at different pricing depending on the level of confidentiality required for your samples and the number of antibodies to be analyzed. Our regular prices for the Kinetworks™ KCSS-1.0 Services range from US $1,098 to $1,498 per screen with 1 to 3 antibodies if any of the sample information is to remain fully confidential. At this pricing level, only the species needs to be disclosed for client supplied samples. To receive a 50% discount off the regular price, Kinexus requires the Client Supplied Non-Confidential Sample Description Form (IVC-NSDF-01) be completed in full (Sections A-K) including species, organ, tissue, cell, cell state, fractionation, perturbation, and treatment for each sample being analyzed. At the non-confidential pricing level, the cost of our Custom Services range from US $549 to $749 per screen for 1 to 3 antibodies. For exact pricing, review Box D the In Vivo Custom Kinetworks™ Multi-Sample Screen Service Identification Form (IV-CSS-SIF-01).

For Custom Cell Preparation In Vivo Services, clients should complete the IVC-CP-SIF-01 form and transmit this by facsimile to Kinexus at 1-604-323-2548 to receive full pricing information. Typically the preparation of the first lysate of each different cell type is $400 US for the first

lysate and $250 for every other lysate with the same cell type, but a different treatment. Sufficient lysate is produced for 1 Kinex™ analysis and 1 Kinetworks™ analysis (~600 µg of lysate protein).

For volume discounts or quotations for large orders, please contact the Director of Sales & Marketing at 1-866-KINEXUS (option 3 on the telephone directory) or email sales@kinexus.ca.

14. FORMS TO BE COMPLETED

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

A. Kinexus Proteomics Services Agreement - Customers are required to complete and sign our standard Kinexus Service Agreement before their first order can be processed. Unless otherwise specified, this Agreement is valid for all future orders with a standard term of 15 years.

B. Service Order Form (IVC-SOF-01). The Service Order Form (SOF) allows us to track all of the various services to be used within an order.

C. Service Identification Form – Customers should choose one or more of the following forms as applicable: In Vivo Kinex™ Sample Antibody Microarray Form (IV-KSAM-SIF-01); Custom KCSS Screen Service Identification Form (IV-CSS-SIF-01); Custom Cell Preparation Service Identification Form (IVC-CP-SIF-01). The Service Identification Form (SIF) permits us to determine how many and which samples and antibodies are to be used for each particular analysis.

D. Sample Description Form – Customers should choose one or both of the following forms as applicable if they are supplying their own cell/tissue lysates for the Kinetworks™ KCSS-1.0 analysis: Non-Confidential Sample Description Form (IVC-NSDF-01); Confidential Sample Description Form (IVC-CSDF-01). If customers also wish to have their own antibodies utilized for the Kinetworks™ KCSS-1.0 analysis, they must complete a Client Supplied Antibody Description Form (IVC-CADF-01). The Sample Description Forms (SDF's) allow us to determine the nature of the cell/tissue lysates to be analyzed.

E. Federal Express Airway Bill (if client supplied samples for the Kinetworks™ KCSS-1.0 analysis are to be delivered by courier).

F. Commercial Invoice (required for all customers located outside of Canada that are supplying samples for the Kinetworks™ KCSS-1.0 analysis).

All orders should have as a minimum 1 SOF form and 1 SIF form completed. Only if a client is supplying their own cell/tissue lysates or antibodies is it necessary to send the SDF and CADF forms with a courier airway bill and commercial invoice. A new Kinexus Service Agreement is not necessary if the client has previously placed an order with Kinexus and submitted a signed Kinexus Service Agreement at that time.

FOR ALL CUSTOMERS

A. Kinexus Proteomics Services Agreement

A Kinexus Service Agreement is required to be signed before the first order can be processed.

- This Agreement is required to be signed and dated by an authorized representative, typically a Senior Officer, Senior Scientist, 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 15 years. 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.

B. Service Order Form (IVC-SOF-01)

Please ensure:

- Shipping address and contact name and numbers are specified
- Billing information is completed as outlined in Section D of the Service Identification Form (IV-KSAM-SIF-01 or IV-CSS-SIF-01)
- Any promotional vouchers or quotations are listed in the billing sections
- Include a Purchase Order, Visa or MasterCard number for payment
- The form is signed and dated

C. Service Identification Forms

Custom Cell Preparation Service Identification Form (IVC-CP-SIF-01)

For the preparation of samples according to client specifications, please complete the following:

- Sections A to E
- Transmit by facsimile to 1-604-323-2548 a completed copy of the IVC-CP-SIF-01 to receive confirmed pricing information

Custom Kinex™ KSAM Screen Service Identification Form (IV-KSAM-SIF-01)

For each sample submitted, please ensure the following:

- No less than 100 µg of protein is provided for each sample to be analyzed, 2 samples per screen
- In Section A, the customer must assign a unique Client Screen Identification Name to correlate the proteins to be analyzed for each sample submitted
- In Section B, the type of analysis (Kinex™ Screen Name – currently only KSAM-1.1 is available) for each sample is specified
- For Section C, your sample(s) are identified by completion of Client Supplied Non-Confidential (IVC-NSDF-01) or Confidential (IVC-CSDF-01) Sample Description Forms. Make sure that the Client ID Number in Box A of these forms, matched the Client ID Number in Box A of the IVC-SIF-01 form
- In Section D, the level of confidentiality is indicated for correct pricing
- The form is certified correct and signed and dated

Custom Kinetworks™ KCSS Screen Service Identification Form (IV-CSS-SIF-01)

For the samples submitted, please ensure the following:

- No less than 50 µg of protein at a concentration of approximately 1 mg/ml is provided for each of the 8 samples in the KCSS-1.0 Screen
- In Section A, the customer must assign a unique Client Screen Identification Name to correlate the proteins to be analyzed for each sample submitted
- In Section B, for each lane indicate which cell/tissue lysate sample is to be used by providing the client name you have chosen for this sample from Box B of Client Supplied Non-Confidential (IV-NSDF-01) or Confidential (IV-CSDF-01) Sample Description Forms. A separate IV-NSDF-01 or IV-CSDF-01 form should be completed for each Sample. Up to 8 samples can be listed on an IV-CSS-SIF-01 form if they are used in the same Kinetworks™ screen blot.
- For Section C, up to 3 probing antibodies (for proteins of diverse molecular weight*) are identified by providing the Kinexus ID Code from the Table of Antibody Targets provided in Appendix B. If the customer wishes to substitute a Kinexus antibody with one or more antibodies of their own, they must indicate this and enter the name they have chosen for this antibody from Box B of a Client Supplied Antibody Description Form (IV-CADF-01). A separate IV-CADF-01 form should be completed for each antibody.

  **Kinexus will notify you if there is a conflict with the molecular weights of any of the 3 target proteins chosen. There should be at least 10-15 KDa difference between each of the proteins if the molecular masses are lower than 50 KDa, at least 25 KDa for molecular masses between*

50 KDa and 100 KDa,, and no more than one target protein should have a molecular mass exceeding 100 KDa. Also, sometimes there are cross reactivity issues based on the performance of individual antibodies that may conflict with one of the target proteins of interest. We will advise you of this if we have previous experience in this regard.

- In Section D, the level of confidentiality and number of antibodies is indicated for correct pricing
- The form is certified correct and signed and dated

D. Sample and Antibody Description Forms (only if client is providing cell/tissue lysates or antibodies)

Client Supplied Non-confidential Sample Description Form (IVC-NSDF-01)

Client Supplied Confidential Sample Description Form (IVC-CSDF-01)

For any cell/tissue lysate samples submitted, please ensure the following:

- Each sample tube is labeled and properly identified on the form in Section B, including final concentration and volume
- In Section A, the customer must enter the unique Client Screen Identification Name from Box A of the KCSS-1.0 Screen Service Identification Form (IV-CSS-SIF-01) to match the sample to the particular Kineworks™ service to be used to analyze this sample. Also provide the name of the Kinetworks™ service (i.e. KCSS-1.0).
- Your sample is described by completion of Client Supplied Non-Confidential (IVC-NSDF-01) or Confidential (IVC-CSDF-01) Sample Description Forms by checking the appropriate boxes and entering the appropriate information requested in Sections A-K for Non-confidential samples and Sections A-C for Confidential samples
- The form is certified correct and signed and dated
- Note that the information provided on this form will be shared with thousands of other scientists in the future with the Non-confidentiality pricing. In the spirit of collegiality, please be as accurate as possible in completing the IVC-NSDF-01 form in order not to handicap their research efforts should they desire to follow up on your Kinetworks™ results.

Client Supplied Antibody Description Form (IVC-CADF-01)

For the antibody samples submitted, please ensure the following:

- Each antibody sample tube is labeled and properly identified on the form in Section B, including final concentration and volume and recommended dilution of the antibody for Western blotting
- In Section A, the customer must enter the unique Client Screen Identification Name from Box A of the KCSS 1.0 Screen Service Identification Form (KCSS-SIF—01) to

match the antibody to the particular Kineworks™ service to be used to analyze with this antibody. Also provide the name of the Kinetworks™ screen (i.e. KCSS-1.0).

- Your sample is described by completion of Client Supplied Antibody Description Form (KW-CADF-01) by checking the appropriate boxes and entering the appropriate information requested in Sections A-F for Non-confidential samples and Sections A-C for Confidential samples
- In Section F, you may use the single amino acid or other standard abbreviations for the amino acid residues starting from the N-terminus of the peptide. If an amino acid is covalently modified (e..g. phosphorylation), please indicate this.
- The form is certified correct and signed and dated

E. Airway bill for Federal Express or any other preferred courier (only if client is providing cell/tissue lysates or antibodies)

Complete a Federal Express airway bill and specify:

- FedEx priority overnight delivery
- Bill transportation charges to Kinexus (recipient), only if the samples are sent in a FedEx letter and at room temperature
- **Do not specify Saturday delivery or hold at FedEx Location**
- Telephone 1-800-GO-FEDEX or visit them online at www.fedex.com or www.fedex.ca to schedule a pick up or complete your forms
- For shipments coming from within Canada or the United States, please ship any day from Monday to Wednesday. Do not ship on Thursday or Friday.
- For international shipments coming from outside of North American, the best day to ship is on Monday to ensure arrival in Canada for delivery later the same week
- Customers e-mail the date of your shipment and the Federal Express Airway Bill number to Kinexus at info@kinexus.ca to ensure we can track your package should it get held up in Canadian Customs
- For any customer located outside of Canada, 3 copies of a commercial invoice is required to accompany your shipment (see below)

FOR INTERNATIONAL CUSTOMERS ONLY (only if client is providing cell/tissue lysates or antibodies)

F. Commercial Invoice (not required by Canadian customers)

Please complete the attached commercial invoice with the following information:

- Date of exportation

- Shipper/Exporter name, address, phone number
- Country of export/Country of origin
- Federal Express or other courier 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 with the airway bill

NOTE: Do not change the value of your shipment to more than $1.00 per sample (or $100 total value) as this will prompt the custom brokers to charge Kinexus with a duty and GST fee on your package. Since the samples are processed internally and not returned to the customer or resold, there is no real commercial value.

The international air waybill is required for all international shipments between Canada and the rest of the world. It is also your customs declaration, which can possibly be used to clear your shipment through customs at the destination. The customs clearance process begins with the description of the air waybill. If the description is too vague or missing, 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. In the event that Kinexus must travel to Canada Customs to retrieve a sample package due to inadequate completion of the commercial invoice, then additional charges may apply.

Appendix A. Inventory of Kinexus Tissues for Immunoblotting.

Organ/Tissue	Animal	Species	Gender	Code	Treatment	Comments
Brain	Frog	Xenopus laevis	Female	XFT350	None	Pooled from 3 animals
	Mouse	Mus musculus	Female	MFT300		Pooled from 3-4 animals
			Male	MMT310		Pooled from 3 animals
			Mixed	MBT021		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT001		Pooled from 4 animals
			Male	RMT011		Pooled from 8 animals
			Mixed	RBT251		Pooled from 12 animals, 50% male:50% female
	Monkey	Macaca mulatta	Male	SMT033		From 1 animal
Fat pads	Frog	Xenopus laevis	Female	XFT351	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT045		From 1 animal
	Mouse	Mus musculus	Female	MFT299		Pooled from 3-4 animals
Gall bladder	Frog	Xenopus laevis	Female	XFT352	None	Pooled from 3 animals
Heart	Frog	Xenopus laevis	Female	XFT353	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT035		From 1 animal
	Mouse	Mus musculus	Female	MFT301		Pooled from 3-4 animals
			Male	MMT311		Pooled from 3 animals
			Mixed	MBT022		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT002		Pooled from 4 animals
			Male	RMT012		Pooled from 8 animals
			Mixed	RBT252		Pooled from 12 animals, 50% male:50% female
Kidney	Frog	Xenopus laevis	Female	XFT354	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT036		From 1 animal
	Mouse	Mus musculus	Female	MFT302		Pooled from 3-4 animals
			Male	MMT312		Pooled from 3 animals
			Mixed	MBT023		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT003		Pooled from 4 animals
			Male	RMT013		Pooled from 8 animals
			Mixed	RBT253		Pooled from 12 animals, 50% male:50% female
Large Intestine	Frog	Xenopus laevis	Female	XFT355	None	Pooled from 3 animals
Liver	Frog	Xenopus laevis	Female	XFT356	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT037		From 1 animal
	Mouse	Mus musculus	Female	MFT303		Pooled from 3-4 animals
			Male	MMT313		Pooled from 3 animals
			Mixed	MBT024		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT004		Pooled from 4 animals
			Male	RMT014		Pooled from 8 animals
			Mixed	RBT254		Pooled from 12 animals, 50% male:50% female
Lung	Frog	Xenopus laevis	Female	XFT357	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT038		From 1 animal
	Mouse	Mus musculus	Female	MFT304		Pooled from 3-4 animals
			Male	MMT314		Pooled from 3 animals
			Mixed	MBT025		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT005		Pooled from 4 animals
			Male	RMT015		Pooled from 8 animals
			Mixed	RBT255		Pooled from 12 animals, 50% male:50% female
Nerve	Frog	Xenopus laevis	Female	XFT358	None	Pooled from 3 animals
Ovary	Frog	Xenopus laevis	Female	XFT359	None	Pooled from 3 animals
	Mouse	Mus musculus		MFT026		Pooled from 3-4 animals
	Rat	Rattus norvegicus		RFT007		Pooled from 4 animals
Oviduct	Frog	Xenopus laevis	Female	XFT360	None	Pooled from 3 animals
Pancreas	Monkey	Macaca mulatta	Male	SMT040	None	From 1 animal
	Rat	Rattus norvegicus	Female	RFT006		Pooled from 4 animals
			Male	RMT016		Pooled from 8 animals
			Mixed	RBT256		Pooled from 12 animals, 50% male:50% female
Skeletal muscle	Frog	Xenopus laevis	Female	XFT361	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT041		From 1 animal
	Mouse	Mus musculus	Female	MFT305		Pooled from 3-4 animals
			Male	MMT315		Pooled from 3 animals
			Mixed	MBT027		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT008		Pooled from 4 animals
			Male	RMT018		Pooled from 8 animals
			Mixed	RBT257		Pooled from 12 animals, 50% male:50% female
Small Intestine	Monkey	Macaca mulatta	Male	SMT046	None	From 1 animal
	Mouse	Mus musculus	Female	MFT306		Pooled from 3-4 animals
			Male	MMT316		Pooled from 3 animals
			Mixed	MBT031		Pooled from 6 animals, 50% male:50% female
Spinal cord	Frog	Xenopus laevis	Female	XFT362	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT042		From 1 animal

Organ/Tissue	Animal	Species	Gender	Code	Treatment	Comments
Spleen	Frog	Xenopus laevis	Female	XFT363	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT043		From 1 animal
	Mouse	Mus musculus	Female	MFT307		Pooled from 3-4 animals
			Male	MMT317		Pooled from 3 animals
			Mixed	MBT028		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT009		Pooled from 4 animals
			Male	RMT019		Pooled from 8 animals
			Mixed	RBT258		Pooled from 12 animals, 50% male:50% female
Stomach	Frog	Xenopus laevis	Female	XFT364	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT047		From 1 animal
	Mouse	Mus musculus	Female	MFT308		Pooled from 3-4 animals
			Male	MMT318		Pooled from 3 animals
			Mixed	MBT032		Pooled from 6 animals, 50% male:50% female
Testes	Monkey	Macaca mulatta	Male	SMT039	None	From 1 animal
	Rat	Rattus norvegicus		RMT017		Pooled from 8 animals
Thymus	Monkey	Macaca mulatta	Male	SMT044	None	From 1 animal
	Mouse	Mus musculus	Female	MFT309		Pooled from 3-4 animals
			Male	MMT319		Pooled from 3 animals
			Mixed	MBT029		Pooled from 6 animals, 50% male:50% female
	Rat	Rattus norvegicus	Female	RFT010		Pooled from 4 animals
			Male	RMT020		Pooled from 8 animals
			Mixed	RBT259		Pooled from 12 animals, 50% male:50% female
Urinary Bladder	Frog	Xenopus laevis	Female	XFT365	None	Pooled from 3 animals
	Monkey	Macaca mulatta	Male	SMT034		From 1 animal

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Appendix A. Table of Kinexus Stock Cell and Tissue Lysates

Cell Line	Organ/Tissue	Name	Species	Gender	I. D. Code	Treatment	Comments
A431	Skin	Human	Homo sapiens	Female	HFC090	None; 0 min	Skin epidermoid carcinoma from 85 year old female [ATCC# CRL-1555] (EGF=epidermal growth factor)
					HFC132	None; 5 min	
					HFC133	EGF: 25 ng/ml; 5 min	
					HFC134	EGF: 50 ng/ml; 5 min	
					HFC091	EGF: 100 ng/ml; 2.5 min	
					HFC092	EGF: 100 ng/ml; 5 min	
					HFC135	EGF: 100 ng/ml; 5 min	
					HFC093	EGF: 100 ng/ml; 10 min	
					HFC094	EGF: 100 ng/ml; 20 min	
					HFC095	EGF: 100 ng/ml; 40 min	
					HFC096	EGF: 100 ng/ml; 80 min	
					HFC136	EGF: 200 ng/ml; 5 min	
					HFC137	EGF: 400 ng/ml; 5 min	
					HFC138	EGF: 800 ng/ml; 5 min	
A549	Lung	Human	Homo sapiens	Male	HMC083	None; 0 min	Lung carcinoma from 58 year old male [ATCC# CCL-185] (IFN=interferon)
					HMC118	None; 80 min	
					HMC119	IFN gamma: 12.5 ng/ml; 80 min	
					HMC120	IFN gamma: 25 ng/ml; 80 min	
					HMC084	IFN gamma: 50 ng/ml; 2.5 min	
					HMC085	IFN gamma: 50 ng/ml; 5 min	
					HMC086	IFN gamma: 50 ng/ml; 10 min	
					HMC087	IFN gamma: 50 ng/ml; 20 min	
					HMC088	IFN gamma: 50 ng/ml; 40 min	
					HMC089	IFN gamma: 50 ng/ml; 80 min	
					HMC121	IFN gamma: 50 ng/ml; 80 min	
					HMC122	IFN gamma: 100 ng/ml; 80 min	
					HMC123	IFN gamma: 200 ng/ml; 80 min	
					HMC124	IFN gamma: 400 ng/ml; 80 min	
					HMC167	heat shock at 45°C; 1 hr	
HCT116	Colon	Human	Homo sapiens	Male	HMC048	None; 0 hr	Colon carcinoma from adult male [ATCC# CCL-247]
					HMC146	None; 16 hr	
					HMC147	Nocodazole: 25 ng/ml; 16 hr	
					HMC148	Nocodazole: 50 ng/ml; 16 hr	
					HMC049	Nocodazole: 100 ng/ml; 2 hr	
					HMC050	Nocodazole: 100 ng/ml; 4 hr	
					HMC051	Nocodazole: 100 ng/ml; 8 hr	
					HMC052	Nocodazole: 100 ng/ml; 16 hr	
					HMC149	Nocodazole: 100 ng/ml; 16 hr	
					HMC053	Nocodazole: 100 ng/ml; 24 hr	
					HMC054	Nocodazole: 100 ng/ml; 48 hr	
					HMC150	Nocodazole: 200 ng/ml; 16 hr	
					HMC151	Nocodazole: 400 ng/ml; 16 hr	
					HMC152	Nocodazole: 800 ng/ml; 16 hr	
HEK 293	Kidney	Human	Homo sapiens	Female	HFC097	None; 0 min	Female fetal kidney cells transformed with adenovirus 5 [ATCC# CRL-1573]
					HFC098	Anisomycin: 10 µg/ml; 2.5 min	
					HFC099	Anisomycin: 10 µg/ml; 5 min	
					HFC100	Anisomycin: 10 µg/ml; 10 min	
					HFC101	Anisomycin: 10 µg/ml; 20 min	
					HFC102	Anisomycin: 10 µg/ml; 40 min	
					HFC103	Anisomycin: 10 µg/ml; 80 min	
HeLa	Cervix	Human	Homo sapiens	Female	HFC055	None; 0 min	Cervix epithelial adenocarcinoma from 31 year old female [ATCC# CCL-2] (TNF=tumour necrosis factor)
					HFC111	None; 20 min	
					HFC112	TNFalpha: 0.5 ng/ml; 20 min	
					HFC113	TNFalpha: 1 ng/ml; 20 min	
					HFC056	TNFalpha: 2 ng/ml; 2.5 min	
					HFC057	TNFalpha: 2 ng/ml; 5 min	
					HFC058	TNFalpha: 2 ng/ml; 10 min	
					HFC059	TNFalpha: 2 ng/ml; 20 min	
					HFC114	TNFalpha: 2 ng/ml; 20 min	
					HFC060	TNFalpha: 2 ng/ml; 40 min	
					HFC061	TNFalpha: 2 ng/ml; 80 min	
					HFC115	TNFalpha: 4 ng/ml; 20 min	
					HFC116	TNFalpha: 8 ng/ml; 20 min	
					HFC117	TNFalpha: 16 ng/ml; 20 min	
					HFC116	Nocodazole: 100 ng/ml; 16 hr	
HL-60	Blood	Human	Homo sapiens	Female	HFC186	None; 0 min	Peripheral blood promyeloblasts from 36 year old female [ATCC# CCL-240]
					HFC187	PMA: 100 nM; 2.5 min	
					HFC188	PMA: 100 nM; 5 min	
					HFC189	PMA: 100 nM 10 min	
					HFC190	PMA: 100 nM; 20 min	
					HFC191	PMA: 100 nM; 40 min	
					HFC192	PMA: 100 nM; 80 min	

Cell Line	Organ/Tissue	Name	Species	Gender	I. D. Code	Treatment	Comments
HepG2	Liver	Human	Homo sapiens	Male	HMC172	None; 0 min	Liver carcinoma from 15 year old male [ATCC# HB-8065]
					HMC179	None; 5 min	
					HMC180	Insulin: 2.5 µg/ml; 5 min	
					HMC181	Insulin: 5 µg/ml; 5 min	
					HMC173	Insulin: 10 µg/ml; 2.5 min	
					HMC174	Insulin: 10 µg/ml; 5 min	
					HMC182	Insulin: 10 µg/ml; 5 min	
					HMC175	Insulin: 10 µg/ml; 10 min	
					HMC176	Insulin: 10 µg/ml; 20 min	
					HMC177	Insulin: 10 µg/ml; 40 min	
					HMC178	Insulin: 10 µg/ml; 80 min	
					HMC183	Insulin: 20 µg/ml; 5 min	
					HMC184	Insulin: 40 µg/ml; 5 min	
					HMC185	Insulin: 80 µg/ml; 5 min	
HU-VEC	Umbilical Cord	Human	Homo sapiens	Female	HFC171	None; 0 min	Umbilical vein endothelial cells from normal adult female [ATCC# CRL-1730] (VEGF=vascular endothelial growth factor])
					HFC160	None; 10 min	
					HFC161	VEGF: 6.25 ng/ml; 10 min	
					HFC162	VEGF: 12.5 ng/ml; 10 min	
					HFC163	VEGF: 25 ng/ml; 10 min	
					HFC164	VEGF: 50 ng/ml; 10 min	
					HFC165	VEGF: 100 ng/ml; 10 min	
					HFC166	VEGF: 200 ng/ml; 10 min	
Jurkat	Blood T cell	Human	Homo sapiens	Male	HMC062	None; 0 min	T cell leukemia from14 year old male [ATCC# TIB-152] (PMA=phorbol 12-myristate 13-acetate)
					HMC125	None; 10 min	
					HMC126	PMA: 25 ng/ml; 10 min	
					HMC127	PMA: 50 ng/ml; 10 min	
					HMC063	PMA: 100 ng/ml; 2.5 min	
					HMC064	PMA: 100 ng/ml; 5 min	
					HMC128	PMA: 100 ng/ml; 10 min	
					HMC065	PMA: 100 ng/ml; 10 min	
					HMC066	PMA: 100 ng/ml; 20 min	
					HMC067	PMA: 100 ng/ml; 40 min	
					HMC068	PMA: 100 ng/ml; 80 min	
					HMC129	PMA: 200 ng/ml; 10 min	
					HMC130	PMA: 400 ng/ml; 10 min	
					HMC131	PMA: 800 ng/ml; 10 min	
					HMC169	Staurosporin: 1 µg/ml; 16 hr	
MCF7	Breast	Human	Homo sapiens	Female	HFC076	None; 0 min	Breast epithelial adenocarcinoma from 69 year old female [ATCC# HTB-22]
					HFC139	None; 2.5 min	
					HFC140	Insulin: 2.5 µg/ml; 2.5 min	
					HFC141	Insulin: 5 µg/ml; 2.5 min	
					HFC077	Insulin: 10 µg/ml; 2.5 min	
					HFC142	Insulin: 10 µg/ml; 2.5 min	
					HFC078	Insulin: 10 µg/ml; 5 min	
					HFC079	Insulin: 10 µg/ml; 10 min	
					HFC080	Insulin: 10 µg/ml; 20 min	
					HFC081	Insulin: 10 µg/ml; 40 min	
					HFC082	Insulin: 10 µg/ml; 80 min	
					HFC143	Insulin: 20 µg/ml; 2.5 min	
					HFC144	Insulin: 40 µg/ml; 2.5 min	
					HFC145	Insulin: 80 µg/ml; 2.5 min	
PC3	Prostate	Human	Homo sapiens	Male	HMC069	None; 0 min	Prostate adenocarcinoma from bone of 62 year old male [ATCC# CRL-1435] (IL6=interleukin 6)
					HMC070	IL6: 50 ng/ml; 2.5 min	
					HMC071	IL6: 50 ng/ml; 5 min	
					HMC072	IL6: 50 ng/ml; 10 min	
					HMC073	IL6: 50 ng/ml; 20 min	
					HMC074	IL6: 50 ng/ml; 40 min	
					HMC075	IL6: 50 ng/ml; 80 min	
T98G	Brain	Human	Homo sapiens	Male	HMC104	None; 0 min	Brain glioblastoma from 61 year old male [ATCC# CRL-1690] (PDGF=platelet -derived growth factor)
					HMC153	None; 5 min	
					HMC154	PDGF: 6.25 ng/ml; 5 min	
					HMC155	PDGF: 12.5 ng/ml; 5 min	
					HMC156	PDGF: 25 ng/ml; 5 min	
					HMC105	PDGF: 50 ng/ml; 2.5 min	
					HMC106	PDGF: 50 ng/ml; 5 min	
					HMC157	PDGF: 50 ng/ml; 5 min	
					HMC107	PDGF: 50 ng/ml; 10 min	
					HMC108	PDGF: 50 ng/ml; 20 min	
					HMC109	PDGF: 50 ng/ml; 40 min	
					HMC110	PDGF: 50 ng/ml; 80 min	
					HMC158	PDGF: 100 ng/ml; 5 min	
					HMC159	PDGF: 200 ng/ml; 5 min	
					HMC170	Serum deprivation: 12 hr	

Appendix B. KINEX™ ANTIBODY MICROARRAY - Catalog Number - KSAM-1.1

The Kinex™ Antibody Microarray (KSAM-1.1) tracks the expression levels and phosphorylation states of over 650 cell signalling proteins (in duplicate), utilizing approximately 273 phospho-site specific and 378 pan-specific antibodies. Please note that Kinexus reserves the right to add, delete or substitute antibodies from this list from time to time without notification depending on antibody performance and availability. However, in general 98% of all antibodies listed below will be available on each microarray.

Target Protein Abbreviation	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol. Mass (kDa)	Obsv. Mol. Mass (kDa)	Link - Protein Refseq	Link - Swiss-Prot	Meta Row	Meta Column	Row	Column 1	Column 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
14-3-3 ζ	14-3-3 protein zeta (cross-reacts with other isoforms)	Pan-specific	NN001	T	T	T	28	24	NP_003397	P63104	1	1	1	1	2
Abl	Abelson proto-oncogene-encoded protein-tyrosine kinase	Pan-specific	NK001	T	T	T	123	133	NP_005148	P00519	1	1	1	5	6
ACK1 [ACK]	Activated p21cdc42Hs protein-serine kinase	Pan-specific	NK002	T	T	T	114	127	NP_005772	Q07912	1	1	2	1	2
AIF	Apoptosis inducing factor (programed cell death protein 8 (PDCD8))	Pan-specific	NN002	T	T	T	67	66	NP_004199	O95831	1	1	2	5	6
AK2	Adenylate kinase 2	Pan-specific	NN003	T	T		26	24	NP_001616	P54819	1	1	2	9	10
ALK	Anaplastic lymphoma kinase	Pan-specific	NK003	T	T		176	92	AAB71619	Q9UM73	1	1	3	1	2
ALS2CR7 [PFTAIRE2]	Amyotrophic lateral sclerosis 2 chromosomal region candidate gene	Pan-specific	NK004	T	T	T	44	41	NP_631897	Q96Q40	1	1	3	3	4
AMPKβ	5'-AMP-activated protein kinase subunit beta-1	Pan-specific	NK005	T			30	38		Q9Y478	4	4	5	9	10
ANKRD3	Ankyrin repeat domain protein-serine kinase 3 (RIPK4, DIK)	Pan-specific	NK006	T	T	T	92	108	NP_065690	P57078	1	1	3	7	8
APG1	Hsp 70-related heat shock protein 1 (osmotic stress protein 94 (OSP94))	Pan-specific	NN004	T	T	T	94	104	NP_055093	O95757	1	1	3	9	10
APG2	Hsp 70-related heat shock protein 4 (HSP70RY)	Pan-specific	NN004	T	T	T	94	114	BAA75062	P34932	1	1	4	1	2
Arrestin β	Arrestin beta	Pan-specific	NN000	T	T	T	55			P49407	4	4	4	1	2
ASK1 [MAP3K5]	Apoptosis signal regulating protein-serine kinase	Pan-specific	NK007	T	T	T	155	99	NP_005914	Q99683	1	1	4	5	6
Aurora 2 [AurB]	Aurora 2 (AurB, beta) protein-serine kinase	Pan-specific	NK008	T	T	F	39	47	NM_003600	Q96GD4	1	1	2	7	8
Aurora 2 [AurB]	Aurora 2 (AurB, beta) protein-serine kinase	Pan-specific	NK008	T	T	F	39	47	NM_003600	Q96GD4	1	1	5	3	4
Aurora 2 [AurB]	Aurora 2 (AurB, beta) protein-serine kinase	Pan-specific	NK008	T	T	F	39	47	NM_003600	Q96GD4	2	2	5	9	10
Aurora 3 [AurC]	Aurora 3 (AurC, gamma) protein-serine kinase	Pan-specific	NK009	T	T	T	34	28	NP_003151	Q9UQB9	1	1	5	5	6
Axl	Axl proto-oncogene-encoded protein-tyrosine kinase	Pan-specific	NK010	T	T	T	97	92	NP_001690	P30530	1	1	5	7	8
Bak	Bcl2 homologous antagonist/killer (BCK2L7)	Pan-specific	NN000	T	T	T	23	21	NP_001179	Q16611	1	1	6	9	10
Bax	Apoptosis regulator Bcl2-associated X protein	Pan-specific	NN005	T	T	T	21	16	NP_620116	Q07812	1	1	7	1	2
Bcl2	B-cell lymphoma protein 2 alpha	Pan-specific	NN006	T	T	T	26	24	NP_000624	P10415	1	1	7	3	4
Bcl-XL	Bcl2-like protein 1	Pan-specific	NN007	T	T	T	26	27	NP_612815	Q07817					
Bcl-xS/L	Bcl-xS/L	Pan-specific	NN008	T	T	T	~19	27 + 13	NP_612815	Q07817	1	1	7	5	6
Bid	BH3 interacting domain death agonist	Pan-specific	NN009	T			22	29	NP_001187	P55957	1	1	7	7	8
BLK	B lymphoid tyrosine kinase	Pan-specific	NK011	T	T	T	58	55	NP_001706	P51451	1	1	7	9	10
BMX (Etk)	Bone marrow X protein-tyrosine kinase	Pan-specific	NK012	T	T	T	78	69	NP_001712	P51813	1	1	8	3	4
BRD2	Bromodomain-containing protein-serine kinase 2	Pan-specific	NK013	T	T	T	88	82	NP_005095	P25440	1	1	8	9	10
Btk	Bruton's agammaglobulinemia tyrosine kinase	Pan-specific	NK014	T	T	F	76	65	NP_000052	Q06187	1	2	1	1	2
BUB1A	BUB1 mitotic checkpoint protein-serine kinase	Pan-specific	NK015	T	T	T	122	112	NP_004327	O43683	1	2	1	5	6
CaMK1δ	Calcium/calmodulin-dep. protein-serine kinase 1 delta	Pan-specific	NK016-1	T	T	T	40	43	NP_003647	Q8IU85	1	2	1	9	10
CaMK1δ	Calcium/calmodulin-dep. protein-serine kinase 1 delta	Pan-specific	NK016-2	T	T	T	40	43	NP_003647	Q8IU85	1	2	2	1	2
CaMK1γ	Calcium/calmodulin-dep. protein-serine kinase 1 gamma	Pan-specific	NK017	T	T	T	53	50	NP_065172	Q96NX5	1	2	2	3	4
CAMK2β	Calcium/calmodulin-dep. protein-serine kinase 2 beta	Pan-specific	NK018-1	T	T	T	73	69	NP_742081	Q13554	1	2	2	9	10
CAMK2β	Calcium/calmodulin-dep. protein-serine kinase 2 beta	Pan-specific	NK018-2	T	T	T	73	69	NP_742081	Q13554	1	2	3	1	2
CAMK2δ	Calcium/calmodulin-dep. protein-serine kinase 2 delta	Pan-specific	NK019-1	T	T	T	56	64	NP_742126	Q13557	1	2	3	3	4
CAMK2δ	Calcium/calmodulin-dep. protein-serine kinase 2 delta	Pan-specific	NK019-2	T	T	T	56	64	NP_742126	Q13557	1	2	3	5	6
CAMK2γ	Calcium/calmodulin-dep. protein-serine kinase 2 gamma	Pan-specific	NK020	T	T	T	53	65	NP_751913	Q13555	1	2	3	7	8
CaMK4	Calmodulin-dependent protein-serine kinase 4	Pan-specific	NK021	T	T	T	52	65	NP_001735	Q16566					
CaMKK [CaMKK2]	Calmodulin-dependent protein-serine kinase kinase	Pan-specific	NK022	T	T	T	56	52	NP_006540	Q8N5S9	1	2	3	9	10
CAS	Cellular apoptosis susceptibility protein (CSE1L)	Pan-specific	NN010	T	T	T	110	94	NP_001307	P55060	1	2	4	1	2
CASK/Lin2	Calcium/calmodulin-dependent protein-serine kinase (Lin2 homolog)	Pan-specific	NK023	T	T	T	105		AAB88125	O14936	1	2	4	3	4
CASP1	Pro-caspase 1 (Interleukin-1 beta convertase)	Pan-specific	NN011	T	T	T	45	40.5+ 45.5	NP_001214	P29466	1	2	4	5	6
CASP12	Pro-caspase 12 (mouse)	Pan-specific	NN020	T	T	T	48	50	NP_033938	O08736	1	2	6	5	6
CASP2	Pro-caspase 2 (ICH1 protease)	Pan-specific	NN012	T	T	T	49	43	NP_001215	P42575	1	2	4	7	8
CASP3	Pro-caspase 3 (apopain, cysteine protease CPP32)	Pan-specific	NN013	T	T	T	32	29	NP_004337	P42574	1	2	4	9	10
CASP4	Pro-caspase 4 (ICH2 protease, ICE(rel)-II)	Pan-specific	NN014	T	F	F	43	38	NP_001216	P49662	1	2	5	1	2
CASP5	Caspase 5 (ICH3 protease, ICE(rel)-III)	Pan-specific	NN015	T	T	T	48	35+23	NP_004338	P51878	1	2	5	3	4
CASP6	Pro-caspase 6 (apoptotic protease Mch2)	Pan-specific	NN016	T	F	F	33	32	NP_001217	P55212	1	2	5	5	6

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
CASP7	Pro-caspase 7 (ICE-like apoptotic protease 3 (ICE-LAP3), Mch3)	Pan-specific	NN017	T	T	T	34	32	NP_01218	P55210	1	2	5	7	8
CASP8	Pro-caspase 8 (ICE-like apoptotic protease 5 (ICE-LAP5), Mch5, FLICE,	Pan-specific	NN018-1	T	T	T	55	57	NP_001219	Q14790	1	2	5	9	10
CASP8	Pro-caspase 8 (ICE-like apoptotic protease 5 (ICE-LAP5), Mch5, FLICE,	Pan-specific	NN018-2	T	T	T	55	57	NP_001219	Q14790	1	2	6	1	2
CASP9	Pro-caspase 9 (ICE-like apoptotic protease 6 (ICE-LAP6), Mch6, APAF3)	Pan-specific	NN019	T	T	F	46	42	NP_033938	P55211	1	2	6	3	4
Catenin β	Catenin (cadherin-associated protein) beta 1	Pan-specific	NN021	T	T	T	85	91	NP_001895	P35222	1	2	6	7	8
Caveolin 2	Caveolin 2	Pan-specific	NN022	T	T	T	20			P51636	4	4	4	3	4
CD45	Leukocyte common antigen CD45 receptor-tyrosine phosphatase (LCA,	Pan-specific	NP001	T	T	T	147	173	NP_002829	P08575	1	2	7	5	6
Cdc25B	Cell division cycle 25B phosphatase	Pan-specific	NP002	T	T	T	65+64+ 61	63	NP_004349	P30305	1	2	7	7	8
Cdc25C	Cell division cycle 25C phosphatase	Pan-specific	NP003	T	T	T	53	56	NP_001781	P30307	1	2	7	9	10
CDC2L5 [CHED]	Cell division cycle 2-like protein-serine kinase 5	Pan-specific	NK024	T	T	T	165	49	NP_003709	Q14004	1	2	8	1	2
Cdc34	Cell division cycle 34 (ubiquitin-conjugating ligase)	Pan-specific	NN023	T	T	T	27	31	NP_004350	P49427	1	2	8	3	4
Cdc42	Cell division control protein 42 homolog	Pan-specific	NN024	T	T	T	21	22		P60953	4	4	4	5	6
CDK1 [CDC2]	Cyclin-dependent protein-serine kinase 1	Pan-specific	NK025	T	T	T	34	26	NP_001777	P06493	1	2	8	5	6
CDK10	Cyclin-dependent protein-serine kinase 10 PISSLRE	Pan-specific	NK033	T	T	T	41	43	NP_003665	Q15131	1	3	3	7	8
CDK2	Cyclin-dependent protein-serine kinase 2	Pan-specific	NK026-1	T	T	T	34	27	NP_001789	P24941	1	2	8	7	8
CDK2	Cyclin-dependent protein-serine kinase 2	Pan-specific	NK026-2	T	T	T	34	27	NP_001789	P24941	1	2	8	9	10
CDK4	Cyclin-dependent protein-serine kinase 4	Pan-specific	NK027	T	T	T	34	26	NP_000066	P11802	1	3	2	1	2
CDK5	Cyclin-dependent protein-serine kinase 5	Pan-specific	NK028	T	T	T	33	24	NP_004926	Q00535	1	3	2	3	4
CDK6	Cyclin-dependent protein-serine kinase 6	Pan-specific	NK029	T	T	T	37	33	NP_001250	Q00534	1	3	2	5	6
CDK7	Cyclin-dependent protein-serine kinase 7	Pan-specific	NK030-1	T	T	T	39	36	NP_001790	P50613	1	3	2	7	8
CDK7	Cyclin-dependent protein-serine kinase 7	Pan-specific	NK030-2	T	T	T	39	36	NP_001790	P50613	1	3	2	9	10
CDK8	Cyclin-dependent protein-serine kinase 8	Pan-specific	NK031	T	T	T	53		NP_001251	P49336	1	3	3	1	2
CDK9	Cyclin-dependent protein-serine kinase 9	Pan-specific	NK032-1	T	T	T	43	34	NP_001252	P49336	1	3	3	3	4
CDK9	Cyclin-dependent protein-serine kinase 9	Pan-specific	NK032-2	T	T	T	43	34	NP_001252	P50750	1	3	3	5	6
Chk1	Checkpoint protein-serine kinase 1	Pan-specific	NK034	T	T	F	54	48	NP_001265	O14757	1	3	3	9	10
Chk2	Checkpoint protein-serine kinase 2	Pan-specific	NK035	T	T	T	61	60	NP_009125	O96017	1	3	4	1	2
c-IAP1	Cellular inhibitor of apoptosis protein 1 (baculoviral IAP repeat-containing protein	Pan-specific	NN025	T	T	T	68		NP_001156	Q13490	1	3	4	3	4
CK1δ	Casein protein-serine kinase 1 delta	Pan-specific	NK036	T	T	T	47	39	NP_001884	P48730	1	3	4	5	6
CK1ε	Casein protein-serine kinase 1 epsilon	Pan-specific	NK037	T	T	T	47	39	NP_001885	P49674	1	3	4	7	8
CK1γ2	Casein protein-serine kinase 1 gamma 2	Pan-specific	NK040	T	T	T	47	44	NP_001310	P78368	1	3	4	9	10
CK2α	Casein protein-serine kinase 2 alpha/ alpha prime	Pan-specific	NK041	T	T	T	45 + 41	34+38.5	NP_001887	P68400	1	3	5	1	2
Cofilin	Cofilin 1	Pan-specific	NN026	T	T	T	19			P23528	4	4	4	7	8
COT	Osaka thyroid oncogene protein-serine kinase (Tpl2)	Pan-specific	NK042	T	T	T	53	54	NP_005195	P41279	1	3	5	9	10
COX2	Cyclo-oxygenase 2 (prostaglandin G/H synthase 2 precursor)	Pan-specific	NN027	T	T	T	69	69	NP_000954	P35354	1	3	6	1	2
CPG16/CaMKinase VI	Serine/threonine-protein kinase DCAMKL1	Pan-specific	NK043	T			82		NP_004725	O15075	4	4	6	1	2
Csk	C-terminus of Src tyrosine kinase	Pan-specific	NK044	T	T	T	51	44	NP_004374	P41240	1	3	7	1	2
Cyclin A	Cyclin A1	Pan-specific	NN028	T	T	T	52	48+52	NP_003905	P78396	1	3	7	3	4
Cyclin B1	Cyclin B1	Pan-specific	NN029	T	T	F	48	58	NP_114172	P14635	1	3	7	5	6
Cyclin D1	Cyclin D1 (PRAD1)	Pan-specific	NN030	T	T	F	34	30	NP_444284	P24385	1	3	7	7	8
Cyclin E	Cyclin E1	Pan-specific	NN031	T	F	F	47	46	NP_001229	P24864	1	3	7	9	10
Cyclin G1	Cyclin G1	Pan-specific	NN032	T	T	T	34	29	NP_004051	P51959	1	3	8	1	2
CytoC	Cytochrome C	Pan-specific	NN033	T	T	T	12	11	NP_061820	P99999	1	3	8	3	4
DAPK1	Death-associated protein kinase 1	Pan-specific	NK045	T	T	T	160	158	NP_004929	P53355	1	3	8	7	8
DAPK2	Death-associated protein kinase 2	Pan-specific	NK046	T	T		43	38	NP_055141	Q9UIK4	1	3	8	9	10
DAXX	Death-associated protein 6 (BING2)	Pan-specific	NN034	T	T	T	81	137	NP_001341	Q9UER7	1	4	1	1	2
DCAMKL1	Doublecortin and calmodulin-dependent kinase-like 1 (candidate plasticity gene 16	Pan-specific	NK047	T	T	T	82		n/a	O15075					
DFF45	DNA fragmentation factor alpha (ICAD)	Pan-specific	NN035	T	T	F	37	32+40.5	NP_004392	Q00273	1	4	1	3	4
DGKζ	Diacylglycerol kinase zeta	Pan-specific	NN036	T	T	T	124	119	NP_963290	Q13574	1	4	1	5	6
DNAPK	DNA-activated protein-serine kinase	Pan-specific	NK048	T	T	T	469	233	NP_008835	P78527	1	4	1	7	8
Dok1	Docking protein 1	Pan-specific	NN037	T			62			Q99704	4	4	4	9	10
DRAK1	DAP kinase-related apoptosis-inducing protein-serine kinase 1 (STK17A)	Pan-specific	NK049	T	T		47	49	NP_004751	Q9UEE5	1	4	2	1	2
DRAK2	DAP kinase-related apoptosis-inducing protein-serine kinase 2 (STK17B)	Pan-specific	NK050	T	T	T	42	40	NP_004217	O94768	1	4	2	3	4
eEF2K	Elongation factor-2 protein-serine kinase	Pan-specific	NK051	T	T	T	82	103	NP 037434	O00418	1	4	2	5	6
EGFR	Epidermal growth factor receptor-tyrosine kinase	Pan-specific	NK052-1	T	T	T	134	171	NP_005219	P00533	1	4	2	7	8

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col- umn 1	Col- umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
EGFR	Epidermal growth factor receptor-tyrosine kinase	Pan-specific	NK052-2	T	T	T	134	171	NP_005219	P00533	1	4	2	9	10
eIF2α	Eukaryotic translation initiation factor 2 alpha	Pan-specific	NN038	T	T	T	36	33	NP_004085	P05198	1	4	3	5	6
eIF4E	Eukaryotic translation initiation factor 4 (mRNA cap binding protein)	Pan-specific	NN039	T			25			P06730	4	4	5	1	2
EphA1	Ephrin type-A receptor 1 protein-tyrosine kinase	Pan-specific	NK053	T	T	T	108	106	: NP_005223	P21709	1	4	5	1	2
ErbB2 [HER2]	ErbB2 (Neu) receptor-tyrosine kinase	Pan-specific	NK054	T	T	T	138	182	NP_004439	P04626	1	4	5	3	4
Erk1	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	Pan-specific	NK055	T	T	T	43	42	AAA36142.1	P27361	1	4	6	3	4
Erk2	Extracellular regulated protein-serine kinase 2 (p42 MAP kinase)	Pan-specific	NK056	T	T	T	41	39	NP_002736	P28482	1	4	6	3	4
Erk2	Extracellular regulated protein-serine kinase 2 (p42 MAP kinase)	Pan-specific	NK056	T	T	T	41	39	NP_002736	P28482	1	4	7	1	2
Erk3	Extracellular regulated protein-serine kinase 3	Pan-specific	NK057	T	T	T	83	50+53.5	NP_002739	Q16659	1	4	7	3	4
Erk4	Extracellular regulated protein-serine kinase 4	Pan-specific	NK058	T	T		89	63	NP_002738	Q13164	1	4	7	5	6
Erk6 [p38γ]	Mitogen-activated protein-serine kinase p38 gamma (MAPK12)	Pan-specific	NK059-1	T	T	T	42	46	NP_002960	P53778	1	4	7	9	10
Erk6 [p38γ]	Mitogen-activated protein-serine kinase p38 gamma (MAPK12)	Pan-specific	NK059-2	T	T	T	42	46	NP_002960	P53778	3	2	1	9	10
ERP57	ER protein 57 kDa (protein disulfide isomerase-associated 3; 58 kDa glucose	Pan-specific	NN040	T	F	F	57	49	NP_005304	P30101	1	4	8	1	2
ERP72	ER protein 72 kDa (protein disulfide isomerase-associated 4)	Pan-specific	NN041	T	T	T	73	76	NP_004902	P13667	1	4	8	3	4
FAK	Focal adhesion protein-tyrosine kinase	Pan-specific	NK060	T	T	T	119	116	NP_005598	Q05397	1	4	8	5	6
FAS	Tumor necrosis factor superfamily member 6 (Apo1, CD95)	Pan-specific	NN042	T	T	T	38	45	NP_003789	P25445	2	1	2	7	8
FasL	Tumor necrosis factor ligand, member 6	Pan-specific	NN043	T	T	T	31	31	NP_000630	P48023	2	1	2	9	10
Fes	Fes/Fps protein-tyrosine kinase	Pan-specific	NK061	T	T	T	93	96	NP_001996	P07332	2	1	3	1	2
FGFR1	Fibroblast growth factor receptor-tyrosine kinase 1	Pan-specific	NK062	T	T	T	92	95	P11362	P11362	2	1	3	3	4
FGFR2	Fibroblast growth factor receptor-tyrosine kinase 2 (BEK)	Pan-specific	NK063	T	T	T	92	94	P21802	P21802	2	1	3	5	6
FLT4	Vascular endothelial growth factor receptor-protein-tyrosine kinase 3	Pan-specific	NK064	T	T	T	146	90	NP_002011	P35916	2	1	3	9	10
Fos	Fos-c FBJ murine osteosarcoma oncoprotein-related transcription factor	Pan-specific	NN044	T	T	T	41	43	NP_005243	P01100	2	1	4	1	2
Fyn	Fyn proto-oncogene-encoded protein-tyrosine kinase	Pan-specific	NK065	T	T	T	61	48	NP_002028	P06241	2	1	4	5	6
GCK	Germinal centre protein-serine kinase	Pan-specific	NK066	T	T	T	92	87	NP_004570	Q12851	2	1	4	9	10
GNB2L1	Guanine nucleotide-binding protein beta (receptor for activated C kinase 1	Pan-specific	NN045	T	T	T	35	26	NP_006089	P63244	2	1	5	5	6
GRK2 [BARK1]	G protein-coupled receptor-serine kinase 2	Pan-specific	NK067	T	T	T	80	74	NP_001610	P25098	2	1	5	7	8
GRK3 [BARK2]	G protein-coupled receptor-serine kinase 3	Pan-specific	NK068	T	T	T	80	92	NP_005151	P35626	2	1	6	1	2
GroEL	GroEL homolog (may correspond to Hsp60)	Pan-specific	NN046	T	T	T	61	50	NP_002147	P10809	2	1	6	3	4
Grp75	Glucose regulated protein 75	Pan-specific	NN047	T	T	T	74	68	NP_004125	P38646	2	1	6	5	6
Grp78	Glucose regulated protein 78	Pan-specific	NN048	T	T	T	72	73	NP_005338	P11021	2	1	6	7	8
Grp94	Glucose regulated protein 94 (endoplasmin)	Pan-specific	NN049	T	T	T	92	95	NP_003290	P14625	2	1	6	9	10
GSK3α	Glycogen synthase-serine kinase 3 alpha	Pan-specific	NK069	T	T	T	51	45	NP_063937	P49840	2	1	7	1	2
GSK3β	Glycogen synthase-serine kinase 3 beta	Pan-specific	NK070	T	T	T	47	40	NP_002084	P49841	2	1	7	1	2
Haspin	Haploid germ cell-specific nuclear protein-serine kinase	Pan-specific	NK071	T	T	T	88		NP_114171	Q8TF76	2	1	7	9	10
hHR23B	UV excison repair protein RAD23 homolog B	Pan-specific	NN050	T	T	F	43	60	NP_002865	P54727	2	1	8	1	2
Hip	Hsp70/Hsc70 interacting protein (ST13)	Pan-specific	NN051	T	T	T	41	46	NP_003923	P50502	2	1	8	3	4
HO1	Heme oxygenase 1	Pan-specific	NN052	T	T	T	33	24+31.5	NP_002124	P09601	2	2	1	9	10
HO2	Heme oxygenase 2	Pan-specific	NN053	T	T	T	36	31	NP_002125	P30519	2	2	2	1	2
Hpk1	Hematopoetic progenitor protein-serine kinase 1	Pan-specific	NK072	T	T	T	91	91	NP_009112	Q92918	2	2	2	3	4
Hsc70	Heat shock 70 kDa protein 8	Pan-specific	NN054	T	T	T	71	64	NP_006588	P11142	2	2	2	5	6
HSF4	Heat shock transcription factor 4	Pan-specific	NN055	T	T	F	53	44	NP_001529	Q9ULV5	2	2	2	7	8
Hsp105	Heat shock 105 kDa protein	Pan-specific	NN062	T	T	T	97	116	NP_006635	Q92598	2	2	5	5	6
Hsp25	Heat shock 27 kDa protein beta 1 (HspB1)	Pan-specific	NN056	T	T	T	23	22	NP_001531	P04792	2	2	2	9	10
Hsp40	DnaJ homolog, subfamily B member 1	Pan-specific	NN057	T	T	T	38	34	NP_006136	P25685	2	2	4	3	4
Hsp47	Heat shock 47 kDa protein (collagen-binding protein 1, colligin 1)	Pan-specific	NN058	T	T	T	46	41	NP_001226	P29043	2	2	4	5	6
Hsp60	Heat shock 60 kDa protein 1 (chaperonin, CPN60)	Pan-specific	NN059-1	T	T	T	61	50	NP_002147	P10809	2	2	4	7	8
Hsp60	Heat shock 60 kDa protein 1 (chaperonin, CPN60)	Pan-specific	NN059-2	T	T	T	61	50	NP_002147	P10809	2	2	4	9	10
Hsp70	Heat shock 70 kDa protein 1	Pan-specific	NN060	T	T	T	70	61	NP_005336	P08107	2	2	5	1	2
Hsp90	Heat shock 90 kDa protein alpha	Pan-specific	NN061	T	T	T	85	84	NP_005339	P07900	2	2	5	3	4
HspBP1	Hsp70 binding protein 1	Pan-specific	NN063	F	F	T	39		NP_036399	O95351	2	2	5	7	8
ICK	Intestinal cell protein-serine kinase (MAK-related kinase (MRK)	Pan-specific	NK073	T	T	T	71	92	NP_057597	Q9UPZ9	2	2	6	3	4
IGF1R	Insulin-like growth factor receptor protein-tyrosine kinase	Pan-specific	NK074	T	T	T	155	166	NP_000866	P08069	2	2	6	5	6
IkBα	Inhibitor of NF-kappa-B alpha (MAD3)	Pan-specific	NN064	T	T	T	36	36	NP_065390	P25963	2	2	6	7	8
IkBβ	Inhibitor of NF-kappa-B beta (thyroid receptor interacting protein 9)	Pan-specific	NN065	T	T	T	38	45	NP_002494	Q15653	2	2	6	9	10

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col- umn 1	Col- umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
IKKα	Inhibitor of NF-kappa-B protein-serine kinase alpha (CHUK)	Pan-specific	NK075-1	T	T	T	85	81	NP_001269	O15111	2	2	7	1	2
IKKα	Inhibitor of NF-kappa-B protein-serine kinase alpha (CHUK)	Pan-specific	NK075-2	T	T	T	85	81	NP_001269	O15111	2	2	7	3	4
IKKα	Inhibitor of NF-kappa-B protein-serine kinase alpha (CHUK)	Pan-specific	NK075-3	T	T	T	85	81	NP_001269	O15111	2	2	7	5	6
IKKβ	Inhibitor of NF-kappa-B protein-serine kinase beta	Pan-specific	NK076-1	T	T	T	87	87	NP_001547	O14920	2	2	7	9	10
IKKβ	Inhibitor of NF-kappa-B protein-serine kinase beta	Pan-specific	NK076-2	T	T	T	87	87	NP_001547	O14920	2	2	8	1	2
IKKγ/NEMO	I-kappa-B kinase gamma/NF-kappa-B essential modulator(NEMO)	Pan-specific	NK077	T			48			Q9Y6K9	4	4	6	3	4
ILK1	Integrin-linked protein-serine kinase 1	Pan-specific	NK078-1	T	T	T	51	44	NP_034692	Q13418	2	2	8	3	4
ILK1	Integrin-linked protein-serine kinase 1	Pan-specific	NK078-2	T	T	T	51	44	NP_034692	Q13418	2	2	8	5	6
Insulin Rec	Insulin receptor beta chain	Pan-specific	NK079	T			95		NP_000199	P06213	4	4	6	5	6
IRAK1	Interleukin 1 receptor-associated kinase 1 (Pelle-like protein kinase)	Pan-specific	NK080	T	T	T	77	77	NP_001560	P51617	2	3	1	7	8
IRAK2	Interleukin 1 receptor-associated kinase 2	Pan-specific	NK081	T	T	T	65	77	NP_001561	O43187	2	3	1	9	10
IRAK3	Interleukin 1 receptor-associated kinase 3	Pan-specific	NK082	T	T	T	68	57	NP_009130	Q9Y616	2	3	2	1	2
IRAK4	Interleukin 1 receptor-associated kinase 4	Pan-specific	NK083-1	T	T	T	52	50	NP_057207	Q9NWZ3	2	3	2	3	4
IRAK4	Interleukin 1 receptor-associated kinase 4	Pan-specific	NK083-2	T	T	T	52	50	NP_057207	Q9NWZ3	2	3	2	5	6
JAK1	Janus protein-tyrosine kinase 1	Pan-specific	NK084-1	T	T	T	132	116	NP_002218	P23458	2	3	3	1	2
JAK1	Janus protein-tyrosine kinase 1	Pan-specific	NK084-2	T	T	T	132	116	NP_002218	P23458	2	3	3	3	4
JAK2	Janus protein-tyrosine kinase 2	Pan-specific	NK085	T	T	T	131	110	NP_004963	O60674	2	3	3	5	6
JAK3	Janus protein-tyrosine kinase 3	Pan-specific	NK086	T	T	T	125	103	NP_000206	P52333	2	3	3	9	10
JIK [TAO3]	STE20-like protein-serine kinase	Pan-specific	NK087	T	T	T	106	97	NP_057365	Q9UHG7	2	3	4	1	2
JNK	Jun N-terminus protein-serine kinases (stress-activated protein kinase (SAPK))	Pan-specific	NK088	T	T	T	44+48+ 53	39+44	NP_002744	P45983	2	3	4	3	4
JNK2	Jun N-terminus protein-serine kinases (stress-activated protein kinase (SAPK)) 2	Pan-specific	NK189	T	T	T	44+48+ 53	39+44	NP_002744	P45984	2	3	5	1	2
Jun	c-Jun AP1 transcription factor	Pan-specific	NN066	T			39			P05412	4	4	5	3	4
KAP	Cyclin-dependent kinase associated phosphatase (CDK inhibitor 3, CIP2)	Pan-specific	NP004	T	T	T	24	33	NP_005183	Q16667	2	3	6	1	2
KHS	Kinase homologous to SPS1/STE20 (MAP kinase kinase kinase protein-serine	Pan-specific	NK089	T	T	T	95	101	NP_006566	Q9Y4K4	2	3	6	3	4
Ksr1	Protein-serine kinase suppressor of Ras 1	Pan-specific	NK090	T	T	T	72	92	AAC50354.1	Q8IVT5	2	3	7	3	4
LAR	LCA antigen-related (LAR) receptor tyrosine phosphatase	Pan-specific	NP005	T	T	T	212	147	NP_002831	P10586	2	3	7	5	6
LATS1	Large tumor suppressor 1 protein-serine kinase (WARTS)	Pan-specific	NK091	T	T	T	127	109	NP_004681	O95835	2	3	7	7	8
Lck	Lymphocyte-specific protein-tyrosine kinase	Pan-specific	NK092-1	T	T	T	58	45	NP_005347	P06239	2	3	7	9	10
Lck	Lymphocyte-specific protein-tyrosine kinase	Pan-specific	NK092-2	T	T	T	58	45	NP_005347	P06239	2	3	8	1	2
LIMK1	LIM domain kinase 1	Pan-specific	NK093	T			73		NP_002305	P53667	4	4	6	7	8
LOK	Lymphocyte-oriented protein-serine kinase	Pan-specific	NK094	T	T		112	120	NP_005981	O94804	2	4	1	1	2
Lyn	Yes-related protein-tyrosine kinase	Pan-specific	NK095	T	T	T	58	47	NP_002341	P07948	2	4	1	3	4
MAK	Male germ cell-associated protein-serine kinase	Pan-specific	NK096	T	T	T	71	85	NP_005897	P20794	2	4	1	7	8
MAPKAPK2	Mitogen-activated protein kinase-activated protein kinase 2	Pan-specific	NK097	T	T	T	46	43	NP_116584	P49137	2	4	2	3	4
MARK	MAP/microtubule affinity-regulating protein-serine kinase 1	Pan-specific	NK098	T	T	T	89	108	NP_061120	Q9P0L2	2	4	3	5	6
Mcl1	Myeloid cell leukemia differentiation protein 1	Pan-specific	NN067	T	T	T	37	38	NP_068779	Q07820	2	4	3	7	8
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	Pan-specific	NK099	T	T	T	43	40	NP_002746	Q02750	2	4	3	9	10
MEK2 [MAP2K2]	MAPK/ERK protein-serine kinase 2 (MKK2)	Pan-specific	NK100-1	T	T	T	44	41	AAH00471.1	P36507	2	4	5	9	10
MEK2 [MAP2K2]	MAPK/ERK protein-serine kinase 2 (MKK2)	Pan-specific	NK100-2	T	T	T	44	41	AAH00471.1	P36507	2	4	6	1	2
MEK3 [MAP2K3]	MAP kinase protein-serine kinase 3 (MKK3)	Pan-specific	NK101	T	T	T	36	34	NP_659732	P46734	2	4	6	7	8
MEK3b [MAP2K3]	MAP kinase protein-serine kinase 3 beta isoform (MKK3 beta)	Pan-specific	NK102	T	T	T	39		NP_659731	P46734	4	4	6	9	10
MEK4 [MAP2K4]	MAP kinase protein-serine kinase 4 (MKK4)	Pan-specific	NK103	T	T	T	44	38	NP_003001	P45985	2	4	7	1	2
MEK5 [MAP2K5]	MAPK/ERK protein-serine kinase 5 (MKK5)	Pan-specific	NK104	T	T	T	49	54	NP_660143	Q13163	2	4	7	5	6
MEK6 [MAP2K6]	MAP kinase protein-serine kinase 6 (MKK6)	Pan-specific	NK105-1	T	T	T	37+ 31	32	NP_002749	P52564	2	4	7	7	8
MEK6 [MAP2K6]	MAP kinase protein-serine kinase 6 (MKK6)	Pan-specific	NK105-2	T	T	T	37+ 31	32	NP_002749	P52564	2	4	7	9	10
MEK7 [MAP2K7]	MAP kinase protein-serine kinase 7 (MKK7)	Pan-specific	NK106	T	T	T	47	40	NP_005034	O14733	2	4	8	1	2
MEKK1 [MAP3K1]	MAPK/ERK kinase kinase 1	Pan-specific	NK107	T	T	T	164	98	XP_042066	Q13233	2	4	8	3	4
MEKK2 [MAP3K2]	MAPK/ERK kinase kinase 2	Pan-specific	NK108	T	T	T	70	86	NP_006600	Q9Y2U5	2	4	8	5	6
MEKK4 [MAP3K4]	MAPK/ERK kinase kinase 4	Pan-specific	NK109	T	T	T	182	214	NP_005913	Q9Y6R4	2	4	8	7	8
Met	Hepatocyte growth factor (HGF) receptor-tyrosine kinase	Pan-specific	NK110	T	T	T	156	142	NP_000236	P08581	2	4	8	9	10
MKP1	MAP kinase phosphatase 1 (CL100, VH1)	Pan-specific	NP006	T	T	T	39	38	NP_004408	P28562	3	1	1	5	6
MKP2	MAP kinase phosphatase 2 (VH2)	Pan-specific	NP007	T	T	T	43	40	NP_001385	Q13115	3	1	1	7	8
Mn SOD	Manganese superoxide dismutase (SOD2)	Pan-specific	NN068	T	T	T	25	19	NP_000627	P04179	3	1	2	1	2
Mnk2	MAP kinase-interacting protein-serine kinase 2 (calmodulin-activated)	Pan-specific	NK111	T	F	F	47	53	NP_060042	Q9HBH9	3	1	2	5	6

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
Mos	Moloney sarcoma oncogene-encoded protein-serine kinase	Pan-specific	NK112	T	T	T	38	33	NP_005363	P00540	3	1	2	7	8
MSH2	DNA mismatch repair protein mutS homolog2, colon cancer, nonpolyposis	Pan-specific	NN069	T	T	T	105	100	NP_000242	P43246	3	1	3	1	2
MST1	Mammalian STE20-like protein-serine kinase 1 (KRS2)	Pan-specific	NK113	T	T	T	56	58	NP_006273	Q13043	2	3	7	1	2
MST1	Mammalian STE20-like protein-serine kinase 1 (KRS2)	Pan-specific	NK113-1	T	T	T	56	58	NP_006273	Q13043	3	1	3	5	6
MST1	Mammalian STE20-like protein-serine kinase 1 (KRS2)	Pan-specific	NK113-2	T	T	T	56	58	NP_006273	Q13043	3	1	3	7	8
MST2	Mammalian STE20-like protein-serine kinase 2 (KRS1)	Pan-specific	NK114	T	T	T	56	52	NP_006272	Q13188	3	1	3	9	10
MST3	Mammalian STE20-like protein-serine kinase 3	Pan-specific	NK115	T	T	T	49		NP_003567	Q9Y6E0	4	4	7	1	2
mTOR [FRAP]	Mammalian target of rapamycin	Pan-specific	NK116	T	T	T	289	197	NP_004949	P42345	3	1	4	1	2
Nek2	NIMA (never-in-mitosis)-related protein-serine kinase 2	Pan-specific	NK117-1	T	T	T	52	46+53	NP_002488	P51955	3	1	4	5	6
Nek2	NIMA (never-in-mitosis)-related protein-serine kinase 2	Pan-specific	NK117-2	T	T	T	52	46+53	NP_002488	P51955	3	1	4	7	8
Nek2	NIMA (never-in-mitosis)-related protein-serine kinase 2	Pan-specific	NK117-3	T	T	T	52	46+53	NP_002488	P51955	3	1	4	9	10
Nek4	NIMA (never-in-mitosis)-related protein-serine kinase 4	Pan-specific	NK118	T	T	T	95	102	NP_003148	P51957	3	1	5	1	2
Nek7	NIMA (never-in-mitosis)-related protein-serine kinase 7	Pan-specific	NK119	T	T	T	35	29	NP_598001	Q8TDX7	3	1	5	3	4
NFkappaB p50	NF-kappa-B p50 nuclear transcription factor	Pan-specific	NN070	T	T	T	~48	121.5+ 46	NP_003989	P19838	3	1	5	5	6
NFkappaB p65	NF-kappa-B p65 nuclear transcription factor	Pan-specific	NN071	T	T	T	~65	64	NP_003989	Q04206	3	1	5	7	8
Nip1	Bcl2/adenovirus E1B 19kD-interacting protein 1	Pan-specific	NN072	T	T	T	31	24	NP_001196	Q12981	3	1	6	1	2
NME6	Nucleotide diphosphate kinase 6 (nm23-H6)	Pan-specific	NN073	T	T	F	21	16	NP_005784	O75414	3	1	6	5	6
NME7	Nucleotide diphosphate kinase 7 (nm23-H7)	Pan-specific	NN074	T	T	T	42	45	NP_037462	Q9Y5B8	3	1	6	7	8
NT5E	Ecto-5'-nucleotidase (CD73 antigen)	Pan-specific	NN075	T	T	T	63	67	NP_002517	P21589	3	1	7	1	2
p107	Retinoblastoma (Rb) protein-related p107 (PRB1)	Pan-specific	NN083	T	T	T	128	107	P28749	P28749	3	1	7	3	4
p16 INK4	p16 INK4a cyclin-dependent kinase inhibitor (MTS1)	Pan-specific	NN076	T	T	T	17	14	NP_478104	P42771	3	1	7	5	6
p18 INK4c	p18 INK4c cyclin-dependent kinase inhibitor	Pan-specific	NN077	T	T	T	18	14	NP_523240	P42773	3	1	7	7	8
p21 CDKI1	cyclin-dependent kinase inhibitor 1 (MDA6)	Pan-specific	NN078	T	T	T	18	16	NP_000380	P38936	3	1	7	9	10
p27 Kip1	p27 cyclin-dependent kinase inhibitor 1B	Pan-specific	NN080	T	T	T	22	25	NP_004055	P46527	3	1	8	1	2
p35	CDK5 regulatory subunit 1, p35	Pan-specific	NN081	T	T	T	34	30	NP_003876	Q15078	3	1	8	5	6
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	Pan-specific	NK120	T	T	T	41	38	NP_001306	Q16539	2	4	1	9	10
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	Pan-specific	NK120	T	T	T	41	38	NP_001306	Q16539	2	4	2	1	2
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	Pan-specific	NK120-3	T	T	T	41	38	NP_001306	Q16539	3	1	8	7	8
p38δ MAPK	Mitogen-activated protein-serine kinase p38 delta (MAPK13)	Pan-specific	NK121	T	T	T	42	39	NP_002745	O15264	3	2	1	7	8
p53	Tumor suppressor protein p53 (antigenNY-CO-13)	Pan-specific	NN082	T	F	T	44	49	NP_000537	P04637	3	2	2	3	4
PAC1	Dual specificity MAP kinase protein phosphatase	Pan-specific	NP008	F	T	F	34	40	NP_004409	Q05923	3	2	3	1	2
PACSIN1	Protein kinase C + casein kinase substrate in neurons protein 1	Pan-specific	NN084	T	T	T	51		NP_065855	Q9BY11	3	2	3	3	4
PAK1	p21-activated serine kinase 1 (alpha)	Pan-specific	NK122	T	T	T	61	64	NP_002567	Q13153	3	2	3	5	6
PAK3	p21-activated serine kinase 3 (beta)	Pan-specific	NK123	T	T	T	61	60	NP_002569	O75914	3	2	3	9	10
PAK5	p21-activated serine kinase 5 (Serine/threonine-protein kinase PAK 7)	Pan-specific	NK190	T	T	T	80	80	NP_817127.1	Q9P286	3	2	4	1	2
PAK6	p21-activated serine kinase 6	Pan-specific	NK124	T	T	T	75	88	NP_064553	Q9NQU5	3	2	4	3	4
PARP1	Poly [ADP-ribose] polymerase 1 (ADPRT)	Pan-specific	NN085-1	T	T	T	113	21+88+ 111.5	NP_001609	P09874	3	2	4	5	6
PARP1	Poly [ADP-ribose] polymerase 1 (ADPRT)	Pan-specific	NN085-2	T	T	T	113	21+88+ 111.5	NP_001609	P09874	3	2	4	7	8
Paxillin	Paxillin 1	Pan-specific	NN086	T			68			P49023	4	4	5	5	6
PCK2	Phosphoenolpyruvate carboxykinase	Pan-specific	NN113	T	T	T	68	68	NP_004554.2	Q16822	3	2	5	7	8
PCNA	Proliferating cell nuclear antigen	Pan-specific	NN087	T	T	T	29	33	NP_002583	P12004	3	2	5	9	10
PCTK1 [PCTAIRE1]	PCTAIRE-1 protein-serine kinase	Pan-specific	NK125	T	T	T	56	48	NP_148978	Q00536	3	2	6	1	2
PDK1	3-phosphoinositide-dependent protein-serine kinase 1	Pan-specific	NK126	T	T	T	63	59	NP_002604	O15530	3	2	7	1	2
PERP	p53-induced protein PIGPC1	Pan-specific	NN088	T	T	T	21	30	NP_071404	Q9H230	3	2	7	9	10
PI 3-kinase	Phosphatidylinositol 3-kinase regulatory subunit alpha	Pan-specific	NN089	T			85			P27986	4	4	7	5	6
PI3K p110 delta	Phosphatidylinositol-4,5-biphosphate 3-kinase catalytic subunit delta isoform	Pan-specific	NK191	T	T	T	120	120	NP_005017.2	O00329	3	2	8	3	4
PI3KR4	Phosphoinositide-3-kinase, regulatory subunit 4	Pan-specific	NN114	T	T	T	150	150	NP_055417.1	Q99570	3	2	8	5	6
PI4K2β	Phosphatidylinositol 4-kinase type 2 beta	Pan-specific	NN090	T	T	T	55	49	NP_060793	Q8TCG2	3	2	8	7	8
PI4KCB	phosphatidylinositol 4-kinase, catalytic, beta polypeptide	Pan-specific	NK192	T	T	T	90	90	NP_002642.1	Q5VWC1	3	2	8	9	10
PI5K2α	Phosphatidylinositol 4-phosphatase 5-kinase type 2 alpha	Pan-specific	NN091	T	T	T	46	44	CAH72211	P48426	3	3	1	1	2
PKA Cα/β	cAMP-dependent protein-serine kinase catalytic subunit alpha/beta	Pan-specific	NK127-1	T	T	T	40/ 40	38	NP_002721	P17612	3	3	1	3	4
PKA Cα/β	cAMP-dependent protein-serine kinase catalytic subunit alpha/beta	Pan-specific	NK127-2	T	T	T	40/ 40	38	NP_002721	P17612	3	3	1	5	6
PKA R1a	cAMP-dependent protein kinase type I-alpha regulatory chain	Pan-specific	NN116	T	T	T	43	43	NP_002725.1	P10644	3	4	4	5	6
PKA R2α	cAMP-dependent protein-serine kinase regulatory type 2 subunit alpha	Pan-specific	NK128	T	T	T	45	46	NP_004148	P13861	3	3	2	1	2

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
PKBα [Akt1]	Protein-serine kinase B alpha (Akt1)	Pan-specific	NK129	T	T	T	56	58	NP_005154	P31749	3	3	2	7	8
PKBβ [Akt2]	Protein-serine kinase B beta (Akt2)	Pan-specific	NK130-1	T	T	T	56	56	NP_001617	P31751	3	3	3	9	10
PKBβ [Akt2]	Protein-serine kinase B beta (Akt2)	Pan-specific	NK130-2	T	T	T	56	56	NP_001617	P31751	3	3	4	1	2
PKBγ [Akt3]	Protein-serine kinase B gamma (Akt3)	Pan-specific	NK131-1	T	T	T	56	57	NP_005456	Q9Y243	3	3	4	3	4
PKBγ [Akt3]	Protein-serine kinase B gamma (Akt3)	Pan-specific	NK131-2	T	T	T	56	57	NP_005456	Q9Y243	3	3	4	5	6
PKCα	Protein-serine kinase C alpha	Pan-specific	NK132	T	T	T	77	79	NP_002728	P17252	3	3	4	7	8
PKCβ1	Protein-serine kinase C beta 1	Pan-specific	NK133	T	T	T	77	79	NP_002729	P05771	3	3	5	3	4
PKCβ2	Protein-serine kinase C beta 2	Pan-specific	NK134	T	T	T	77	75	AAA60095	P05771-2	3	3	5	7	8
PKCδ	Protein-serine kinase C delta	Pan-specific	NK135	T	T	T	77	72	NP_006245	Q05655	3	3	6	1	2
PKCε	Protein-serine kinase C epsilon	Pan-specific	NK136	T	T	T	84	93	NP_005391	Q02156	3	3	7	3	4
PKCγ	Protein-serine kinase C gamma	Pan-specific	NK137	T	T	T	78	79	NP_002730.1	P05129	3	3	7	9	10
PKCλ/ι	Protein-serine kinase C lambda/iota	Pan-specific	NK138	T	T	T	67	60	NP_002731	P41743	3	4	1	3	4
PKC-nu [PKN3]	Protein-serine kinase C nu	Pan-specific	NK139	T	T	T	100	84	NP_005804	O94806	3	4	1	7	8
PKCθ	Protein-serine kinase C theta	Pan-specific	NK140	T	T	T	82	75	NP_006248	Q04759	3	4	1	9	10
PKCζ	Protein-serine kinase C zeta	Pan-specific	NK141	T	T	T	68	79	NP_002735	Q05513	3	4	2	7	8
PKD (PKCμ)	Protein-serine kinase C mu (Protein kinase D)	Pan-specific	NK142	T	T	T	102	113	NP_002733	Q15139	3	4	3	1	2
PKG1	Protein-serine kinase G1 (cGMP-dependent protein kinase)	Pan-specific	NK143	T	T	T	76 + 79	69	NP_006249	Q13976	3	4	3	9	10
PKM2	Pyruvate kinase, isozymes M1/M2	Pan-specific	NN115	T	T	T	58	58	NP_872270.1	P14618	3	4	4	1	2
PKR1	Double stranded RNA dependent protein-serine kinase	Pan-specific	NK144	F	F	T	62	76+70	NP_002750	P19525	3	4	4	7	8
PKR1	Double stranded RNA dependent protein-serine kinase	Pan-specific	NK144	F	F	T	62	76+70	NP_002750	P19525	4	1	3	1	2
Plk1	Polo-like protein-serine kinase 1	Pan-specific	NK145	T	T	T	68	51	NP_005021	P53350	3	4	5	1	2
Plk2	Polo-like protein kinase 2 (serum - inducible kinase (SNK))	Pan-specific	NK146	T	T	T	78	69	NP_006613	Q9NYY3	3	4	5	5	6
Plk3	Polo-like protein kinase 3 (cytokine-inducible kinase (CNK))	Pan-specific	NK147	T	T	T	72	69	NP_004064	Q9H4B4	3	4	5	7	8
PP1/Cα	Protein-serine phosphatase 1 - catalytic subunit - alpha isoform	Pan-specific	NP009	T	T	T	38	34	NP_002699	P62136	3	4	5	9	10
PP1/Cβ	Protein-serine phosphatase 1 - catalytic subunit - beta isoform	Pan-specific	NP010	T	T	T	37	34	NP_002700	P62140	3	4	6	3	4
PP1/Cγ	Protein-serine phosphatase 1 - catalytic subunit - gamma isoform	Pan-specific	NP011	T	T	T	37	33	NP_002701	P36873	3	4	6	5	6
PP2A/Aα/β	Protein-serine phosphatase 2A - A regulatory subunit - alpha and beta	Pan-specific	NP012	T	T	T	65	50	NP_002707	P30153	3	4	6	7	8
PP2A/Cα	Protein-serine phosphatase 2A - catalytic subunit alpha isoform	Pan-specific	NP013	T	T	T	36	33	NP_002706	P67775	3	4	6	9	10
PP2A/Cβ	Protein-serine phosphatase 2A - catalytic subunit beta isoform	Pan-specific	NP014	T	T	T	36	31	NP_004147	P62714	3	4	6	9	10
PP2B/Aα	Protein-serine phosphatase 2B - catalytic subunit - alpha isoform	Pan-specific	NP015	T	T	T	59	55	NP_000935	Q08209	3	4	7	1	2
PP2Cα	Protein-serine phosphatase 2C - catalytic subunit - alpha isoform	Pan-specific	NP016	T	T	T	42	44	NP_066283	P35813	3	4	7	3	4
PP2Cδ	Protein-serine phosphatase 2C - catalytic subunit - delta isoform	Pan-specific	NP018	T	T	T	67	41.5+ 45.5	NP_110395	O15297	3	4	7	5	6
PP4/A'2	Protein-serine phosphatase 4 - regulatory subunit (PPX/A'2)	Pan-specific	NP019	T	T	T	107	116	NP_005125	Q8TF05	3	4	7	7	8
PP4C	Protein-serine phosphatase X - catalytic subunit (PPX/C)	Pan-specific	NP020	T	T	T	35	33	NP_002711	P60510	3	4	7	9	10
PP5C	Protein-serine phosphatase 5 - catalytic subunit (PPT)	Pan-specific	NP021	T	T	T	57	50	NP_006238	P53041	3	2	2	1	2
PP5C	Protein-serine phosphatase 5 - catalytic subunit (PPT)	Pan-specific	NP021	T	T	T	57	50	NP_006238	P53041	3	4	8	1	2
PP6C	Protein-serine phosphatase 6 - catalytic subunit (PPVC)	Pan-specific	NP022	T	T	T	35	28+30.5	NP_002712	O00743	3	4	8	3	4
PRK1 [PKN1]	Protein-serine kinase C-like 1 (PRK1)	Pan-specific	NK148	T	T	T	104	143	NP_002732	Q16512	3	4	4	3	4
PRK2 [PKN2]	Protein kinase C-related protein-serine kinase 2	Pan-specific	NK149	T	T	T	112	150	NP_006247	Q16513	3	4	8	9	10
PRKAB1	5'-AMP-activated protein kinase (AMPK), beta-1 regulatory subunit	Pan-specific	NK150	T	T	T	30	22	NP_006244	Q9Y478	4	1	1	1	2
PRKWNK4	Putative protein-serine kinase WNK4	Pan-specific	NK151	T	T	T	135		NP_115763	Q96J92	4	1	1	3	4
PRP4K	Protein-serine kinase PRP4 homolog	Pan-specific	NK152	T	T	T	117	120	NP_003904	Q13523	4	1	1	7	8
PTEN	Phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase and protein phosphatase	Pan-specific	NP023	T	T	T	47	54	NP_000305	P60484	4	1	1	9	10
PTP1B	Protein-tyrosine phosphatase 1B	Pan-specific	NP024	T	T	T	50	44	NP_002818	P18031	4	1	2	5	6
PTP1C	Protein-tyrosine phosphatase 1C (SHP1, SHPTP1)	Pan-specific	NP025	T	T	T	68	56	NP_002822	P29350	4	1	2	7	8
PTP1D	Protein-tyrosine phosphatase 1D (SHP2, SHPTP2, Syp, PTP2C)	Pan-specific	NP026	T	T	T	68	67	NP_002825	Q06124	4	1	2	9	10
PTP-PEST	Protein-tyrosine phosphatase with PEST sequences (PTPG1, PTPN12)	Pan-specific	NP027	T	T	T	88	91	NP_002826	Q05209	4	1	3	3	4
PyDK2 [PDHK2]	Pyruvate dehydrogenase kinase isoform 2	Pan-specific	NK153	T	T	T	46	43	NP_002602	Q15119	3	2	7	5	6
PyDK2 [PDHK2]	Pyruvate dehydrogenase kinase isoform 2	Pan-specific	NK153	T	T	T	46	43	NP_002602	Q15119	4	1	3	5	6
Pyk2	Protein-tyrosine kinase 2	Pan-specific	NK154	T	T	T	116	103	NP_004094	Q14289	4	1	3	7	8
Rac1	Ras-related C3 botulinum toxin substrate 1	Pan-specific	NN092	T			21			P60953	4	4	7	7	8
Raf1	Raf1 proto-oncogene-encoded protein-serine kinase	Pan-specific	NK155	T	T	T	73	68+75.5	NP_002871	P04049	4	1	4	5	6
RafB [BRaf]	RafB proto-oncogene-encoded protein-serine kinase	Pan-specific	NK156	T	T	T	84	88	NP_004324	P15056	4	1	4	9	10
Rb	Retinoblastoma-associated protein 1	Pan-specific	NN093	T	T	T	106	95	NP_000312	P06400	4	1	5	1	2

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col- umn 1	Col- umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
RIP2/RICK	Receptor-interacting serine/threonine-protein kinase 2 (RIPK2)	Pan-specific	NK157	T			61		NP_003812	O43353	4	4	7	9	10
RIPK1	Receptor-interacting protein-serine kinase 1	Pan-specific	NK158	T	T	T	76	90	NP_003795	Q13546	4	1	6	7	8
ROKα [ROCK2]	RhoA protein-serine kinase alpha	Pan-specific	NK159	T	T	T	161	155	NP_004841	O75116	4	1	7	1	2
ROKβ [ROCK1]	RhoA protein-serine kinase beta	Pan-specific	NK160	T	T	T	158		NP_005397	Q13464	4	4	8	3	4
RONα	Macrophage-stimulating protein receptor alpha chain	Pan-specific	NK161	T			152		NP_002438	Q04912	4	4	8	5	6
ROR2	ROR2 neurotrophic receptor-tyrosine kinase	Pan-specific	NK162	T	T		105	109	NP_004551	Q01974	4	1	7	3	4
ROS	Orosomucoid 1 receptor-tyrosine kinase	Pan-specific	NK163	T	T	T	264	220	NP_002935	P08922	4	1	7	5	6
RPTPα	Protein-tyrosine phosphatase, receptor type, A	Pan-specific	NP028	T	T	T	91	129	NP_002827	P18433	4	1	7	7	8
RPTPβ	Protein-tyrosine phosphatase, receptor-type, Z polypeptide 1	Pan-specific	NP029	T	T	T	224		NP_002842	P23467	4	1	7	9	10
RSK1	Ribosomal S6 protein-serine kinase 1	Pan-specific	NK164	T	T	T	83	79	NP_002944	Q15418	4	1	8	1	2
RSK2	Ribosomal S6 protein-serine kinase 2	Pan-specific	NK165	T	T	T	84	74	NP_004577	P51812	4	1	8	3	4
RSK4	Ribosomal S6 protein-serine kinase 4 (alpha 6)	Pan-specific	NK166	T	T	T	84	89	NP_055311	Q9UK32	4	2	1	7	8
RYK	RYK tyrosine-protein kinase	Pan-specific	NK167	T	T	T	68	61	P34925	P34925	4	2	1	9	10
S6Kα [p70 S6Kα]	p70 ribosomal protein-serine S6 kinase alpha	Pan-specific	NK168	T	T	T	56	58	NP_003152	P23443	4	2	2	3	4
S6Kβ [p70 S6Kβ]	p70 ribosomal protein-serine S6 kinase beta	Pan-specific	NK169	T	T	T	53	58	NP_003943	Q9UBS0	4	2	3	3	4
SGK3	Serum/glucocorticoid regulated kinase 3	Pan-specific	NK170	T	T	T	49	64		Q96BR1	4	2	3	5	6
SIRPα1	Signal regulatory protein substrate of PTP1D phosphatase (SHPS1)	Pan-specific	NN094	F	T	T	55	80	NP_004639	P78324	4	2	4	1	2
SLK	STE20-like protein-serine kinase	Pan-specific	NK171	T	T	T	143	137	NP_055535	Q9H2G2	4	2	4	3	4
Smac/DIABLO	Second mitochondria-derived activator of caspase	Pan-specific	NN095	T	T	T	27	19	NP_620308	Q9NR28	4	2	4	5	6
Smad2/3	SMA- and mothers against decapentaplegic homolog 2/3	Pan-specific	NN096	T			58			Q15796	4	4	5	7	8
SOCS4	Suppressor of cytokine signalling 4 (SOCS7)	Pan-specific	NN097	T	T	T	51	54	NP_543143	Q8WXH5	4	2	5	1	2
SOD (Cu/Zn)	Superoxide dismutase 1	Pan-specific	NN098	T	T	T	16	16	NP_000445	Q6ND84	4	2	5	3	4
SODD	Silencer of death domains (Bcl2 associated athanogene 4 (BAG4))	Pan-specific	NN099	T	T	T	50	75	NP_004865	O95429	4	2	5	5	6
SPHK1	Sphingosine kinase 1	Pan-specific	NN100	T	T	T	43	43	NP_892010	Q9NYA1	4	2	5	9	10
SPHK2	Sphingosine kinase 2	Pan-specific	NN101	T	T	T	69	55	NP_064511	Q9NRA0	4	2	6	1	2
Src	Src proto-oncogene-encoded protein-tyrosine kinase	Pan-specific	NK172	T	T	T	60	48	NP_005408	P12931	4	2	6	3	4
STAT1	Signal transducer and activator of transcription 1	Pan-specific	NN102	T	T	T	87	88	NP_009330	P42224	4	2	6	9	10
STAT2	Signal transducer and activator of transcription 2	Pan-specific	NN103	T	T	T	98	111	NP_005410	P52630	4	2	7	7	8
STAT3	Signal transducer and activator of transcription 3 (acute phase response	Pan-specific	NN104	T	T	T	88	81	NP_003141	P40763	4	2	8	1	2
STAT4	Signal transducer and activator of transcription 4 (acute phase response	Pan-specific	NN117	T	T	T	86	86	NP_003142.1	Q14765	4	2	8	5	6
STAT5A	Signal transducer and activator of transcription 5A	Pan-specific	NN105	T	T	T	91	99	NP_003143	P42229	4	2	8	7	8
STAT5B	Signal transducer and activator of transcription 5B	Pan-specific	NN106	T	T	T	90	86	NP_036580	P51692	4	3	1	1	2
STAT6	Signal transducer and activator of transcription 6	Pan-specific	NN107	T	T	T	94	85	NP_003144	P42226	4	3	1	3	4
STI1	Stress induced phosphoprotein 1 (Hsc70/Hsp90 organizing protein (Hop))	Pan-specific	NN108	T	T	T	63	59	NP_006810	P31948	4	3	1	5	6
STK33	FLJ35932 protein-serine kinase	Pan-specific	NK173	T	T	T	58	49	NP_112168	Q8NEF5	4	3	1	7	8
Syk	Spleen protein-tyrosine kinase	Pan-specific	NK174	T	T	T	72	71	NP_003168	P43405	4	3	1	9	10
TAK1	TGF-beta-activated protein-serine kinase 1	Pan-specific	NK175-1	T	T	T	67	69	NP_663306	O43318	4	3	2	5	6
TAK1	TGF-beta-activated protein-serine kinase 1	Pan-specific	NK175-2	T	T	T	67	69	NP_663306	O43318	4	3	2	7	8
TBK1	Tank-binding protein 1	Pan-specific	NN109-1	T	T	T	84	80	NP_037386	Q9UHD2	4	3	4	9	10
TBK1	Tank-binding protein 1	Pan-specific	NN109-2	T	T	T	84	80	NP_037386	Q9UHD2	4	3	5	1	2
TEK [TIE2]	Angiopoietin-1 receptor-tyrosine kinase	Pan-specific	NK176	T	T	T	126	147	NP_444515	Q02763	4	3	5	3	4
Tlk1	Tousled-like protein-serine kinase 1	Pan-specific	NK177-1	T	T	T	89	82	NP_036422	Q9UKI8	4	3	5	5	6
Tlk1	Tousled-like protein-serine kinase 1	Pan-specific	NK177-2	T	T	T	89	82	NP_036422	Q9UKI8	4	3	5	7	8
TRADD	Tumor necrosis factor receptor type 1 associated DEATH domain protein	Pan-specific	NN110	T	T	F	34	40	NP_003789	Q15628	4	3	5	9	10
Trail	Tumor necrosis factor-related apoptosis-inducing ligand	Pan-specific	NN111	T	T	T	33		NP_003801	P50591	4	3	6	1	2
TrkA	Nerve growth factor (NGF) receptor-tyrosine kinase	Pan-specific	NK178	T	T	T	87 + 88	87	NP_002520	P04629	4	3	6	3	4
TrkB	BNDF/NT3/4/5 receptor- tyrosine kinase	Pan-specific	NK179	T	T	T	92	93	NP_006171	Q16620	4	3	6	5	6
TTK	Dual specificity protein kinase	Pan-specific	NK180	T	T	T	95	105	AAA61239.1	P33981	4	3	6	7	8
Tyk2	Protein-tyrosine kinase 2 (Jak-related)	Pan-specific	NK181	T	T	T	134	144	NP_003322	P29597	4	3	6	9	10
Tyro10 [DDR2]	Neurotrophic receptor-tyrosine kinase of discoidin domain receptor family, member	Pan-specific	NK183-1	T	T	T	97	111	NP_006173	Q16832	4	3	7	1	2
Tyro10 [DDR2]	Neurotrophic receptor-tyrosine kinase of discoidin domain receptor family, member	Pan-specific	NK183-2	T	T	T	97	111	NP_006173	Q16832	4	3	7	3	4
Tyro3	Tyrosine-protein kinase receptor TYRO3	Pan-specific	NK182	T			97		NP_006284	Q06418	4	4	8	7	8
VHR	Dual specificity protein phosphatase 3	Pan-specific	NP030	T	F	T	20	18	NP_004081	P51452	4	3	8	3	4
Vrk1	Vaccinia related protein-serine kinase 1	Pan-specific	NK184	T	T	T	45	45	NP_003375	Q99986	4	3	8	9	10

Target Protein	Target Protein Full Name	Ab Type	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col- umn 1	Col- umn 2
		Human		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
Wee1	Wee1 protein-tyrosine kinase	Pan-specific	NK185	T	T	T	72	72	NP_003381	P30291	4	4	1	1	2
XIAP	X-linked inhibitor of apoptosis protein (baculoviral IAP repeat-containing 4)	Pan-specific	NN112	T	T	T	57	48	NP_001158	P98170	4	4	1	3	4
Yes	Yamaguchi sarcoma proto-oncogene-encoded tyrosine kinase	Pan-specific	NK186	T	T	T	61	54	NP_005424	P07947	4	4	1	5	6
ZAP70	Zeta-chain (TCR) associated protein-tyrosine kinase, 70 kDa	Pan-specific	NK187	T	T	T	70	78	NP_003168	P43403	4	4	1	7	8
ZIPK	ZIP kinase (death associated protein-serine kinase 3 (DAPK3))	Pan-specific	NK188-1	T	T	T	53	46	NP_001339	O43293	4	4	2	5	6
ZIPK	ZIP kinase (death associated protein-serine kinase 3 (DAPK3))	Pan-specific	NK188-2	T	T	T	53	46	NP_001339	O43293	4	4	2	9	10

Target Protein	Target Protein Full Name	Phospho-site	Phospho-site	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col- umn 1	Col- umn 2
		Human	Mouse		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
4E-BP1	eukaryotic translation initiation factor 4E binding protein 1 (PHAS1)	S65	S64	PN001	T	T	T	13	17+19+ 23	NP_004086	Q13541	1	1	1	3	4
Abl	Abelson proto-oncogene-encoded protein-tyrosine kinase	Y412	Y412	PK001	T	T	T	123	165	NP_005148	P00519	1	1	1	7	8
AcCoA carboxylase	Acetyl coenzyme A carboxylase	S80	S79	PN002	T	T	T	265	199	NP_000655	Q13085	1	1	1	9	10
Adducin α	Adducin alpha (ADD1)	S726	S724	PN003	T	T	T	81	122	NP_058432	P35611	1	1	2	3	4
Adducin γ	Adducin gamma (ADD3)	S693	S693	PN004	T	T	T	79	79	NP_058432	P35611	1	1	2	3	4
AMPKα1/2	AMP-activated protein-serine kinase alpha 1/2	T174/T172	T315	PK002	T	T	T	63 / 62	59	NP_006242	Q13131	1	1	3	5	6
Arrestin β1	Arrestin beta 1	S412	none	PN005	T	T	T	47	45	NP_004032	P49407	1	1	4	3	4
ATF2	Activating transcription factor 2 (CRE-BP1)	T51+T53	T51+T53	PN006-1	T	T	T	52	54	NP_001871	P15336	1	1	4	7	8
ATF2	Activating transcription factor 2 (CRE-BP1)	T51+T53	T51+T53	PN006-2	T	T	T	52	54	NP_001871	P15336	1	1	4	9	10
ATM	Ataxia telangiectasia mutated	S1981	S1987	PK115	T	T	T	350	350	NP_000042.3	Q13315	1	1	5	1	2
B23 (NPM)	B23 (nucleophosmin, numatrin, nucleolar protein NO38)	T199	T198	PN008	T	T	T	33	38	NP_002511	P06748	1	1	5	9	10
B23 (NPM)	B23 (nucleophosmin, numatrin, nucleolar protein NO38)	T234+T237	T232	PN009	T	T	T	33	38	NP_002511	P06748	1	1	6	1	2
B23 (NPM)	B23 (nucleophosmin, numatrin, nucleolar protein NO38)	S4	S4	PN007	T	T	T	33	34	NP_002511						
Bad	Bcl2-antagonist of cell death protein	S75	S112	PN010	T	T	T	18	19	NP_004313	Q92934	1	1	6	3	4
Bad	Bcl2-antagonist of cell death protein	S91	S128	PN011	T	T	T	18	19	NP_004313	Q92934	1	1	6	5	6
Bad	Bcl2-antagonist of cell death protein	S99	S136	PN012	T	T	T	18	31	NP_004313	Q92934	1	1	6	7	8
BLNK	B-cell linker protein	Y84	Y84	PN013	T	T	T	50	53+61	NP_037446	O75498	1	1	8	1	2
BMX (Etk)	Bone marrow X protein-tyrosine kinase	Y40	Y40	PK003	T	T	T	78	70	NP_001712	P51813	1	1	8	5	6
BRCA1	Breast cancer type 1 susceptibility protein	S1497	S1454	PN014	T	T	T	108	174	NP_009225	P38398	1	1	8	7	8
Btk	Bruton's agammaglobulinemia tyrosine kinase	Y223	Y223	PK004	T	T	T	76	71	NP_000052	Q06187	1	2	1	3	4
Caldesmon	Caldesmon	S789	S526	PN015	T	T	T	93	141 + 108	NP_004333	Q05682	1	2	1	7	8
CaMK2α	Calcium/calmodulin-dep. protein-serine kinase 2 alpha	T286	T286	PK005-1	T	T	T	54	45	NP_741960	Q9UQM7	1	2	2	5	6
CaMK2α	Calcium/calmodulin-dep. protein-serine kinase 2 alpha	T286	T286	PK005-2	T	T	T	54	45	NP_741960	Q9UQM7	1	2	2	7	8
Catenin β	Catenin (cadherin-associated protein) beta 1	S45	S45	PN016	T	T	T	85	84	NP_001895	P35222	1	2	6	9	10
Caveolin 2	Caveolin 2	S23	S23	PN017	T	T	T	18	18	NP_001224	P51636	1	2	7	1	2
Caveolin 2	Caveolin 2	S36	S36	PN018	T	T	T	18	18	NP_001224	P51636	1	2	7	3	4
CDK1/2	Cyclin-dependent protein-serine kinase 1/2	T14+Y15	T14+Y15	PK006	T	T	T	34	28	NP_001777	P06493	1	3	1	3	4
CDK1/2	Cyclin-dependent protein-serine kinase 1/2	T161/T160	T161/T160	PK008	T	T	T	34	27	NP_001777	P06493	1	3	1	5	6
CDK1/2	Cyclin-dependent protein-serine kinase 1/2	Y15	Y15	PK007-1	T	T	T	34	27	NP_001777	P06493	1	3	1	1	2
CDK1/2	Cyclin-dependent protein-serine kinase 1/2	Y15	Y15	PK007-2	T	T	T	34	27	NP_001777	P06493	1	3	1	7	8
CDK1/2	Cyclin-dependent protein-serine kinase 1/2	Y15	Y15	PK007-3	T	T	T	34	27	NP_001777	P06493	1	3	1	9	10
Cofilin 1	Cofilin 1	S3	S3	PN019	T	T	T	18	15	NP_005498	P23528	1	3	5	3	4
Cofilin 2	Cofilin 2	S3	S3	PN020	T	T	T	19	16	NP_068733	Q9Y281	1	3	5	5	6
Cortactin	Cortactin (amplaxin) (mouse)	Y470	Y466	PN022	T	T	T	62	77+82	NP_031829	Q60598	1	3	5	7	8
CREB1	cAMP response element binding protein 1	S129+S133	S129+S133	PN023	T	T	T	37	36	NP_004370	P16220	1	3	6	3	4
CREB1	cAMP response element binding protein 1	S133	S133	PN024	T	T	T	37	44	NP_004370	P16220	1	3	6	5	6
Crystallin αB	Crystallin alpha B (heat-shock 20 kDa like-protein)	S19	S19	PN025	T	T	T	20	18	NP_001876	P02511	1	3	6	7	8
Crystallin αB	Crystallin alpha B (heat-shock 20 kDa like-protein)	S45	S45	PN025	T	T	T	20	18	NP_001876	P02511	1	3	6	9	10
Dab1	Disabled homolog 1	Y198	Y198	PN026	T	T	T	60	79	NP_066566	O75553	1	3	8	5	6
Dok2	Docking protein 2 (mouse)		Y142	PN027	T	T	T	46	46	NP_034201	O60496	1	4	1	9	10
EGFR	Epidermal growth factor receptor-tyrosine kinase	Y1068	Y1068	PK009	T	T	T	134	175	NP_005219	P00533	1	4	3	1	2
EGFR	Epidermal growth factor receptor-tyrosine kinase	Y1148	Y1148	PK010	T	T	T	134	174	NP_005219	P00533	1	4	3	3	4
EGFR	Epidermal growth factor receptor-tyrosine kinase	Y1173	Y1173	PK011	T	T	T	134	174	NP_005219						
eIF2α	Eukaryotic translation initiation factor 2 alpha	S51	S52	PN028	T	T	T	36	33	NP_004085	P05198	1	4	3	7	8

Target Protein	Target Protein Full Name	Phospho-site	Phospho-site	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human	Mouse		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
eIF2α	Eukaryotic translation initiation factor 2 alpha	S51	S52	PN028	T	T	T	36	33	NP_004085	P05198	1	4	3	9	10
eIF2Bε	Eukaryotic translation initiation factor 2B epsilon	S540	S539	PN029	T	T	T	80	79	XP_291076	Q13144	1	4	4	1	2
eIF4E	Eukaryotic translation initiation factor 4 (mRNA cap binding protein)	S209	S209	PN030	T	T	T	25	24	NP_001959	P06730	1	4	4	3	4
eIF4E	Eukaryotic translation initiation factor 4 (mRNA cap binding protein)	S209	S209	PN030	T	T	T	25	24	NP_001959	P06730	1	4	4	5	6
eIF4G	Eukaryotic translation initiation factor 4 gamma 1	S1107	S1108	PN031	T	T	T	176	192	NP_004944	Q04637	1	4	4	7	8
eNos	Nitric-oxide synthase, endothelial	T494	T493	PN097	T	T	T	130	130	NP_000594.2	P29474	1	4	4	9	10
ErbB2	ErbB2 (Neu, HER2) receptor-tyrosine kinase	Y1139	Y1139	PK012-1	T	T	T	138	160	NP_004439	P04626	1	4	5	5	6
ErbB2	ErbB2 (Neu, HER2) receptor-tyrosine kinase	Y1139	Y1139	PK012-2	T	T	T	138	160	NP_004439	P04626	1	4	5	7	8
ErbB2	ErbB2 (Neu, HER2) receptor-tyrosine kinase	Y1248	Y1248	PK013-1	T	T	T	138	182	NP_004439	P04626	1	4	5	9	10
ErbB2	ErbB2 (Neu, HER2) receptor-tyrosine kinase	Y1248	Y1248	PK013-2	T	T	T	138	182	NP_004439	P04626	1	4	6	1	2
Erk1	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	T202+Y204	T202+Y204	PK014-1	T	T	T	43	41	AAA36142.1	P27361	1	4	6	5	6
Erk1	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	T202+Y204	T202+Y204	PK014-2	T	T	T	43	41	AAA36142.1	P27361	1	4	6	7	8
Erk1	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	T202+Y204	T202+Y204	PK014-3	T	T	T	43	41	AAA36142.1	P27361	1	4	6	9	10
Erk2	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	T202+Y204	T202+Y204	PK015-1	T	T	T	43	41	AAA36142.1	P27361	1	4	6	5	6
Erk2	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	T202+Y204	T202+Y204	PK015-2	T	T	T	43	41	AAA36142.1	P27361	1	4	6	7	8
Erk2	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase)	T202+Y204	T202+Y204	PK015-3	T	T	T	43	41	AAA36142.1	P27361	1	4	6	9	10
Erk5	Extracellular regulated protein-serine kinase 5 (Big MAP kinase 1 (BMK1))	T218+Y220	T218+Y220	PK016	T	T	T	89	130	NP_620602	P53778	1	4	7	7	8
FAK	Focal adhesion protein-tyrosine kinase	S722	S722	PK020	T	T	T	119	115	NP_005598	Q05397	1	4	8	7	8
FAK	Focal adhesion protein-tyrosine kinase	S732	S732	PK021	T	T	T	119	125	NP_005598	Q05397	1	4	8	9	10
FAK	Focal adhesion protein-tyrosine kinase	S843	S843	PK022	T	T	T	119	113	NP_005598	Q05397	2	1	1	1	2
FAK	Focal adhesion protein-tyrosine kinase	S910	S910	PK024	T	T	T	119	114	NP_005598	Q05397	2	1	1	3	4
FAK	Focal adhesion protein-tyrosine kinase	Y397	Y397	PK017-1	T	T	T	119	113	NP_005598	Q05397	2	1	1	5	6
FAK	Focal adhesion protein-tyrosine kinase	Y397	Y397	PK017-2	T	T	T	119	113	NP_005598	Q05397	2	1	1	7	8
FAK	Focal adhesion protein-tyrosine kinase	Y576	Y576	PK018-1	T	T	T	119	114	NP_005598	Q05397	2	1	1	9	10
FAK	Focal adhesion protein-tyrosine kinase	Y576	Y576	PK018-2	T	T	T	119	114	NP_005598	Q05397	2	1	2	1	2
FAK	Focal adhesion protein-tyrosine kinase	Y577	Y577	PK019	T	T	T	119	113	NP_005598	Q05397	2	1	2	3	4
FAK	Focal adhesion protein-tyrosine kinase	Y861	Y861	PK023	T	T	T	119	117	NP_005598	Q05397	2	1	2	5	6
FKHRL1	Forkhead-like transcription factor 1 (FOXO3A)	T32	T32	PN032	T	F	T	71	99	NP_001446	O43524	2	1	3	7	8
Fos	Fos-c FBJ murine osteosarcoma oncoprotein-related transcription factor	T232	T232	PN033	T	T	T	41	57	NP_005243	P01100	2	1	4	3	4
GAP-43	Growth associated protein 43 (Neuromodulin)	S41	S41	PN098	T	T	T	25	25	NP_002036.1	P17677	2	1	4	7	8
GFAP	Glial fibrillary acidic protein	S8	S8	PN034	T	T	T	50	50	NP_002046	P14136	2	1	5	1	2
GRK2 [BARK1]	G protein-coupled receptor-serine kinase 2	S670	S670	PK025	T	T	T	80	77+65	NP_001610	P25098	2	1	5	9	10
GSK3α	Glycogen synthase-serine kinase 3 alpha	S21	S21	PK026-1	T	T	T	51	45	NP_063937	P49840	2	1	7	3	4
GSK3α	Glycogen synthase-serine kinase 3 alpha	Y279	Y279	PK026-2	T	T	T	51	45	NP_063937	P49840	2	1	7	5	6
GSK3α	Glycogen synthase-serine kinase 3 alpha	Y279	Y279	PK026-3	T	T	T	51	45	NP_063937	P49840	2	1	7	7	8
GSK3β	Glycogen synthase-serine kinase 3 beta	S9	S9	PK027-1	T	T	T	47	40	NP_002084	P49841	2	1	7	3	4
GSK3β	Glycogen synthase-serine kinase 3 beta	Y216	Y216	PK027-2	T	T	T	47	40	NP_002084	P49841	2	1	7	5	6
GSK3β	Glycogen synthase-serine kinase 3 beta	Y216	Y216	PK027-3	T	T	T	47	40	NP_002084	P49841	2	1	7	7	8
GYS1	Human muscle glycogen synthase	S641	S641	PN099	T	T	T	84	84	NP_002094.2	P13807	2	1	5	3	4
Histone H1	Histone H1 phosphorylated	CDK1 sites	CDK1 sites	PN035	T	T	T	22	30	NP_005316	Q02539	2	1	8	5	6
Histone H2A.X	Histone H2A variant X	S139	S139	PN036	T	T	T	15	14	NP_002096	P16104	2	1	8	7	8
Histone H2B	Histone H2B	S14	S14	PN037	T	T	T	14	14	NP_778225	P33778	2	1	8	9	10
Histone H3	Histone H3.3	S10	S10	PN038	T	T	T	15	14	NP_003521	P84243	2	2	1	5	6
Histone H3	Histone H3.3	S28	S28	PN039	T	T	T	15	14	NP_003521	P84243	2	2	1	7	8
Histone H3	Histone H3.3	T11	T11	PN100	T	T	T	15	14	NP_003521	P84243	2	2	1	3	4
Histone H3	Histone H3.3	T3	T3	PN101	T	T	T	15	14	NP_003521	P84243	2	2	1	1	2
Hsp25	Heat shock 27 kDa protein beta 1	S86	S86	PN102	T	T	T	23	23	NP_038588.1	P14602	2	2	3	1	2
Hsp27	Heat shock 27 kDa protein beta 1 (HspB1)	S15	S15	PN040	T	F	T	23	23	NP_001531	P04792	2	2	3	3	4
Hsp27	Heat shock 27 kDa protein beta 1 (HspB1)	S15	S15	PN040	T	F	T	23	23	NP_001531	P04792	2	2	3	5	6
Hsp27	Heat shock 27 kDa protein beta 1 (HspB1)	S78	S78	PN041	T	F	T	23	23	NP_001531	P04792	2	2	3	7	8
Hsp28	Heat shock 27 kDa protein beta 1 (HspB1)	S82	S82	PN042	T	T	T	23	22	NP_001531	P04792	2	2	3	9	10
Hsp29	Heat shock 27 kDa protein beta 1 (HspB1)	S82	S82	PN042	T	T	T	23	22	NP_001531	P04792	2	2	4	1	2
Huntington	Huntington's disease protein	S421	S398	PN103	T	T	T	350	350	NP_002102.4	P42858	2	2	6	1	2
IKKα	Inhibitor of NF-kappa-B protein-serine kinase alpha (CHUK)	S180	S180	PK030	T	T	T	85	80	NP_001269	O15111	2	2	7	7	8

Target Protein	Target Protein Full Name	Phospho-site	Phospho-site	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human	Mouse		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
IKKβ	Inhibitor of NF-kappa-B protein-serine kinase beta	S181	S181	PK030	T	T	T	87	90	NP_001547	O15111	2	2	7	7	8
Integrin α4	Integrin alpha 4 (VLA4)	S988	S988	PN043	T	T	T	115	154	NP_000876	P13612	2	2	8	7	8
Integrin β1	Integrin beta 1 (fibronectin receptor beta subunit, CD29 antigen)	S785	S785	PN044	T	T	T	88	146	NP_002202	P05556	2	2	8	9	10
Integrin β1	Integrin beta 1 (fibronectin receptor beta subunit, CD29 antigen)	Y783	Y783	PN105	T	T	T	88	146	NP_002202	P05556	2	3	1	1	2
IR [INSR]	Insulin receptor	Y999	Y972	PK032	T	T	T	156	83	NP_000199	P06213	2	3	1	3	4
IR/IGF1R [INSR]	Insulin receptor / Insulin-like growth factor 1 receptor	Y1189/ Y1190	Y1162/ Y1163	PK033	T	T	T	156/ 155	95	NP_000866	P06213	2	3	1	5	6
IRS1	Insulin receptor substrate 1	Y1179	Y1179	PN046	T	T	T	132	181	NP_005535	P35568	2	3	2	7	8
IRS1	Insulin receptor substrate 1	Y612	Y612	PN045	T	T	T	132	173	NP_005535	P35568	2	3	2	9	10
JAK2	Janus protein-tyrosine kinase 2	Y1007/ Y1008	Y1007/ Y1008	PK034	T	T	T	131	119	NP_004963	O60674	2	3	3	7	8
JNK	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK))	T183+Y185	T183+Y185	PK035-1	T	T	T	44 + 48 + 53	48+44+ 39+37	NP_002741	P45983	2	3	4	5	6
JNK	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK))	T183+Y185	T183+Y185	PK035-2	T	T	T	44 + 48 + 53	48+44+ 39+37	NP_002741	P45983	2	3	4	7	8
JNK	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK))	T183+Y185	T183+Y185	PK035-3	T	T	T	44 + 48 + 53	48+44+ 39+37	NP_002741	P45983	2	3	4	9	10
Jun	Jun proto-oncogene-encoded AP1 transcription factor	S63	S63	PN047	T	T	T	36	40+39+ 38	NP_002219	P05412	2	3	5	3	4
Jun	Jun proto-oncogene-encoded AP1 transcription factor	S73	S73	PN048-1	T	T	T	36	43+40+ 38	NP_002219	P05412	2	3	5	5	6
Jun	Jun proto-oncogene-encoded AP1 transcription factor	S73	S73	PN048-2	T	T	T	36	43+40+ 38	NP_002219	P05412	2	3	5	7	8
Jun	Jun proto-oncogene-encoded AP1 transcription factor	S73	S73	PN048-3	T	T	T	36	43+40+ 38	NP_002219	P05412	2	3	5	9	10
Kit	Kit/Steel factor receptor-tyrosine kinase	Y703	Y703	PK036	T	T	F	110	141	P10721	P10721	2	3	6	5	6
Kit	Kit/Steel factor receptor-tyrosine kinase	Y730	Y730	PK037	T	T	T	110	134 + 187	P10721	P10721	2	3	6	7	8
Kit	Kit/Steel factor receptor-tyrosine kinase	Y936	Y936	PK038	T	T	F	110	183	P10721	P10721	2	3	6	9	10
Lck	Lymphocyte-specific protein-tyrosine kinase	S157	S158	PK039	T	T	T	58	46 + 54	NP_005347	P06239	2	3	8	3	4
Lck	Lymphocyte-specific protein-tyrosine kinase	Y191	Y192	PK040	T	T	T	58	46	NP_005347	P06239	2	3	8	5	6
Lck	Lymphocyte-specific protein-tyrosine kinase	Y504	Y505	PK041	T	T	F	58	46	NP_005347	P06239	2	3	8	7	8
LIMK1/2	LIM domain kinase 1/2	Y508/T505	Y507/T508	PK042	T	T	T	73 / 72		NP_002305	P53667	2	3	8	9	10
Lyn	Yes-related protein-tyrosine kinase	Y507	Y507	PK043	T	T	T	58	46	NP_002341	P07948	2	4	1	5	6
MAPKAPK2	Mitogen-activated protein kinase-activated protein kinase 2	T222	T222	PK044	T	T	T	46	51	NP_004750	P49137	2	4	2	5	6
MAPKAPK2	Mitogen-activated protein kinase-activated protein kinase 2	T334	T334	PN049-1	T	T	T	46	45	NP_004750	P49137	2	4	2	7	8
MAPKAPK2	Mitogen-activated protein kinase-activated protein kinase 2	T334	T334	PN049-2	T	T	T	46	45	NP_004750	P49137	2	4	2	9	10
MARCKS	Myristoylated alanine-rich protein kinase C substrate	S158+S162	S158+S162	PN050-1	T	T	T	31	88+83	NP_002347	P29966	2	4	3	1	2
MARCKS	Myristoylated alanine-rich protein kinase C substrate	S158+S162	S158+S162	PN050-2	T	T	T	31	88+83	NP_002347	P29966	2	4	3	3	4
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	S297	S298	PK047-1	T	T	T	43	42	NP_002746	Q02750	2	4	4	1	2
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	S297	S298	PK047-2	T	T	T	43	42	NP_002746	Q02750	2	4	4	3	4
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	T291	T292	PK046-1	T	T	T	43	42	NP_002746	Q02750	2	4	4	5	6
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	T291	T292	PK046-2	T	T	T	43	42	NP_002746	Q02750	2	4	4	7	8
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	T291	T292	PK046-3	T	T	T	43	42	NP_002746	Q02750	2	4	4	9	10
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	T385	T386	PK048-1	T	T	T	43	42	NP_002746	Q02750	2	4	5	1	2
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	T385	T386	PK048-2	T	T	T	43	42	NP_002746	Q02750	2	4	5	3	4
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	T385	T386	PK048-3	T	T	T	43	42	NP_002746	Q02750	2	4	5	5	6
MEK1 [MAP2K1]	MAPK/ERK protein-serine kinase 1 (MKK1)	S217+S221	S217+S221	PK045	T	T	T	43	42	NP_002746	Q02750	2	4	5	7	8
MEK2 [MAP2K2]	MAPK/ERK protein-serine kinase 2 (MKK2) (human)	T394	T395	PK049	T	F	F	44	42	AAH00471.1	P36507	2	4	6	3	4
MEK2 [MAP2K2]	MAPK/ERK protein-serine kinase 2 (MKK2) (mouse)	T394	T395	PK050	F	T	T	44	42	NP_075627	P36507	2	4	6	5	6
MEK3 [MAP2K3]	MAP kinase protein-serine kinase 3 (MKK3)	S189	S218	PK051	T	T	T	36	35	NP_002747	P46734	2	4	6	9	10
MEK4 [MAP2K4]	MAP kinase protein-serine kinase 4 (MKK4)	S257+T261	S257+T261	PK052	T	T	T	44	41	NP_003001	P45985	2	4	7	3	4
MEK6 [MAP2K6]	MAP kinase protein-serine kinase 6 (MKK6)	S207	S207	PK053	T	T	T	37 + 31	35	NP_002749	P46734	2	4	6	9	10
Met	Hepatocyte growth factor (HGF) receptor-tyrosine kinase	Y1003	Y1001	PK054	T	T	T	156	154	NP_000236	P08581	3	1	1	1	2
Met	Hepatocyte growth factor (HGF) receptor-tyrosine kinase	Y1230+ Y1234+	Y1228+ Y1232+	PK055	T	T	T	156	158	NP_000236.	P08581	3	1	1	3	4
MLK3	Mixed-lineage protein-serine kinase 3	T277+S281	T278+S282	PK056	T	T	T	93	133	NP_002410	Q16584	3	1	1	9	10
Mnk1	MAP kinase-interacting protein-serine kinase 1 (calmodulin-activated)	T209+T214	T197+T202	PK057	T	T	T	47	48	NP_003675	Q9BUB5	3	1	2	3	4
MRLC2	Myosin regulatory light chain isoform 1	S18	S19	PN051-1	T	T	T	20	20	NP_291024	P19105	3	1	2	9	10
MRLC2	Myosin regulatory light chain isoform 1	S18	S19	PN051-2	T	T	T	20	20	NP_291024	P19105	3	2	8	1	2
Msk1	Mitogen & stress-activated protein-serine kinase 1	S376	S375	PK058	T	T	T	90	71+78	NP_004746	O75582	3	1	3	3	4
mTOR [FRAP]	Mammalian target of rapamycin (FRAP)	S2448	S2448	PK116	T	T	T	289	199	NP_004949	P42345					
MYPT1	Myosin phosphatase target 1	T696	T694	PN052	T	T	T	115	141	NP_446342	O14974	3	1	4	3	4
NFkappaB p65	NF-kappa-B p65 nuclear transcription factor	S276	S276	PN053	T	T	T	64	64	NP_003989	Q04206	3	1	5	9	10

Target Protein	Target Protein Full Name	Phospho-site	Phospho-site	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human	Mouse		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
NMDAR2B	N-methyl-D-aspartate (NMDA) glutamate receptor 2B subunit	Y1474	Y1474	PN054	T	T	T	**166**	**166**	NP_000825	Q13224	3	1	6	3	4
NR1	N-methyl-D-aspartate (NMDA) glutamate receptor 1 subunit zeta	S896	S896	PN055	T	T	T	**105**	**109**	NP_000823	Q05586	3	1	6	9	10
p27 Kip1	p27 cyclin-dependent kinase inhibitor 1B	T187	T187	PN056	T	T	T	**22**	**26**	NP_004055	P46527	3	1	8	3	4
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	T180+Y182	T180+Y182	PK060-1	T	T	T	**41**	**40+38+36**	NP_001306	Q16539	3	1	8	9	10
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	T180+Y182	T180+Y182	PK060-2	T	T	T	**41**	**40+38+36**	NP_001306	Q16539	3	2	1	1	2
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	T180+Y182	T180+Y182	PK060-3	T	T	T	**41**	**40+38+36**	NP_001306	Q16539	3	2	1	3	4
p38α MAPK	Mitogen-activated protein-serine kinase p38 alpha	T180+Y182	T180+Y182	PK060-4	T	T	T	**41**	**40+38+36**	NP_001306	Q16539	3	2	1	5	6
p53	Tumor suppressor protein p53 (antigenNY-CO-13)	S392	S389	PN057-1	T	T	F	**44**	**49**	NP_000537	P04637	3	2	2	5	6
p53	Tumor suppressor protein p53 (antigenNY-CO-13)	S392	S389	PN057-2	T	T	F	**44**	**49**	NP_000537	P04637	3	2	2	7	8
p53	Tumor suppressor protein p53 (antigenNY-CO-13)	S392	S389	PN057-3	T	T	F	**44**	**49**	NP_000537	P04637	3	2	2	9	10
PAK1/2/3	p21-activated protein-serine kinase 1/2/3	S144/S141/S154	S144/S141/S154	PK061	T	T	T	**61/ 58 / 61**	**58 / 53**	NP_002567	Q13153	3	2	3	7	8
Pax2	Paired box protein 2	S394	S393	PN058	T	T	T	**45**	**37**	Q02962	Q02962	3	2	4	9	10
Paxillin 1	Paxillin 1	Y118	Y118	PN060-1	T	T	T	**65**	**69**	NP_002850	P49023	3	2	5	1	2
Paxillin 1	Paxillin 1	Y118	Y118	PN060-2	T	T	T	**65**	**69**	NP_002850	P49023	3	2	5	3	4
Paxillin 1	Paxillin 1	Y31	Y31	PN059	T	T	T	**65**	**70**	NP_002850	P49023	3	2	5	5	6
PDGFRα	Platelet-derived growth factor receptor kinase alpha	Y742	Y742	PK062	T	T	T	**123**	**176**	NP_006197	P16234	3	2	6	3	4
PDGFRα	Platelet-derived growth factor receptor kinase alpha	Y754	Y754	PK063	T	T	T	**123**	**180**	NP_006197	P16234	3	2	6	5	6
PDGFRα/β	Platelet-derived growth factor receptor kinase alpha/beta	aY572+Y574/bY579+ Y581	aY572+Y574/bY579+	PK064	T	T	T	**123 / 124**	**180**	NP_006197	P16234	3	2	6	7	8
PDGFRβ	Platelet-derived growth factor receptor kinase beta	Y716	Y715	PK065	T	T	T	**123 / 124**	**180**	NP_032835	P09619	3	2	6	9	10
PDK1	3-Phosphoinositide-dependent protein-serine kinase 1	S244	S241	PK066	T	T	T	**63**	**56/59**	NP_002604	O15530	3	2	7	3	4
PED15 (PEA15)	Phosphoprotein-enriched in diabetes/astrocytes 15	S116	S116	PN061	T	T	T	**15**	**12**	NP_003759	Q15121	3	2	7	7	8
PKA Cα/β	cAMP-dependent protein-serine kinase catalytic subunit alpha/beta	T197	T197	PK067	T	T	T	**40 / 40**	**39**	NP_002721	P17612	3	3	1	7	8
PKA Cβ	cAMP-dependent protein-serine kinase catalytic subunit beta	S338	S338	PK068	T	T	T	**40**	**39**	NP_002722	P22694	3	3	1	9	10
PKA R2α	cAMP-dependent protein-serine kinase regulatory type 2 subunit alpha	S98	S95	PK069	T	T	T	**45**	**58**	NP_523671	P13861	3	3	2	3	4
PKA R2β	cAMP-dependent protein-serine kinase regulatory type 2 subunit beta	S114	S114	PK070	T	T	T	**46**	**38**	NP_004148	P31323	3	3	2	5	6
PKBα [Akt1]	Protein-serine kinase B alpha (Akt1)	S473	S473	PK072-1	T	T	T	**56**	**56/59**	NP_005154	P31749	3	3	3	1	2
PKBα [Akt1]	Protein-serine kinase B alpha (Akt1)	S473	S473	PK072-2	T	T	T	**56**	**56/59**	NP_005154	P31749	3	3	3	3	4
PKBα [Akt1]	Protein-serine kinase B alpha (Akt1)	S473	S473	PK072-3	T	T	T	**56**	**56/59**	NP_005154	P31749	3	3	3	5	6
PKBα [Akt1]	Protein-serine kinase B alpha (Akt1)	T308	T308	PK071-1	T	T	T	**56**	**56/60**	NP_005154	P31749	3	3	2	9	10
PKBα [Akt1]	Protein-serine kinase B alpha (Akt1)	T308	T308	PK071-2	T	T	T	**56**	**56/60**	NP_005154	P31749	3	3	3	7	8
PKCα	Protein-serine kinase C alpha	S657	S657	PK073	T	T	T	**77**	**79**	NP_002728	P17252	3	3	4	9	10
PKCα/β2	Protein-serine kinase C alpha/beta 2	T638/T641	T638/T641	PK074	T	T	T	**77 / 77**	**78/80**	NP_002728	P17252	3	3	5	1	2
PKCβ1/2	Protein-serine kinase C beta 1/2	T500	T500	PK075	T	T	T	**77 / 77**	**79**	NP_997700	P05771	3	3	5	5	6
PKCβ2	Protein-serine kinase C beta 2	T641	T641	PK076	T	T	T	**77**	**79**	NP_002729	P05771	3	3	5	9	10
PKCδ	Protein-serine kinase C delta	S645	S643	PK079	T	T	T	**77**	**74**	NP_006245	Q05655	3	3	6	3	4
PKCδ	Protein-serine kinase C delta	S664	S662	PK080	T	T	T	**77**	**74**	NP_006245	Q05655	3	3	6	5	6
PKCδ	Protein-serine kinase C delta	T507	T505	PK078	T	T	T	**77**	**70+74**	NP_006245	Q05655	3	3	6	7	8
PKCδ	Protein-serine kinase C delta	Y313	Y311	PK077-1	T	T	T	**77**	**74**	NP_006245	Q05655	3	3	6	9	10
PKCδ	Protein-serine kinase C delta	Y313	Y311	PK077-2	T	T	T	**77**	**74**	NP_006245	Q05655	3	3	7	1	2
PKCε	Protein-serine kinase C epsilon	S729	S729	PK081-1	T	T	T	**84**	**91**	NP_005391	Q02156	3	3	7	5	6
PKCε	Protein-serine kinase C epsilon	S729	S729	PK081-2	T	T	T	**84**	**91**	NP_005391	Q02156	3	3	7	7	8
PKCγ	Protein-serine kinase C gamma	T514	T514	PK082-1	T	T	T	**78**	**78/81**	NP_002730	P05129	3	3	8	1	2
PKCγ	Protein-serine kinase C gamma	T514	T514	PK082-2	T	T	T	**78**	**78/81**	NP_002730	P05129	3	3	8	3	4
PKCγ	Protein-serine kinase C gamma	T655	T655	PK083	T	T	T	**78**	**78/81**	NP_002730	P05129	3	3	8	5	6
PKCγ	Protein-serine kinase C gamma	T674	T674	PK084	T	T	T	**78**	**78/81**	NP_002730.1	P05129	3	3	8	7	8
PKCη	Protein-serine kinase C eta	S674	S674	PK086	T	T	T	**78**	**79**	NP_006246	P24723	3	3	8	9	10
PKCη	Protein-serine kinase C eta	T655	T655	PK085	T	T	T	**78**	**79**	NP_006246	P24723	3	4	1	1	2
PKCλ/ι	Protein-serine kinase C lambda/iota	T555	T554	PK087	T	T	T	**67**	**79**	NP_002731	P41743	3	4	1	5	6
PKCθ	Protein-serine kinase C theta	S676	S676	PK089	T	T	T	**82**	**74**	NP_006248	Q04759	3	4	2	1	2
PKCθ	Protein-serine kinase C theta	S695	S695	PK090	T	T	T	**82**	**74**	NP_006248	Q04759	3	4	2	3	4
PKCθ	Protein-serine kinase C theta	T538	T538	PK088	T	T	T	**82**	**74**	NP_006248	Q04759	3	4	2	5	6
PKCζ/λ	Protein-serine kinase C zeta/lambda	T410/T403	T410/T402	PK091	T	T	T	**68 / 67**	**79**	NP_002735	Q05513	3	4	2	9	10
PKD (PKCμ)	Protein-serine kinase C mu (Protein kinase D)	S738+S742	S744+S748	PK092	T	T	T	**102**	**122**	NP_002733	Q15139	3	4	3	3	4
PKD (PKCμ)	Protein-serine kinase C mu (Protein kinase D)	S910	S916	PK093-1	T	T	T	**102**	**122**	NP_002733	Q15139	3	4	3	5	6

Target Protein	Target Protein Full Name	Phospho-site	Phospho-site	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human	Mouse		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
PKD (PKCμ)	Protein-serine kinase C mu (Protein kinase D)	S910	S916	PK093-2	T	T	T	**102**	**122**	NP_002733	Q15139	3	4	3	7	8
PKR1	Double-stranded RNA-dependent protein-serine kinase	T451	T414	PK094	T	T	T	**62**	**76+69**	NP_002750	P19525	3	4	4	9	10
Plk1	Polo-like protein-serine kinase 1	T210	T210	PK117	T	T	T	**68**	**68**	NP_005021.2	P53350	3	4	5	3	4
PP1/Cα	Protein-serine phosphatase 1 - catalytic subunit - alpha isoform	T320	T320	PP001	T	T	T	**38**	**35**	NP_002699	P62136	3	4	6	1	2
PRAS40	Proline-rich Akt substrate 40 kDa (Akt1S1)	T246	T247	PN062	T	T	T	**27**	**44**	NP_115751	Q96B36	3	4	8	5	6
PRK1 [PKN1]	Protein kinase C-related protein-serine kinase 1	T774	T778	PK095	T	T	T	**104**	**126**	NP_002732	Q16512	3	4	8	7	8
PRK2 [PKN2]	Protein kinase C-related protein-serine kinase 2	T816	none	PK096	T	T	T	**112**	**135**	NP_006247	Q16512	3	4	8	7	8
Progesterone Receptor	Progesterone receptor	S294	S294	PN104	T	T	T	**100**	**100**	NP_000917.3	P06401	4	1	1	5	6
PTEN	Phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase and protein phosphatase	S370	S370	PP002	T	T	T	**47**	**53**	NP_000305	P60484	4	1	2	1	2
PTEN	Phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase and protein phosphatase	S380+T382+S385	S380+T382+S385	PP003	T	T	T	**47**	**55**	NP_000305	P60484	4	1	2	3	4
Pyk2	Protein-tyrosine kinase 2	Y579	Y579	PK097	T	T	F	**116**	**122**	NP_775268	Q14289	4	1	3	9	10
Rac1/cdc42	Ras-related C3 botulinum toxin substrate 1	S71	S71	PN063	T	T	T	**21**	**21**	NP_008839	P60953	4	1	4	1	2
Rad17	Rad17 homolog	S645	S657	PN064	T	T		**77**	**58+64+68**	NP_579921	O75943	4	1	4	3	4
Raf1	Raf1 proto-oncogene-encoded protein-serine kinase	S259	S259	PK098	T	T	T	**84**	**63+68**	NP_002871	P04049	4	1	4	7	8
Rb	Retinoblastoma-associated protein 1	S612	S605	PN066	T	T	T	**106**	**127**	NP_000312	P06400	4	1	5	3	4
Rb	Retinoblastoma-associated protein 1	S780	S773	PN067	T	T	T	**106**	**127**	NP_000312	P06400	4	1	6	3	4
Rb	Retinoblastoma-associated protein 1	S807	S800	PN068	T	T	T	**106**	**127**	NP_000312	P06400	4	1	5	5	6
Rb	Retinoblastoma-associated protein 1	S807+S811	S800+S804	PN069	T	T	T	**106**	**127**	NP_000312	P06400	4	1	5	7	8
Rb	Retinoblastoma-associated protein 1	T356	T350	PN065	T	T	T	**106**	**127**	NP_000312	P06400	4	1	6	9	10
Rb	Retinoblastoma-associated protein 1	T821	T814	PN070	T	T	T	**106**	**127**	NP_000312	P06400	4	1	5	9	10
Rb	Retinoblastoma-associated protein 1	T826	T819	PN071	T	T	T	**106**	**127**	NP_000312	P06400	4	1	6	1	2
Ret	Ret receptor-tyrosine kinase	S696	S696	PN072	T	T	T	**124**	**186**	NP_065681	P07949	4	1	6	5	6
RSK1/2	Ribosomal S6 protein-serine kinase 1/2	S380/S386	S380/S386	PK101-1	T	T	T	**83 / 84**	**89+78+70**	NP_002944	Q15418	4	1	8	5	6
RSK1/2	Ribosomal S6 protein-serine kinase 1/2	S221/S227	S221/S227	PK099	T	T	T	**83 / 84**	**89+78+70**	NP_002944	Q15418	4	1	8	7	8
RSK1/2	Ribosomal S6 protein-serine kinase 1/2	S363/S369	S363/S369	PK100	T	T	T	**83 / 84**	**89+78+70**	NP_002944	Q15418	4	1	8	9	10
RSK1/2	Ribosomal S6 protein-serine kinase 1/2	S380/S386	S380/S386	PK101-2	T	T	T	**83 / 84**	**89+78+70**	NP_002944	Q15418	4	2	1	1	2
RSK1/2	Ribosomal S6 protein-serine kinase 1/2/3	T573/T577/T570	T573/T577/T570	PK102	T	T	T	**83 / 84**	**89+78+70**	NP_002944	Q15418	4	2	1	5	6
RSK1/3	Ribosomal S6 protein-serine kinase 1/3	T359+S363/T356+S360	T359+S363/T356+S360	PK103	T	T	T	**83 / 84**	**89+78+70**	NP_002944	Q15418	4	2	1	3	4
S6	40S ribosomal protein S6	S235	S235	PN073	T	T	T	**29**	**38**	NP_001001	P62753	4	2	2	1	2
S6Kα	p70 ribosomal protein-serine S6 kinase alpha	T229	T252	PK104	T	T	T	**56**	**80**	NP_003152	P23443	4	2	2	9	10
S6Kα	p70 ribosomal protein-serine S6 kinase alpha	T421+S424	T444+S447	PK106	T	T	T	**56**	**62+69+86**	NP_003152	P23443	4	2	2	5	6
S6Kα	p70 ribosomal protein-serine S6 kinase alpha	T389	T412	PK105	T	T	T	**56**	**69**	NP_003152	P23443	4	2	2	7	8
Shc1	SH2 domain-containing transforming protein 1	Y349+Y350	Y349+Y350	PN074	T	T	T	**63**	**68+49**	NP_003020	P29353	4	2	3	7	8
SHP2	Protein-tyrosine phosphatase 1D (SHP2, SHPTP2, Syp, PTP2C)	S576	S580	PP004	T	T	T	**68**	**48+70**	NP_002825	Q06124	4	2	3	9	10
Smad1/5/9	SMA- and mothers against decapentaplegic homologs 1/5/9	S463+S465/S463+S465	S463+S465/S463+S465/	PN075	T	T	T	**52 / 52 / 52**	**65**	NP_005891	Q15797	4	2	4	7	8
Smad2	SMA- and mothers against decapentaplegic homolog 2	S465+S467	S465/S467	PN076	T	T	T	**52**	**53**	NP_001003652	Q15796	4	2	4	9	10
SOX9	SRY (sex determining region Y)-box 9 (campomelic dysplasia, autosomal sex-	S181	S181	PN077	T	T	T	**56**	**48**	NP_000337	P48436	4	2	5	7	8
Src	Src proto-oncogene-encoded protein-tyrosine kinase	Y418	Y423	PK107	T	T	T	**60**	**49**	NP_005408	P12931	4	2	6	5	6
Src	Src proto-oncogene-encoded protein-tyrosine kinase	Y529	Y534	PK108	T	T	T	**60**	**48+46**	NP_005408	P12931	4	2	6	7	8
STAT1	Signal transducer and activator of transcription 1	S727	S727	PN078	T	T	T	**87**	**83**	NP_009330	P42224	4	2	7	1	2
STAT1	Signal transducer and activator of transcription 1	Y701	Y701	PN079-1	T	T	T	**87**	**86**	NP_009330	P42224	4	2	7	3	4
STAT1	Signal transducer and activator of transcription 1	Y701	Y701	PN079-2	T	T	T	**87**	**86**	NP_009330	P42224	4	2	7	5	6
STAT2	Signal transducer and activator of transcription 2	Y690	Y688	PN080	T	T	T	**98**	**113**	NP_005410	P52630	4	2	7	9	10
STAT3	Signal transducer and activator of transcription 3	S727	S727	PN081	T	T	T	**88**	**81**	NP_003141	P40763	4	2	8	3	4
STAT3	Signal transducer and activator of transcription 3	Y705	Y705	PN082	T	T	T	**88**	**81**	NP_003141	P40763					
STAT5A	Signal transducer and activator of transcription 5A	Y694	Y694	PN083	T	T	T	**91**	**93**	NP_003143	P42229	4	2	8	9	10
Syk	Spleen protein-tyrosine kinase	Y352	Y346	PK109	T	T	T	**72**	**71**	NP_003168						
Synapsin 1	Synapsin 1 isoform Ia	S605	S605	PN105	T	F	F	**74**	**73**	NP_008881	P17600	4	3	2	1	2
Synapsin 1	Synapsin 1 isoform Ia	S9	S9	PN084	T	F	F	**74**	**73**	NP_008881	P17600	4	3	2	3	4
Tau	Microtubule-associated protein tau	S518	S493	PN106	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	3	5	6
Tau	Microtubule-associated protein tau	S738	S713	PN107	T	T	T	**78**	Multiple bands	NP_005901	P10636	4	3	2	9	10
Tau	Microtubule-associated protein tau	S515	S490	PN085	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	3	1	2
Tau	Microtubule-associated protein tau	S515+S518	S490+S493	PN086	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	3	3	4
Tau	Microtubule-associated protein tau	S530	S505	PN088	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	3	7	8

Target Protein	Target Protein Full Name	Phospho-site	Phospho-site	I.D. Code	Ab Reactivity			Actual Mol.	Obsv. Mol.	Link - Protein	Link - Swiss-	Meta Row	Meta Col-	Row	Col-umn 1	Col-umn 2
		Human	Mouse		Human	Mouse	Rat	Human	Human	Human	Human	Microarray Spot Coordinates				
Tau	Microtubule-associated protein tau	S578	S553	PN089	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	3	9	10
Tau	Microtubule-associated protein tau	S712	S687	PN090	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	4	1	2
Tau	Microtubule-associated protein tau	S716	S691	PN091	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	4	3	4
Tau	Microtubule-associated protein tau	S720	S695	PN092	T	T	T	**79**	Multiple bands	NP_005901	P10636	4	3	4	5	6
Tau	Microtubule-associated protein tau	T547	T547	PN108	T	T	T	**80**	Multiple bands	NP_005901	P10636	4	3	4	7	8
Tyrosine Hydroxylase	Tyrosine hydroxylase isoform a	S18	S19	PN109	T	T	T	**59**	**68**	NP_954986	P07101	4	3	7	5	6
Tyrosine Hydroxylase	Tyrosine hydroxylase isoform a	S70	S40	PN093	T	T	T	**59**	**68**	NP_954986	P07101	4	3	7	7	8
VEGFR2 [KDR]	Vascular endothelial growth factor receptor-tyrosine kinase 2 (Flk1)	Y1054	Y1052	PK110	T	T	T	**152**	**226**	NP_002244	P35968	4	3	7	9	10
VEGFR2 [KDR]	Vascular endothelial growth factor receptor-tyrosine kinase 2 (Flk1)	Y1054+ Y1059	Y1052+ Y1057	PK111	T	T	T	**152**	**226**	NP_002244	P35968	4	3	8	1	2
Vimentin	Vimentin	S33	S33	PN094	T	T	T	**54**	**54**	NP_003371	P08670	4	3	8	5	6
Vinculin	Vinculin	Y821	Y821	PN095	T	T	T	**124**	**112**	NP_003364	P18206	4	3	8	7	8
ZAP70	Zeta-chain (TCR) associated protein-tyrosine kinase, 70 kDa	Y292	Y290	PK112	T	T	T	**70**	**71**	NP_001070	P43403	4	4	1	9	10
ZAP70	Zeta-chain (TCR) associated protein-tyrosine kinase, 70 kDa	Y315+Y319	Y315+Y319	PK113	T	T	T	**70**	**71**	NP_001070	P43403	4	4	2	1	2
ZAP70	Zeta-chain (TCR) associated protein-tyrosine kinase, 70 kDa	Y319	Y319	PK114	T	T	T	**70**	**71**	NP_001070	P43403	4	4	2	3	4

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Appendix C

KINETWORKS™ SAMPLE BUFFER PROTOCOL

SPECIFICATIONS

Reagent	Volume of Stock	[4X Sample Buffer]
100 % Glycerol	5.00 ml	50 %
1 M Tris-HCl, pH 6.8	1.25 ml	125 mM
20 % SDS	2.00 ml	4 %
1 % Bromophenol blue	0.80 ml	0.08 %
Distilled Water	0.45 ml	-
β -mercaptoethanol	0.50 ml	5 %
Total Volume	**10.00 ml**	

INSTRUCTIONS FOR USE

1) **Prepare 4X Sample Buffer**
Prepare the 4X Sample Buffer according to the specifications described above (the volume can be adjusted as required). The Sample Buffer can be stored at ambient temperature for up to 1 year but for best results, do not store 4X Sample Buffer with the β-mercaptoethanol.

2) **Adding Reducing Agent**
Add 50 μl of β-mercaptoethanol per 950 μl of 4X Sample Buffer for a final concentration of 5% β-mercaptoethanol in the 4X stock. Add the * β-mercaptoethanol to the 4X Sample Buffer just before mixing with the protein Sample.

3) **Sample Dilution Ratio: 1 part 4X Sample Buffer to 3 parts Sample**
The volume of 4X Sample Buffer to add is 25% of the total final volume.

The KCSS-1.0 Screen requires at least 50 µg of protein per lane. More protein is desirable if possible in case of unforeseen problems. Based on the formula ($C_1V_1 = C_2V_2$), at a protein concentration of 1.85 mg/ml, 27.0 µl of protein is required to obtain 50 µg with the addition of 12.5 µl of 4X Sample Buffer and 105. µl of distilled water, for a total volume of 50 µl (see Example 1).

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Screen	***Example 1***
Protein required (µg)	50 µg @ 1 mg/ml
Sample concentration	1.85 mg/ml
Volume required	27.0 µl
4X Sample Buffer	12.5 µl
Distilled water	10.5 µl
Total Volume	**50.0 µl**

For all screens, the lowest protein concentration acceptable of the cell/tissue samples in SDS-PAGE Sample Buffer is 0.6 mg/ml and the maximum protein concentration is 2.0 mg/ml

Prepare samples by heating in a boiling water bath for 4 minutes at 100 °C. The sample should be shipped in a 1.5-ml Eppendorf *screw cap* vial, clearly labeled with an indelible marker for its identification, and parafilmed to prevent accidental opening or leaking.

KINEXUS

Form: IVC-CP-SIF-01

IN VIVO SERVICES

CUSTOM CELL PREPARATION SERVICE INFORMATION FORM

KINEXUS ORDER NUMBER

NAME: _____ **COMPANY/INSTITUTE:** _____

(Authorized Representative or Principal Investigator)

The *In Vivo Services* offers the convenience of having Kinexus perform incubations of cells and preparation of lysates according to your specifications with your drug, RNAsi or hormone of interest. Choose from any of the twelve commonly studied human tumor cell lines indicated in Section C below and provide detailed instructions on how to treat the cells and prepare the lysates. For each sample, we will prepare enough lysate for 1 Kinex™ antibody microarray and 1 Kinetworks™ immunoblot. If you need assistance completing this form, 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. Please check the appropriate tick boxes.

A. COMPOUND DETAILS: *For each lysate to be prepared, please send enough compound, RNAsi or drug for dilution into 50 ml volume of media.*

ID of compound/stimuli: _____ ❑ Solid or ❑ Liquid **FOR SOLIDS PROVIDE**: Mass: ____ FW: _____

FOR LIQUIDS PROVIDE: Molarity: _____ Concentration: _____ Volume: _____ MSDS or safety sheets provided ❑ Yes ❑ No

For solids, what should it be dissolved in? _____ For liquids, what is the solvent? _____

Is the compound or solution toxic? ❑ No ❑ Yes Provide safety instructions and storage details for handling: _____

B. TREATMENT DETAILS: *Please provide detailed information on how to prepare your drug, RNASi, or hormone for incubation with our cell lines including the required concentrations, length of time of incubation, if the cells should be serum starved, and all other relevant information.*

TOTAL NUMBER OF LYSATES REQUESTED USING THE COMPOUND DESCRIBED ABOVE: _____

SAMPLE 1. ❑ Total lysate or ❑ Cytosolic fraction or ❑ Particulate soluble fraction Control ❑ No ❑ Yes Confidential ❑ No ❑ Yes

Treatment details:

SAMPLE 2. ❑ Total lysate or ❑ Cytosolic fraction or ❑ Particulate soluble fraction Control ❑ No ❑ Yes Confidential ❑ No ❑ Yes

Treatment details:

SAMPLE 3. ❑ Total lysate or ❑ Cytosolic fraction or ❑ Particulate soluble fraction Control ❑ No ❑ Yes Confidential ❑ No ❑ Yes

Treatment details:

SAMPLE 4. ❑ Total lysate or ❑ Cytosolic fraction or ❑ Particulate soluble fraction Control ❑ No ❑ Yes Confidential ❑ No ❑ Yes

Treatment details:

C. TUMOUR CELL LINES: *Choose the cell lines of interest for each specific treatment described in Section B*

❑ **Jurkat** ***Origin:*** *T cell leukemia from 14 year old male*	❑ **HCT116** ***Origin:*** *Colon carcinoma from adult male*	❑ **A549** ***Origin:*** *Lung carcinoma from 58 year old male*	❑ **T98G** ***Origin:*** *Brain glioblastoma from 61 year old male*	❑ **HepG2** ***Origin:*** *Liver carcinoma from 15 year old male*	❑ **PC-3** ***Origin:*** *Prostate aden-carcinoma from bone of 62 year old male*
❑ **HEK-293** ***Origin: Female fetal kidney cells transformed with adenovirus 5***	❑ **HeLa** ***Origin:*** *Cervix epithelial adenocarcinoma from 31 year old female*	❑ **A431** ***Origin:*** *Skin epidermoid carcinoma from 85 year old female*	❑ **MCF-7** ***Origin:*** *Breast epithelial adenocarcinoma from 69 year old female*	❑ **HUV-EC** ***Origin: Umbilical vein endothelial cells from normal adult female***	❑ **HL-60** ***Origin: Peripheral blood promyeloblasts from 36 year old female***

D. KINETWORKS™ SERVICE REQUESTED: ❑ If yes, then indicate the screens of interest below ❑ No

E **KPKS-1.2** (750 µg) *Protein Kinase Screen*	E **KPPS-1.2** (500 µg) *Protein Phosphatase Screen*	P **KPSS 1.3** (500 µg) *Generic Phospho-site Screen*	P **KPSS 10.1** (500 µg *Cell Cycle Status Scree*
P **KPSS 11.0** (500 µg) *Protein Kinase Screen*	P **KPSS 12.1** (500 µg) *Kinase Substrate Screen*	C **KCPS-1.0** (500 µg) *Custom Multi-Antibody Screen*	C **KCSS-1.0** (50 µg/sample) *Custom Multi--Sample Screen*

Kinexus offers 3 different types of screening services denoted by the following symbols: E *expression level profiles* P *phosphorylation profiles* C *custom services*

E. KINEX™ KAM-1.1 ANTIBODY MICROARRAY SERVICE REQUESTED: ❑ Yes ❑ No

Please complete this form and fax to Kinexus at 604.323.2548 with your email address or telephone number for pricing information on this order.

Name of person completing this form	*Email Address/Phone Number*	*Date (m/d/y)*

KINEXUS

Form: IVC-SOF-01

IN VIVO SERVICES

SERVICE ORDER FORM

CUSTOM SERVICES WITH KINETWORKS™ IMMUNOBLOTTING AND KINEX™ ANTIBODY MICROARRAYS

KINEXUS ORDER NUMBER

CUSTOMER INFORMATION

❑ 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*

KINETWORKS™ AND KINEX™ REPORTS

RESULTS SENT BY EMAIL TO: ❑ AUTHORIZED REPRESENTATIVE/INVESTIGATOR **AND/OR** ❑ CONTACT PERSON

BILLING INFORMATION

Services offered for Custom Screens

PRICE PER BLOT - ***Refer to Box D of the Sample Identification Forms (IV-CSS-SIF-01 and IV- KSAM-SIF-01): All prices in U.S. Funds***

KCSS 1.0 (Eight-Sample) Immunoblot Custom Screen

Number of Kinetworks™ blots – 1 antibody Non-confidential*	_____ @ $549 U.S. per screen		$ _____
Number of Kinetworks™ blots – 2 antibodies Non-confidential*	_____ @ $649 U.S. per screen	+	$ _____
Number of Kinetworks™ blots – 3 antibodies Non-confidential*	_____ @ $749 U.S. per screen	+	$ _____
Number of Kinetworks™ blots – 1 antibody Confidential*	_____ @ $1098 U.S. per screen	+	$ _____
Number of Kinetworks™ blots – 2 antibodies Confidential*	_____ @ $1298 U.S. per screen	+	$ _____
Number of Kinetworks™ blots – 3 antibodies Confidential*	_____ @ $1498 U.S. per screen	+	$ _____

**8 samples for each KCSS screen ordered analyzed against 1 to 3 antibodies*

KSAM 1.1 (Two-Sample) Microarray Custom Screen

Number of Kinex™ arrays – Non-confidential**	_____ @ $1498 U.S. per screen	+	$ _____

***2 samples for each KSAM 1.1 screen ordered analyzed against 650+ antibodies*

SUBTOTAL = $ _____

***Quotation or Reference Number*:** _____ - $ _____

TOTAL COST FOR THIS ORDER = $ _____

FOR CANADIAN CUSTOMERS ONLY:

Add an additional 5% to the above total for GST (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 | *Visa Number* | *Expires (M/Y)* | *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 SERVICE AGREEMENT AND AGREES TO BE BOUND BY THE TERMS AND CONDITIONS:

Print Name of Authorized Representative or Principal Investigator | *Authorized Signature* | *Date (m/d/y)*

How did you originally hear about the In Vivo Services? ❑ *Direct Mail* ❑ *Email* ❑ *Web Site* ❑ *Advertisement* ❑ *Referral* ❑ *Conference or Trade Show* ❑ *Other*

IN VIVO SERVICES

CUSTOM KINEX™ KSAM-1.2 SCREEN SERVICE IDENTIFICATION FORM

Subject to terms of the Kinexus Service Agreement

Form: IV-KSAM-SIF-01

KINEXUS ORDER NUMBER

NAME: _____ **COMPANY/INSTITUTE:** _____

(Authorized Representative or Principal Investigator)

CUSTOM ANTIBODY MICROARRAY SCREENING SERVICE REQUESTED (WITH KINEXUS LYSATES ONLY):

Please refer to Appendix A for the selection of any two (2) samples from the inventory of cell/tissues lysates available in-house from Kinexus for Kinex™ KSAM 1.1 antibody microarray analysis. For each selected sample, provide the appropriate ID codes (highlighted in yellow) from Appendix A as well as the names of the cell/tissue lysates. If clients wish to provide their own cell/tissue lysates for antibody microarray analysis, they should use instead the forms provided in the Kinex™ Services Customer Information Package for our standard Kinex™ KAM-1.2 Antibody Microarray Service.

CUSTOM SERVICE REQUESTED:
KSAM-1.2
Custom Two Sample (2) Antibody Microarray Screen

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

A. CUSTOM KSAM-1.2 SCREEN ID NAME:

Customer ID: _____

Please provide your own chosen name to reference the particular combination of two samples in the Custom KSAM-1.2 Screen.

B. SAMPLE SELECTION

Record information from the table of cell and tissue lysates provided in Appendix A (ID codes are highlighted in yellow).

1. ID Code: _____ Cell/Tissue: _____ Perturbation: _____

2. ID Code: _____ Cell/Tissue: _____ Perturbation: _____

C. ANTIBODY MICROARRAY SCREEN SELECTION:

Presently only the Kinex™ KSAM-1.2 antibody microarray is available.

D. PRICING

Non-confidential only. **$1,498 US**

CUSTOM SERVICE REQUESTED:
KSAM-1.2
Custom Two Sample (2) Antibody Microarray Screen

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

A. CUSTOM KSAM-1.2 SCREEN ID NAME:

Customer ID: _____

Please provide your own chosen name to reference the particular combination of two samples in the Custom KSAM-1.2 Screen.

B. SAMPLE SELECTION

Record information from the table of cell and tissue lysates provided in Appendix A (ID codes are highlighted in yellow).

1. ID Code: _____ Cell/Tissue: _____ Perturbation: _____

2. ID Code: _____ Cell/Tissue: _____ Perturbation: _____

C. ANTIBODY MICROARRAY SCREEN SELECTION:

Presently only the Kinex™ KSAM-1.2 antibody microarray is available.

D. PRICING

Non-confidential only. **$1,498 US**

CUSTOM SERVICE REQUESTED:
KSAM-1.2
Custom Two Sample (2) Antibody Microarray Screen

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

A. CUSTOM KSAM-1.2 SCREEN ID NAME:

Customer ID: _____

Please provide your own chosen name to reference the particular combination of two samples in the Custom KSAM-1.2 Screen.

B. SAMPLE SELECTION

Record information from the table of cell and tissue lysates provided in Appendix A (ID codes are highlighted in yellow).

1. ID Code: _____ Cell/Tissue: _____ Perturbation: _____

2. ID Code: _____ Cell/Tissue: _____ Perturbation: _____

C. ANTIBODY MICROARRAY SCREEN SELECTION:

Presently only the Kinex™ KSAM-1.2 antibody microarray is available.

D. PRICING

Non-confidential only. **$1,498 US**

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

KINEXUS

Form: IV-CSS-SIF-01

IN VIVO SERVICES

CUSTOM KINETWORKS™ KCSS 1.0 SCREEN SERVICE IDENTIFICATION FORM

Subject to terms of the Kinexus Service Agreement

KINEXUS ORDER NUMBER

NAME: _____ **COMPANY/INSTITUTE:** _____

(Authorized Representative or Principal Investigator)

CUSTOM KINETWORKS™ SCREENING SERVICE REQUESTED: (WITH KINEXUS AND/OR CLIENT LYSATES AND ANTIBODIES)

Clients have the option of using prepared cell/tissues lysate samples and antibodies provided by Kinexus or their own samples and antibodies, or any combination thereof. Please refer to Appendix A for the selection of any eight (8) samples and Appendix B for the selection of one (1) to three (3) antibodies from the in-house inventory of cell/tissue lysates and antibodies available from Kinexus for immunoblotting analysis. For each selected sample and the desired antibodies, provide the appropriate ID codes (highlighted in yellow) from Appendices A and B, respectively, as well as the names of the cell/tissue lysates and protein target (and phosphorylation sites if applicable). Clients may also provide their own cell/tissue lysates or antibodies for this immunoblotting service if they fully describe the nature of these lysates (including species of origin) and probing antibodies (including immunogen sequence, the animal species in which the antibody was produced as well as manufacturer's name and catalogue number if it is commercially sourced). For selection of 2 or 3 probing antibodies, the selected target proteins must be easily resolvable (see Box C). Please check the appropriate tick boxes.

CUSTOM SERVICE REQUESTED:
KCSS-1.0
Custom Multi-Sample (8) and Antibody (1-3) Screen

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

A. CLIENT SCREEN ID NAME:

Customer ID: _____

For each Custom Screen, please complete a separate Client Supplied Non-confidential or Confidential Sample Description Form (IVC-NSDF-01 or IVC-CSDF-01) and assign an ID Number for your internal reference.

B. SAMPLE SELECTION

Samples should be listed in the order that you wish these samples to deposited on the SDS-PAGE gel from left to right. For Kinexus supplied samples, record the following information from Appendix A (ID Codes are highlighted in yellow). For client supplied samples, please provide the client name for each sample that has been entered into Box B from the completed completed and attached "Client-Supplied Non-Confidential Sample Description" (IVC-NSDF-01) or the Client-Supplied Confidential Sample Description" (IVC-CSDF-01) forms.

Lane 1 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 2 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 3 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 4 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 5 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 6 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 7 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

Lane 8 . ❑ Kinexus ID Code: _____ Cell/Tissue: _____ Perturbation: _____
❑ Client supplied Client name for sample _____

C. ANTIBODY SELECTION:

If more than one antibody is selected for probing, then the target proteins must be resolved by at least 15 KDa for shared molecular masses less than 50 KDa, at least 25 KDa for shared molecular masses between 50 KDa and 100 KDa, and no more than one target protein should have a molecular masses exceeding 100 KDa. Record information for selected Kinexus antibodies from Appendix B (highlighted in yellow). If you are using this service to follow up on previous Kinex™ or Kinetworks™data, use the ID Code provided with the results of your previous order or contact our Technical Services Representatives. If any antibodies are to be provided by the client, please complete a "Client-Supplied Antibody Description Form" (IVC-CADF-01) for each antibody and provide the Client name for the antibody that is entered in Box B of these forms.

Antibody #1

❑ **Kinexus supplied** ID Code: _____
Protein target name: _____
Phospho-site (if appropriate): _____
❑ **Client supplied** Client name for antibody _____

Antibody #2

❑ **Kinexus supplied** ID Code: _____
Protein target name: _____
Phospho-site (if appropriate): _____
❑ **Client supplied** Client name for antibody _____

Antibody #3

❑ **Kinexus supplied** ID Code: _____
Protein target name: _____
Phospho-site (if appropriate): _____
❑ **Client supplied** Client name for antibody* _____

D. PRICING:

❑ Non-confidential, probed with 1 antibody	**$549 US**
❑ Non-confidential, probed with 2 antibodies	**$649 US**
❑ Non-confidential, probed with 3 antibodies	**$749 US**
❑ Confidential, probed with 1 antibody	**$1098 US**
❑ Confidential, probed with 2 antibodies	**$1298 US**
❑ Confidential, probed with 3 antibodies	**$1498 US**

Use this pricing information for completion and submission of Service Order Form: IVC-SOF-01.

I hereby certify that all of the information about cell/tissue samples and antibodies that I provided in this order is correct and accurate to the best of my knowledge.

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

KINEXUS

Form: IVC-NSDF-01

KINEXUS ORDER NUMBER

IN VIVO SERVICES

CLIENT SUPPLIED NON-CONFIDENTIAL SAMPLE DESCRIPTION FORM

Subject to terms of the Kinexus Service Agreement

NAME: _____ **COMPANY/INSTITUTE:** _____

(Authorized Representative or Principal Investigator)

Non-Confidential Services Requested and Sample Details:

Please refer to the Kinetworks™ Sample and Kinex™ Sample Preparation Protocols for details on preparing your samples for the KCSS 1.0 and KSAM-1.1 services, respectively. Clients are required to complete all Sections A-K to qualify for the non-confidential pricing level of the In Vivo Kinetworks™ KCSS 1.0 and Kinex™ KSAM-1.1 screens. If sample details are to remain confidential, please complete instead the "Client Supplied Confidential Sample Description Form" (IVC-CSDF-01) in Sections A-C. If you need assistance completing this form, 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.

A. CLIENT SCREEN ID NAME AND KINETWORKS™ KCSS 1.0 BLOT LANE NUMBER:

CLIENT ID: _____ LANE NUMBER: _____ (if KCSS 1.0 blot)

Use the Client Screen ID Name that you entered in Box A on either the "In Vivo Custom Kinetworks™ KCSS Screen Service Identification Form" (IV-CSS-SIF-01) (along with desired lane on the SDS-PAGE gel in which this sample is to be analyzed) or on the "In Vivo Custom Kinex™ KSAM Screen Service Identification Form" (IV-KSAM-SIF-01)

B. SAMPLE IDENTIFICATION:

Client Name for Sample: _____ Control: ❑ Yes ❑ No

Concentration: _____ Volume: _____

Clients should provide at least 50 µg of protein for KCSS 1.0 and 100 µg of protein for KSAM-1.1 at a concentration ≥ 1 mg/ml

C. SPECIES:

❑ Human *(Homo sapiens)* Sex: ❑ Male ❑ Female ❑ M/F pooled ❑ Unknown

❑ Rat *(Rattus norvegicus)* # Animals: ____ Age: _____ Weight: _____

❑ Mouse *(Mus musculus)*

❑ Other – *Provide scientific & common name:* _____

KINEXUS ID NUMBER (FOR INTERNAL USE ONLY)

(Bar Code Identification Number)

D. SAMPLE SOURCE:

Tissues: ❑ Yes ❑ No *If yes, proceed to Section E*

Cells: ❑ Yes ❑ No *If yes, proceed to Section F*

E. TISSUES:

A. Organ source of tissue: _____

B. Tissue name: _____

C. Disease condition if appropriate: _____

F. CELLS: Is your sample a primary culture? ❑ Yes ❑ No

Is your sample an established cell line? ❑ Yes ❑ No

A. Name of cell line: _____

B. Organ source of cells: _____

C. Tissue or cell type: _____

D. Disease condition if appropriate: _____

G. CELL STATE: ❑ N/A

❑ Subconfluent ❑ Quiescent

❑ Confluent ❑ Senescent

❑ Proliferating ❑ Apoptosing

❑ Differentiated ❑ Stressed

H. FRACTIONATION:

❑ Detergent-solubilized total lysate

❑ Cytosolic (Soluble)

❑ Particulate (Detergent-solubilized)

❑ IP - *If yes, indicate antibody or ligand used:* _____

❑ Other purification: _____

I. PERTURBATION:

❑ Normal untreated *If yes, proceed to Section K*

❑ Normal treated *If yes, proceed to Section J*

❑ Diseased untreated *If yes, proceed to Section K*

❑ Diseased treated *If yes, proceed to Section J*

J. TREATMENTS: ***Please indicated if you used combined [CMB] or sequential [SEQ] treatments and provide details on your treatment:***

1. Name of compound/stimuli: _____ Concentration: _____ Time: _____ ❑ CMB ❑ SEQ

2. Name of compound/stimuli: _____ Concentration: _____ Time: _____ ❑ CMB ❑ SEQ

3. Name of compound/stimuli: _____ Concentration: _____ Time: _____ ❑ CMB ❑ SEQ

Details of treatment: _____

K. ADDITIONAL SAMPLE INFORMATION: ***Please include any additional information that differentiates your samples:***

Transgenic: ❑ Yes ❑ No Knockout: ❑ Yes ❑ No Wildtype: ❑ Yes ❑ No Transfected/Over-expressed: ❑ Yes ❑ No Mutant: ❑ Yes ❑ No

If you answered yes to any of the above, please specify details including if there was any deprivation (such as serum/growth factor/drug/site of mutation) prior to treatment:

I hereby certify that all the sample information provided in this order is correct and accurate to the best of my knowledge. To qualify for the non-confidential pricing level, I agree that all Sections A-K must be completed in full otherwise the confidential pricing level will be applied. I further acknowledge that I may be contacted by a Kinexus representative for additional information if any section is unclear.

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

KINEXUS

Form: IVC-CSDF-01

IN VIVO SERVICES

CLIENT SUPPLIED CONFIDENTIAL SAMPLE DESCRIPTION FORM

Subject to terms of the Kinexus Service Agreement

KINEXUS ORDER NUMBER

NAME: _____ **COMPANY/INSTITUTE:** _____

(Authorized Representative or Principal Investigator)

Confidential Service Requested and Sample Details:

Please refer to the Kinetworks™ Sample and Kinex™ Sample Preparation Protocols for details on preparing your samples for the KCSS 1.0 and KSAM 1.1 services, respectively. Clients are required to complete Sections A-C for a confidential analysis with the Kinetworks™ and Kinex™ screens. Note that a confidential analysis is performed at a higher pricing level than a non-confidential analysis. Clients should instead complete all of Sections A-K on the "Client Supplied Non-Confidential Sample Description Form" (IVC-NSDF-01) to qualify for the non-confidential pricing. If you need assistance completing this form, 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.

A. CLIENT SCREEN ID NAME AND KINETWORKS™ KCSS 1.0 BLOT LANE NUMBER:

CLIENT ID: _____ LANE NUMBER: _____ (if KCSS 1.0 blot)

Use the Client Screen ID Name that you entered in Box A on either the "In Vivo Custom Kinetworks™ KCSS Screen Service Identification Form" (IV-CSS-SIF-01) (along with desired lane on the SDS-PAGE gel in which this sample is to be analyzed) or on the "In Vivo Custom Kinex™ KSAM Screen Service Identification Form" (IV-KSAM-SIF-01)

B. SAMPLE IDENTIFICATION:

Client Name for Sample: _____ Control: ❑ Yes ❑ No

Concentration: _____ Volume: _____

Clients should provide at least 50 µg of protein for KCSS 1.0 and 100 µg of protein for KSAM-1.1 at a concentration ≥ 1 mg/ml

C. SPECIES:

❑ Human *(Homo sapiens)* Sex: ❑ Male ❑ Female ❑ M/F pooled ❑ Unknown

❑ Rat *(Rattus norvegicus)* # Animals: ____ Age: _____ Weight: _____

❑ Mouse *(Mus musculus)*

❑ Other – *Provide scientific & common name:* _____

KINEXUS ID NUMBER (FOR INTERNAL USE ONLY)

(Bar Code Identification Number)

A. CLIENT SCREEN ID NAME AND KINETWORKS™ KCSS 1.0 BLOT LANE NUMBER:

CLIENT ID: _____ LANE NUMBER: _____ (if KCSS 1.0 blot)

Use the Client Screen ID Name that you entered in Box A on either the "In Vivo Custom Kinetworks™ KCSS Screen Service Identification Form" (IV-CSS-SIF-01) (along with desired lane on the SDS-PAGE gel in which this sample is to be analyzed) or on the "In Vivo Custom Kinex™ KSAM Screen Service Identification Form" (IV-KSAM-SIF-01)

B. SAMPLE IDENTIFICATION:

Client Name for Sample: _____ Control: ❑ Yes ❑ No

Concentration: _____ Volume: _____

Clients should provide at least 50 µg of protein for KCSS 1.0 and 100 µg of protein for KSAM-1.1 at a concentration ≥ 1 mg/ml

C. SPECIES:

❑ Human *(Homo sapiens)* Sex: ❑ Male ❑ Female ❑ M/F pooled ❑ Unknown

❑ Rat *(Rattus norvegicus)* # Animals: ____ Age: _____ Weight: _____

❑ Mouse *(Mus musculus)*

❑ Other – *Provide scientific & common name:* _____

KINEXUS ID NUMBER (FOR INTERNAL USE ONLY)

(Bar Code Identification Number)

A. CLIENT SCREEN ID NAME AND KINETWORKS™ KCSS 1.0 BLOT LANE NUMBER:

CLIENT ID: _____ LANE NUMBER: _____ (if KCSS 1.0 blot)

Use the Client Screen ID Name that you entered in Box A on either the "In Vivo Custom Kinetworks™ KCSS Screen Service Identification Form" (IV-CSS-SIF-01) (along with desired lane on the SDS-PAGE gel in which this sample is to be analyzed) or on the "In Vivo Custom Kinex™ KSAM Screen Service Identification Form" (IV-KSAM-SIF-01)

B. SAMPLE IDENTIFICATION:

Client Name for Sample: _____ Control: ❑ Yes ❑ No

Concentration: _____ Volume: _____

Clients should provide at least 50 µg of protein for KCSS 1.0 and 100 µg of protein for KSAM-1.1 at a concentration ≥ 1 mg/ml

C. SPECIES:

❑ Human *(Homo sapiens)* Sex: ❑ Male ❑ Female ❑ M/F pooled ❑ Unknown

❑ Rat *(Rattus norvegicus)* # Animals: ____ Age: _____ Weight: _____

❑ Mouse *(Mus musculus)*

❑ Other – *Provide scientific & common name:* _____

KINEXUS ID NUMBER (FOR INTERNAL USE ONLY)

(Bar Code Identification Number)

I hereby certify that all the sample information provided in this order is correct and accurate to the best of my knowledge. I further acknowledge that I may be contacted by a Kinexus representative for additional information if any section is unclear.

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

KINEXUS

IN VIVO SERVICES

CLIENT-SUPPLIED ANTIBODY DESCRIPTION FORM

Subject to terms of the Kinexus Service Agreement

Form: IVC-CADF-01

KINEXUS ORDER NUMBER

NAME: _____ **COMPANY/INSTITUTE:** _____

(Authorized Representative or Principal Investigator)

CUSTOM KINETWORKS™ SCREENING SERVICE REQUESTED: (WITH CLIENT ANTIBODIES)

Clients have the option of using their own antibodies for Kinetworks™ KCSS 1.0 analysis if they fully describe the nature of the probing antibodies (including immunogen sequence, the animal species in which the antibody was produced as well as manufacturer's name and catalogue number if it is commercially sourced). Please note that in the event that clients do not wish to disclose the source or nature of the antibodies that they are providing, then Confidential Pricing must apply. Clients must still complete Sections A to C for Confidential analyses. Please check the appropriate tick boxes.

A. CLIENT SCREEN ID NAME + KINETWORKS™ SCREEN NAME:

CLIENT ID: _____

Use the Client Screen ID Name that you entered in Box A on the "In Vivo Custom Kinetworks™ KCSS Screen Service Identification Form" (IV-CSS-SIF-01)

B. ANTIBODY IDENTIFICATION:

Client Name for Antibody: _____

Concentration: _____ Volume: _____

Recommended dilution for Western blotting: _____

Clients should provide at least 5 µg of antibody per KCSS 1.0 gel

C. SPECIES OF ANTIBODY ORIGIN AND TYPE:

- ☐ Rabbit
- ☐ Monoclonal
- ☐ Mouse
- ☐ Polyclonal
- ☐ Goat
- ☐ Human
- ☐ Other – *Provide common name:* _____

KINEXUS ID NUMBER (FOR INTERNAL USE ONLY)

(Bar Code Identification Number)

D. COMMERCIAL SOURCE OF ANTIBODY (if applicable)

Supplier Name: _____

Supplier Catalog Number: _____

Supplier Lot Number: _____

E. IMMUNOGEN INFORMATION:

Species of origin of protein or peptide sequence: _____

Protein: ☐ Yes Protein Name: _____

Peptide: ☐ Yes *If yes, please go to Box F and provide the amino acid sequence of the immunizing peptide if it is known*

F. AMINO ACID SEQUENCE OF IMMUNOGEN

_____

_____

_____

A. CLIENT SCREEN ID NAME + KINETWORKS™ SCREEN NAME:

CLIENT ID: _____

Use the Client Screen ID Name that you entered in Box A on the "In Vivo Custom Kinetworks™ KCSS Screen Service Identification Form" (IV-CSS-SIF-01)

B. ANTIBODY IDENTIFICATION:

Client Name for Antibody: _____

Concentration: _____ Volume: _____

Recommended dilution for Western blotting: _____

Clients should provide at least 5 µg of antibody per KCSS 1.0 gel

C. SPECIES OF ANTIBODY ORIGIN AND TYPE:

- ☐ Rabbit
- ☐ Monoclonal
- ☐ Mouse
- ☐ Polyclonal
- ☐ Goat
- ☐ Human
- ☐ Other – *Provide common name:* _____

KINEXUS ID NUMBER (FOR INTERNAL USE ONLY)

(Bar Code Identification Number)

D. COMMERCIAL SOURCE OF ANTIBODY (if applicable)

Supplier Name: _____

Supplier Catalog Number: _____

Supplier Lot Number: _____

E. IMMUNOGEN INFORMATION:

Species of origin of protein or peptide sequence: _____

Protein: ☐ Yes Protein Name: _____

Peptide: ☐ Yes *If yes, please go to Box F and provide the amino acid sequence of the immunizing peptide if it is known*

F. AMINO ACID SEQUENCE OF IMMUNOGEN

_____

_____

_____

I hereby certify that all of the information about cell/tissue samples and antibodies that I provided in this order is correct and accurate to the best of my knowledge.

_____ _____ _____

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

COMMERCIAL INVOICE

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

NO. OF PKGS	TYPE OF PACKAGING	QUANTITY OF SAMPLES	COMPLETE AND ACCURATE COMMODITY DESCRIPTION	UNIT VALUE
	☐ FedEx Letter ☐ FedEx Pak ☐ Box ☐ Other	*Total number of 1.5 ml Eppendorf tubes:*	Non hazardous, non infectious protein samples packaged in 1.5 ml tubes for research and development testing 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

COMMERCIAL INVOICE

DATE OF EXPORTATION	**EXPORT REFERENCES** (Not required)
SHIPPER/EXPORTER	**CONSIGNEE** Kinexus Bioinformatics Corporation 8755 Ash Street, Suite 1 Vancouver, B.C. Canada V6P 6T3 Telephone: (604) 323-2547 Facsimile: (604) 323-2548 Email: info@kinexus.ca
COUNTRY OF EXPORT	**TERMS OF SALE** Not for resale, sample for analysis
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INTERNATIONAL AIR WAYBILL NUMBER	

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

PROTEOMICS SERVICES AGREEMENT

SERVICE AGREEMENT NO.

This 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: _____

_____

_____

R E C I T A L S

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 manufacture one or more proteins using recombinant DNA technology, and 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 with this Agreement, 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 Proteomics Services 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 by 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, believes has not 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 ten (10) 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 based on a 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 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 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, 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, 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 would, absent a license from the Customer or its Affiliates, prevent Kinexus from using or permitting others to use the 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 to its 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 under written agreements that contain terms and conditions 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 which 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 180 days (6 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 fifteen (15) 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) 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 work order for any Proteomics Services upon ten (10) 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 work order 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 Immunohistochemistry 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.

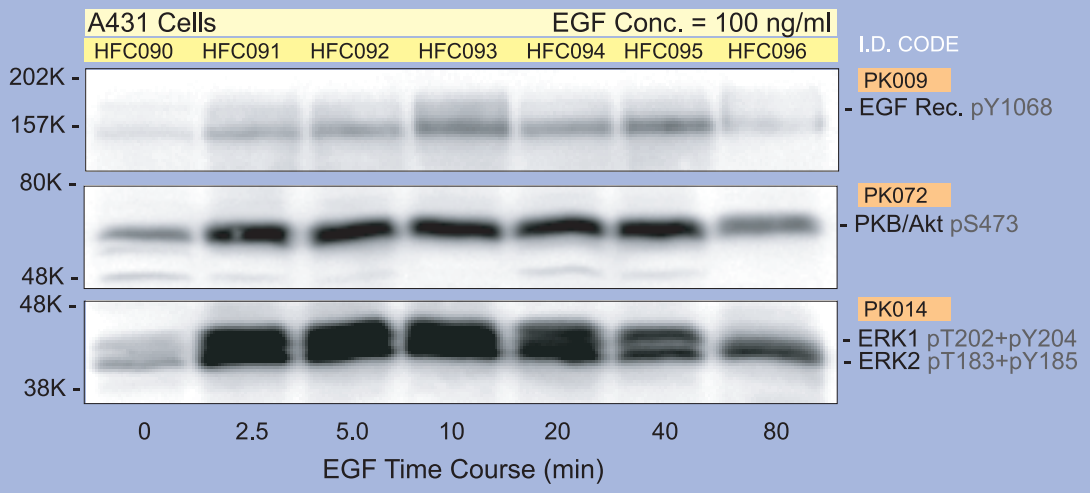
9.10 Counterparts. This Agreement may be executed in counterparts, each of which when executed and delivered is an original, but both of which together shall constitute one and the same instrument.

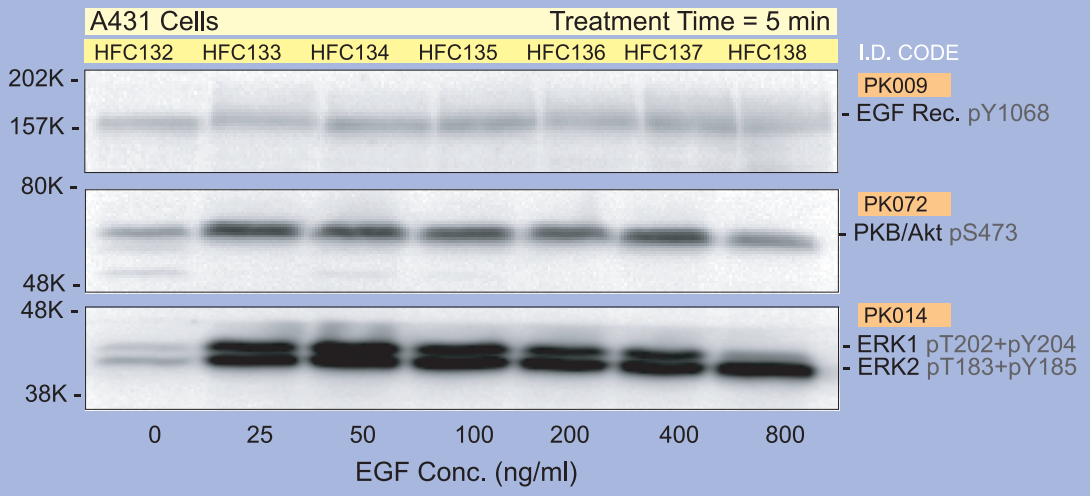
9.11 Fax Delivery. This Agreement may be executed by the parties and transmitted by facsimile and if so executed and transmitted this Agreement will be for all purposes as effective as if the parties had delivered an executed original Agreement.

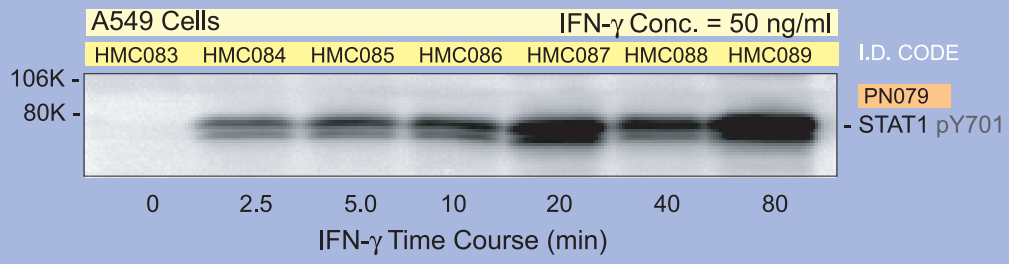
IN WITNESS WHEREOF, the parties have caused their duly authorized officer to execute and deliver this Agreement as of the Effective Date.

_____	**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: _____

FIG. 1A. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND CELL LYSATES







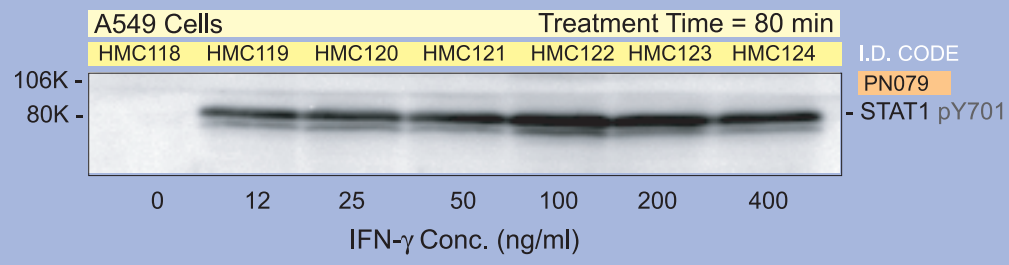


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FIG. 1B. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND CELL LYSATES

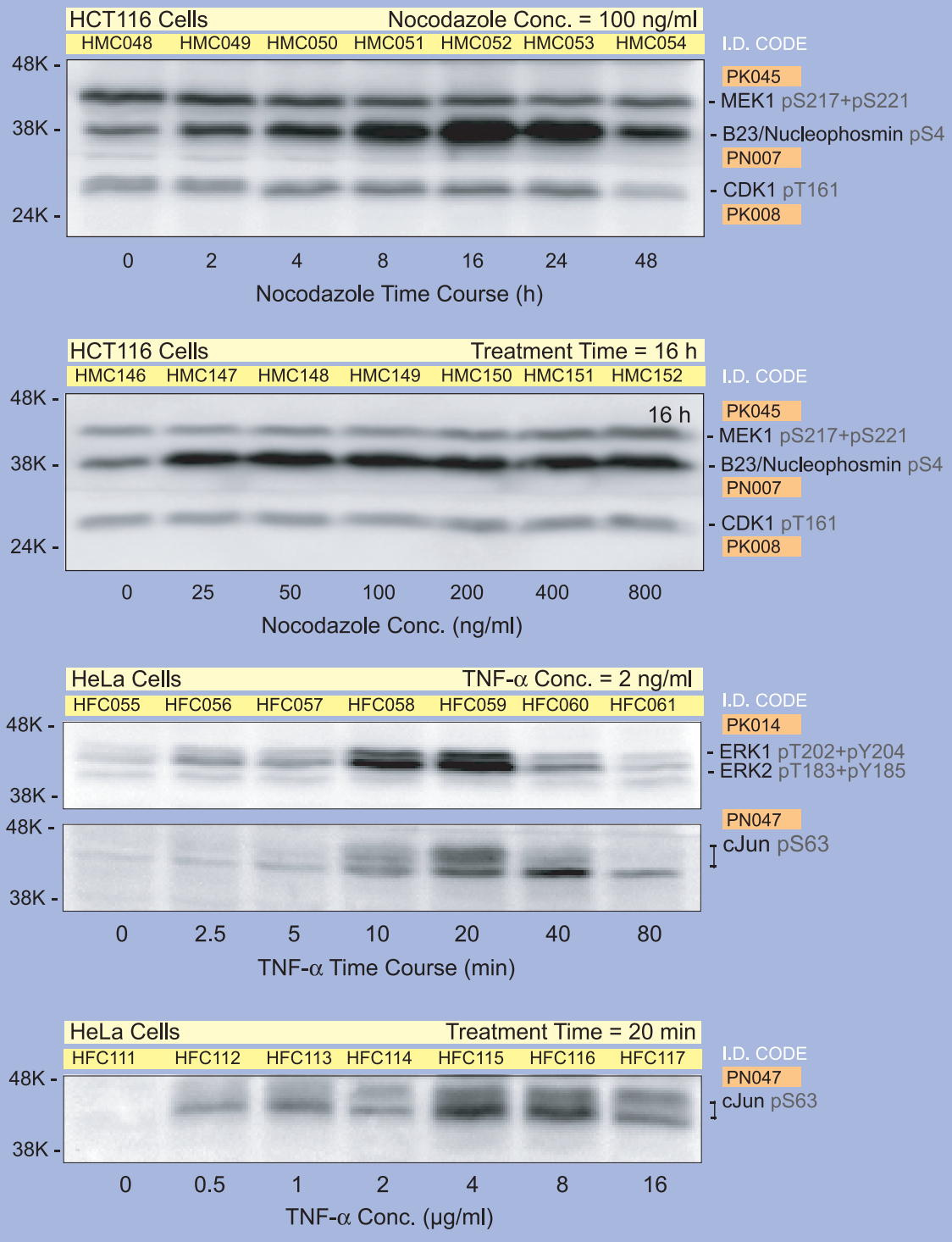

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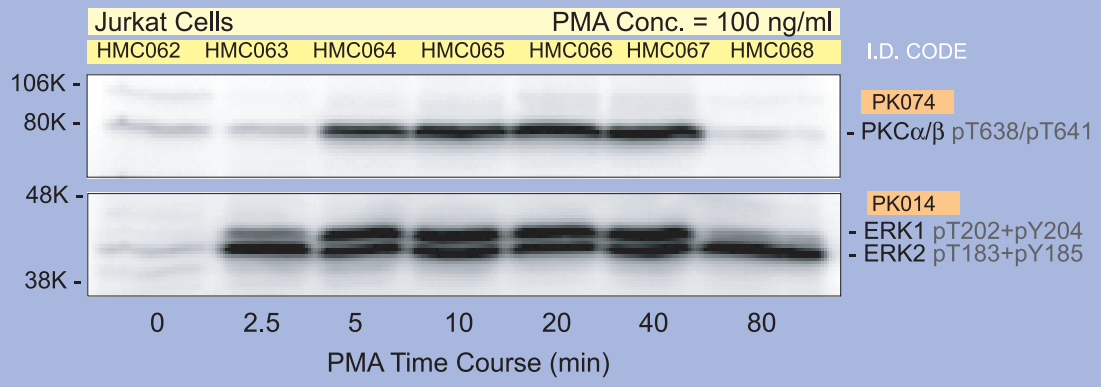
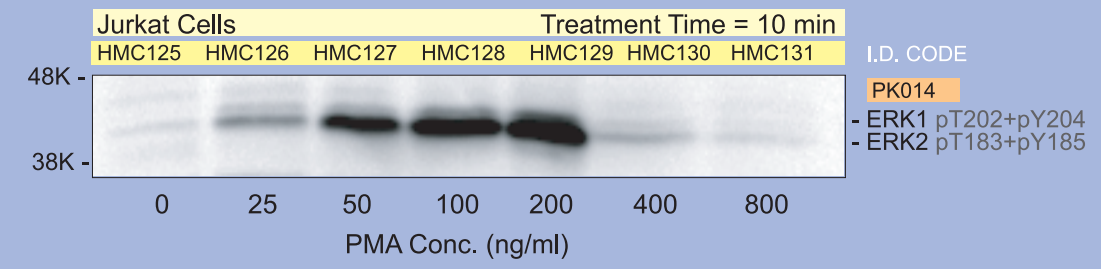
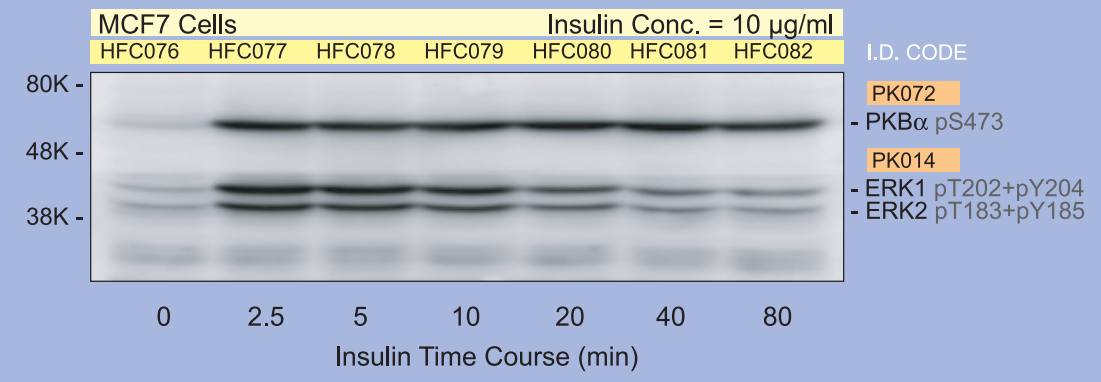
FIG. 1C. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND CELL LYSATES







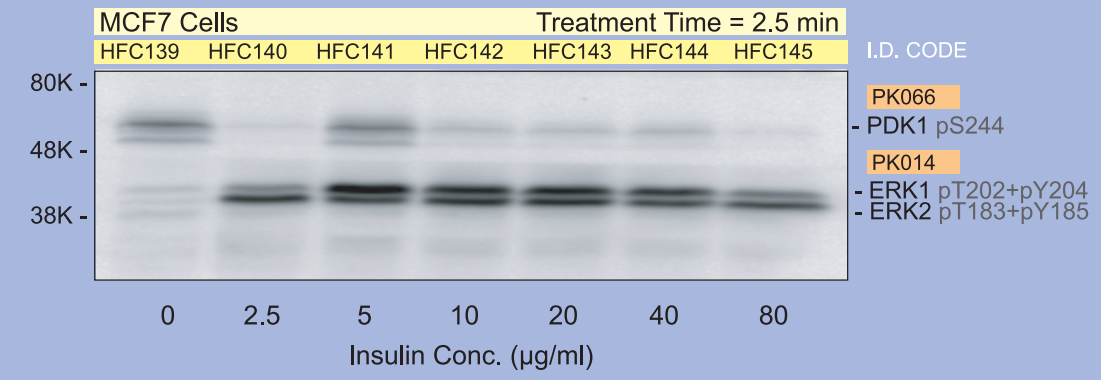


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FIG. 1D. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND CELL LYSATES

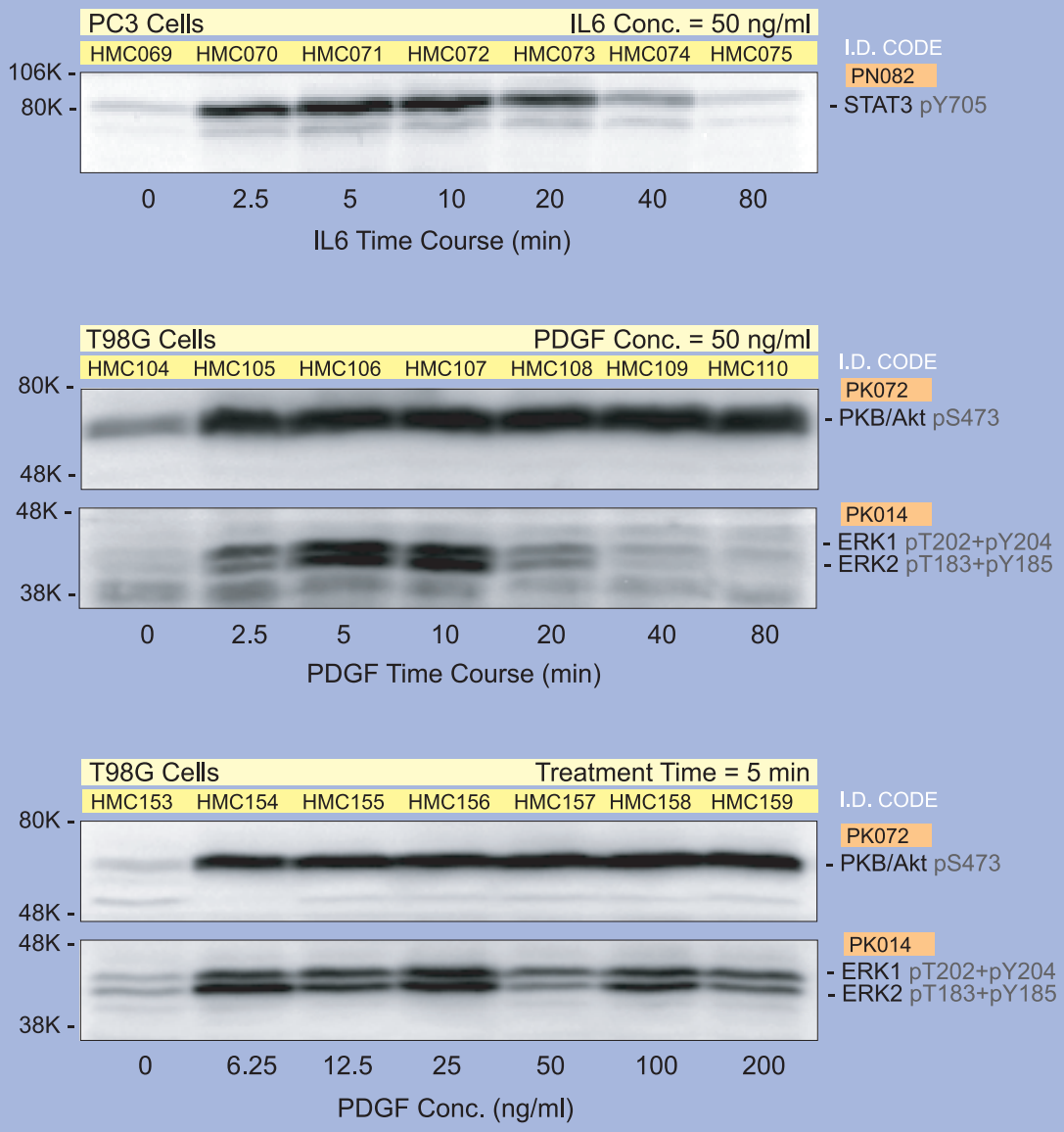

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FIG. 2A. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND TISSUE LYSATES

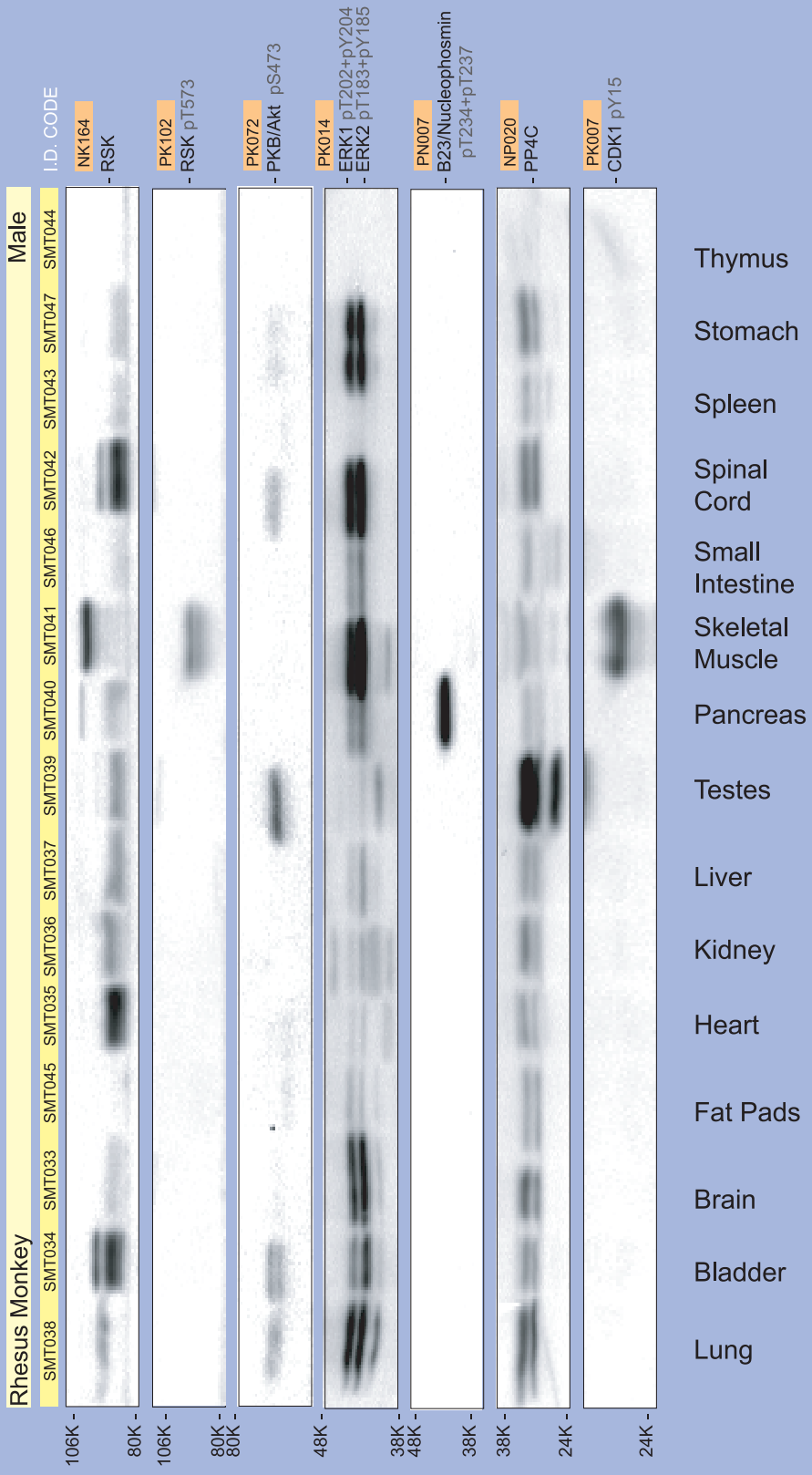

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FIG. 2B. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND TISSUE LYSATES

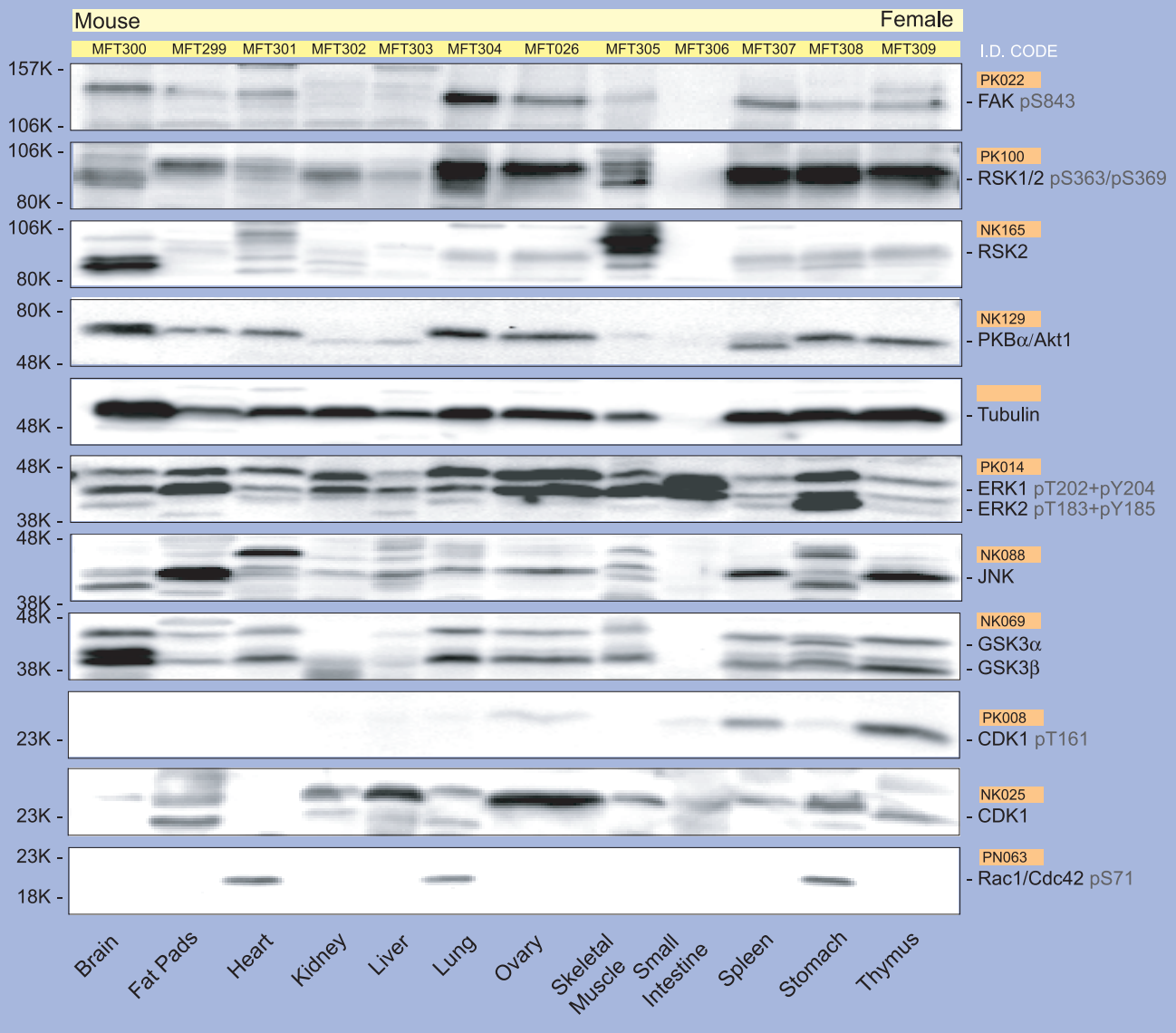

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FIG. 2C. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND TISSUE LYSATES

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FIG. 2D. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND TISSUE LYSATES

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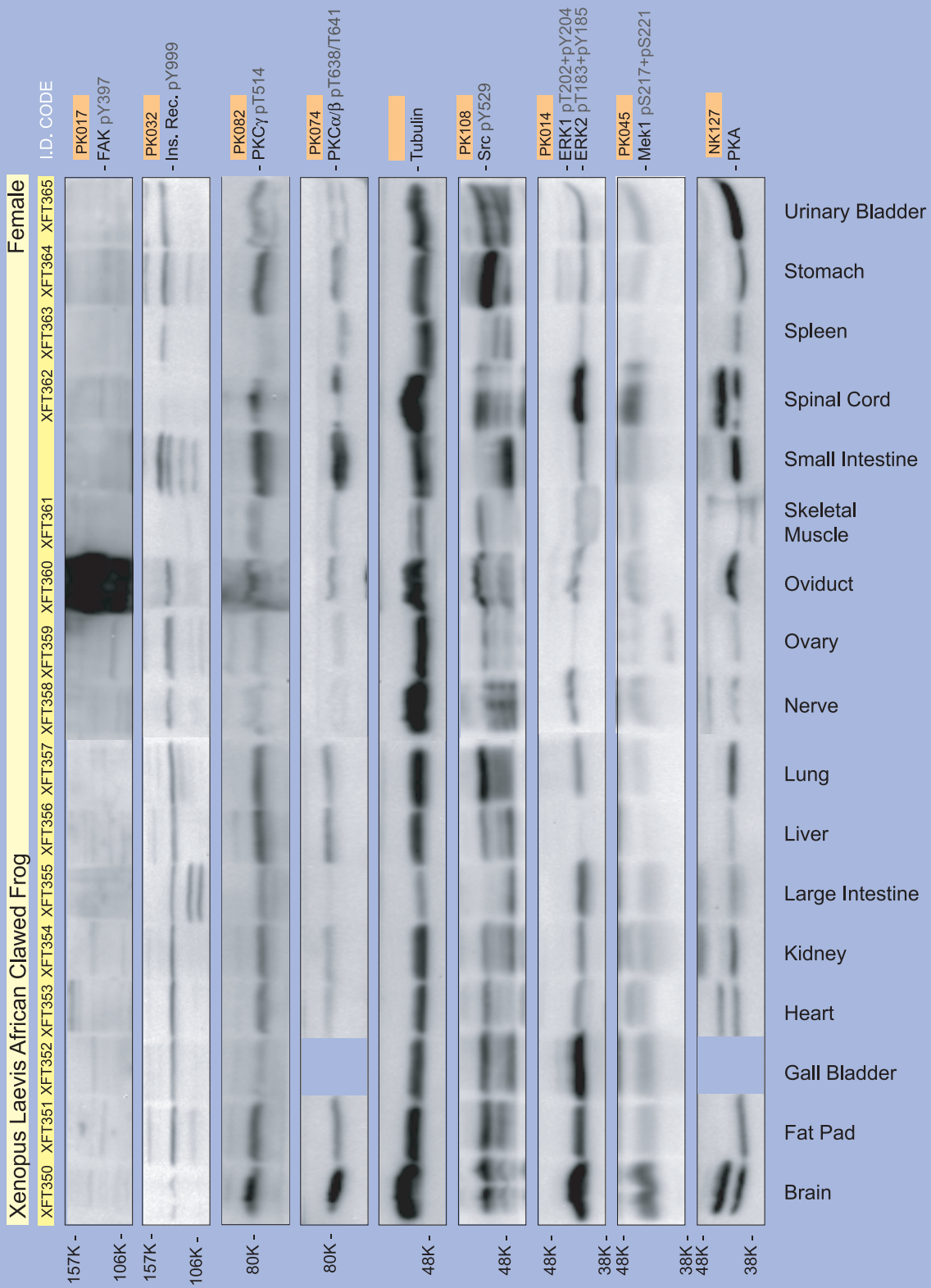
FIG. 2E. EXAMPLES OF CUSTOM IMMUNOBLOTTING SERVICE WITH KINEXUS ANTIBODIES AND TISSUE LYSATES



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