KINEXUS

**CKIP SERVICES**

**Version 10MY1**

# CUSTOM SERVICES

## KINASE-INHIBITOR PROFILING
## CUSTOMER INFORMATION PACKAGE


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# KINASE INHIBITOR COMPOUND PROFILING SERVICE

## 1. INTRODUCTION

The Kinase Inhibitor Compound Profiling (KICP) Service is a convenient and cost-effective solution to assist scientists in ascertaining of the specificity of lead compounds and their mechanisms of action for drug discovery. This information is critical for the selection of better drug candidates for clinical testing. Approximately a third of all pharmaceutical R&D is now focused on protein kinases as drug targets. Kinexus currently has over 265 human protein kinases available for screening with our KICP Service. This number will continue to increase in the near future. At least 515 human protein kinases target the phosphorylation of apparently more than 500,000 phosphorylation sites in the proteome. In view of this, it is critical to establish the specificity of any kinase drug candidate for clinical studies. The more specific the kinase inhibitors, the lower the chances of off targets that could compromise on the utility of the drug from toxicity and other undesired side-effects. This service presently relies on the use of gamma phosphate-radiolabeled ATP to phosphorylate peptide and recombinants protein substrates with purified and active preparations of human protein kinases. Kinexus performs the KICP Service under strict confidentiality, and all materials, information and results are used as directed by the client. We recommend the KICP Service as a useful follow on from our Kinex™ kinase microarray services, which is an alternative method to counter screen for kinase drug specificity by assaying the ability of test compounds to prevent the binding of an ATP analogue probe to over 150 human protein kinases. These *in vitro* services from Kinexus compliments the *in vivo* compound profiling analyses that are offered with our Kinex™ antibody microarray and Kinetworks™ multi-immunoblotting services. With these proteomics services, it is feasible to determine the effects of compounds and other treatments of animals and isolated cells on the expression levels of over 193 known protein kinases and 174 other proteins as well as the status of at least 270 different phospho-sites to monitor indirectly the activities of their upstream kinases.

The KICP Service uses the most reliable direct assay of protein kinase phosphotransferase activity that is known. The methodology is based on the direct quantification of radio-labeled phosphate from ATP (gamma-$^{32}$P or gamma-$^{33}$P) on to a peptide or protein substrate of a target protein kinase. This provides for a high signal to noise detection of phosphorylation, high reproducibility, and reduces the opportunity for artifacts inherent in other methods, such as the measurement of the production of ADP or disappearance of ATP. Furthermore, the assay provides a direct measure of the effect of a compound on the enzymatic phosphotransferase activity of a target protein kinase, rather than a measure of the ability of a compound to bind near the active site of the kinase, as is performed with some other approaches to compound screening.

The preparations of recombinant protein kinases that we use in our KICP Service possess high specific activities, and generally represent full-length human clones. In some instances, we use kinases that feature activating mutations that may occur *in vivo*. But generally, the kinases are activated by endogenous phosphorylation in the baculovirus-infected insect cells or by the addition of the purified and activate upstream protein kinase. For each kinase used in the KCIP Service, the assay conditions have been carefully optimized to ensure the highest levels of phosphotransferase activity. An abbreviated list of the protein kinases that are presently available with our KICP Service is provided on the next two pages in Table 1, and more information is provided in Appendix A. You can also download an MS-Excel spreadsheet with very detailed information on each protein kinase along with active hyperlinks to other websites from our website at http://www.kinexus.ca/ourServices/inhibitor_profiling/index.html.

Table 1. Active Human Protein Kinases Available in the KICP Service.

| Protein Kinase Name | ID Code | Protein Kinase Name | ID Code | Protein Kinase Name | ID Code |
|---|---|---|---|---|---|
| Abl (Abl1) | ABL1 | CDK6/CyclinD1 | C6D1 | GRK7 | GRK7 |
| ACK (TNK2) | ACK1 | CDK6/CyclinD3 | C6D3 | GSK3α | GS3A |
| Akt1/PKBα | AKT1 | CDK7/Cyclin H1/MAT1 | C7H1 | GSK3β | GS3B |
| Akt2/PKBβ | AKT2 | CDK9/Cyclin K | C9CK | Hck | HCK1 |
| Akt3/PKBγ | AKT3 | CHK1 (CHEK1) | CHK1 | HER2 (ErbB2, Neu) | ERB2 |
| ALK1 | ALK1 | CHK2 (CHEK2) | CHK2 | HER4 (ErbB4) | ERB4 |
| ALK2 | ALK2 | CK2α1 (CSNK2A1) | CK21 | HIPK1 (Myak ) | HIP1 |
| ALK4 (ACVR1B) | ALK4 | CK2α2 (CSNK2A2) | CK22 | HIPK3 | HIP3 |
| AMPKα1/β1/γ1 (PRKAA1/B1/G1) | AM11 | CLK1 | CLK1 | HIPK4 | HIP4 |
| AMPKα1/β1/γ2 (PRKAA1/B1/G2) | AM12 | CLK2 | CLK2 | IGF1R | IGF1 |
| AMPKα1/β1/γ3 (PRKAA1/B1/G3) | AM13 | CLK3 | CLK3 | InsR | INSR |
| AMPKα1/β2/γ1 (PRKAA1/B2/G1) | AM21 | COT (MAP3K8) | COT1 | INSRR (IRR ) | ISRR |
| AMPKα2/β1/γ1 (PRKAA2/B1/G1) | AP11 | Csk | CSK1 | IRAK2 | IRA2 |
| AMPKα2/β2/γ2 (PRKAA2/B2/G2) | AP22 | DAPK1 | DAP1 | IRAK4 | IRA4 |
| Arg (Abl2) | ABL2 | DAPK2 | DAP2 | Itk | ITK1 |
| Ask1 (MAP3K5) | ASK1 | DAPK3 (ZIPK ) | DAP3 | JAK3 | JAK3 |
| Aurora A (AurA, STK6) | AUR1 | DCAMKL2 | DCA2 | JNK1 (MAPK8) - mouse | JNK1 |
| Aurora B (AurB, AURKB) | AUR2 | DDR2 | DDR2 | JNK2 (MAPK9) | JNK2 |
| Aurora C (AurC, AURKC) | AUR3 | DMPK | DMPK | JNK3 (MAPK10) | JNK3 |
| Axl | AXL1 | DYRK1A | DY1A | KDR (VEGFR2) | KDR1 |
| BARK1 (ADRBK1, GRK2) | GRK2 | DYRK3 | DYR3 | KHS1 (MAP4K5) | KHS1 |
| Blk | BLK1 | eEF2K | EF2K | Kit | KIT1 |
| Bmx | BMX1 | EPHA1 | EPA1 | Kit [V654A] | KITM |
| B-Raf | RAF2 | EPHA2 | EPA2 | Lck | LCK1 |
| B-Raf [V599E] | RAF4 | EPHA3 | EPA3 | LIMK1 | LIM1 |
| Brk (PTK6) | BRK1 | EPHA4 | EPA4 | LKB1 | LKB1 |
| Btk | BTK1 | EPHA6 | EPA6 | LOK (STK10) | LOK1 |
| CaMK1α (CAMK1) | CM1A | EphB1 | EPB1 | LRRK2 | LRR2 |
| CaMK1β (PNCK) | CM1B | EphB2 | EPB2 | Lyn A | LYNA |
| CaMK1δ (CAMK1D) | CM1D | EphB3 | EPB3 | Lyn B | LYNB |
| CAMK1γ | CM1G | EphB4 | EPB4 | MAPKAPK2 | MKA2 |
| CAMK2α (CAMK2A) | CM2A | Erk1 (MAPK3) | ERK1 | MAPKAPK3 | MKA3 |
| CaMK2β (CAMK2B) | CM2B | Erk2 (MAPK1) | ERK2 | MAPKAPK5 | MKA5 |
| CAMK2δ | CM2D | FAK (PTK2) | FAK1 | MARK1 | MAR1 |
| CAMK2γ | CM2G | Fer | FER1 | MARK2 | MAR2 |
| CAMK4 | CMK4 | Fes (Fps) | FES1 | MARK3 | MAR3 |
| CAMKK1 (CAMKKA ) | CKK1 | FGFR1 (Flt2) | FGR1 | MARK4 | MAR4 |
| CAMKK2 | CKK2 | FGFR1 (Flt2) [V561M] | FGRM | MEK1 [S218E, S222E] | MEKA |
| CDK1 (CDC2)/CyclinA1 | C1A1 | FGFR2 | FGR2 | MEK1 (MKK1, MAP2K1) | MEK1 |
| CDK1 (CDC2)/CyclinA2 | C1A2 | FGFR3 | FGR3 | MEK2 (MAP2K2) | MEK2 |
| CDK1 (CDC2)/CyclinB1 | C1B1 | FGFR4 | FGR4 | MEKK2 (MAP3K2 ) | MKK2 |
| CDK2/CyclinA1 | C2A1 | Fgr | FGR1 | MEKK3 (MAP3K3) | MKK3 |
| CDK2/CyclinA2 | C2A2 | Flt1 | FLT1 | Mer (MERTK ) | MER1 |
| CDK2/CyclinE1 | C2E1 | Flt3 | FLT3 | Met | MET1 |
| CDK3/CyclinE1 | C3E1 | Fms (CSF1R) | FMS1 | MLK3 (MAP3K11) | MLK3 |
| CDK4/Cyclin D1 | C4D1 | FRK | FRK1 | MNK1 (MKNK1) | MNK1 |
| CDK4/CyclinD3 | C4D3 | FynA | FYN1 | MNK2 (MKNK2) | MNK2 |
| CDK5/p25 | C5P2 | GCK | GCK1 | MRCKα (CDC42BPA) | MRCA |
| CDK5/p29 | C5P9 | GPRK5 (GRK5) | GRK5 | MRCKβ (CDC42BPB) | MRCB |
| CDK5/p35 | C5P3 | GRK6 | GRK6 | MSK1(PRS6KA5) | MSK1 |

Table 1. Active Human Protein Kinases Available in the KICP Service. (Cont'd)

| Protein Kinase Name | ID Code | Protein Kinase Name | ID Code | Protein Kinase Name | ID Code |
|---|---|---|---|---|---|
| MSSK1 (STK23) | MSS1 | PKCε (PRKCE) | PKCE | TGFβR1 | TGF1 |
| MST1 (STK4) | MST1 | PKCγ (PRKCG) | PKCG | TGFβR2 | TGF2 |
| MST2 (STK3) | MST2 | PKCη (PRKCH) | PKCH | Tie2 (Tek) | TIE2 |
| MST3 (STK24) | MST3 | PKCι (PRKCI) | PKCI | TLK2 | TLK2 |
| MST4 | MST4 | PKCθ (PRKCQ) | PKCQ | TrkA (NTRK1) | TRKA |
| MUSK | MUSK | PKCζ (PRKCZ) | PKCZ | TrkB (NTRK2) | TRKB |
| MYO3β | MYO3 | PKD1 (PRKD1, PKCμ) | PKD1 | TrkC | TRKC |
| MYT1 | MYT1 | PKD2 (PRKD2) | PKD2 | TSSK1 (STK22D) | TSS1 |
| NDR1 | NDR1 | PKD3 (PRKD3) | PKD3 | TSSK2 (STK22B) | TSS2 |
| NEK11 | NK11 | PKG1α (PRKG1A) | PKG1 | TTK | TTK1 |
| NEK2 | NK02 | PKN1 | PKN1 | TXK | TXK1 |
| NEK3 | NK03 | PKN2 | PKN2 | TYK2 | TYK2 |
| NEK6 | NK06 | PKR (EIF2AK2) | PKR1 | TYRO3 (RSE ) | TYR3 |
| NEK7 | NK07 | PLK1 | PLK1 | ULK1 | ULK1 |
| NEK9 | NK09 | PLK2 | PLK2 | ULK2 | ULK2 |
| NUAK2 | NUA2 | PLK4 | PLK4 | WEE1 | WEE1 |
| p38α (MAPK14) | P38A | PYK2 (PTK2B) | PYK2 | Yes (Yes1) | YES1 |
| p38β (MAPK11) | P38B | QIK (SNF1LK2) | QIK1 | YSK1 (STK25, SOK1) | YSK1 |
| p38δ (MAPK13) | P38D | Raf1 | RAF1 | ZAK | ZAK1 |
| p38γ (MAPK12) | P38G | Raf1 [Y340E, Y341E] | RAFM | ZAP70 | ZA70 |
| p70S6K (RPS6KB1) | P70A | Ret | RET1 | ZC3 (MINK1) | ZC03 |
| p70S6Kb (RPS6KB2) | P70B | RIPK2 | RIP2 | | |
| PAK1/CDC42 | PAK1 | RIPK5 (SGK496) | RIP5 | | |
| PAK2 | PAK2 | ROCK1 (ROKβ) | ROKB | | |
| PAK3 | PAK3 | ROCK2 (ROKα) | ROKA | | |
| PAK4 | PAK4 | RON (MST1R) | RON1 | | |
| PAK5 (PAK7) | PAK5 | ROS | ROS1 | | |
| PAK6 | PAK6 | RSK1 (RPS6KA2) | RSK1 | | |
| PASK | PASK | RSK2 (PRS6KA3) | RSK2 | | |
| PBK (TOPK) | PBK1 | RSK3 (RPS6KA1) | RSK3 | | |
| PDGFRα | PDGA | RSK4 (RPS6KA6) | RSK4 | | |
| PDGFRβ | PDGB | SGK1 | SGK1 | | |
| PDK1 (PDPK1) | PDK1 | SGK2 | SGK2 | | |
| PEK (EIF2AK3) | PEK1 | SGK3 | SGK3 | | |
| PHKG2 | PHK2 | SIK | SIK1 | | |
| PI3K (p110α/p65α) | PIKT | skMLCK (MYLK2) | SKMK | | |
| PI3K (p110α/p85α) | PIK1 | SLK | SLK1 | | |
| PI3K (p110α (E545K/p85α) | PIKM | smMLCK (MLCK2 ) | SMMK | | |
| PI3K (p110δ/p85α) | PIK4 | Src | SRC1 | | |
| PI3K (p110β/p85α) | PIK2 | SRPK1 | SRP1 | | |
| PI3K (p120γ) | PIK3 | SRPK2 | SRP2 | | |
| Pim1 | PIM1 | STK33 | ST33 | | |
| Pim2 | PIM2 | SYK | SYK1 | | |
| PKAcα (PRKACA) | PKAA | TAK1-TAB1 | TAK1 | | |
| PKAcβ (PRKACB) | PKAB | TAO1 (TAOK1) | TAO1 | | |
| PKAcγ (PRKACG) | PKAG | TAO2 (TAOK2) | TAO2 | | |
| PKCα (PRKCA) | PKCA | TAO3 (TAOK3, JIK ) | TAO3 | | |
| PKCβ1 (PRKCB1) | PKC1 | TBK1 | TBK1 | | |
| PKCβ2 (PRKCB2) | PKC2 | TEC | TEC1 | | |
| PKCδ (PRKCD) | PKCD | TESK1 | TES1 | | |

We provide a wide range of options to our clients with the KICP Service. Individual compounds may be profiled against a panel of protein kinase targets to establish the specificity of the compound. Alternatively, a panel of compounds may be tested against a single kinase target to identify a lead compound with the highest potency. Compounds may be tested either using a single dose or at multiple concentrations in order to allow in-depth IC determinations. In addition, the protein kinase assays can be performed under varying ATP concentrations to evaluate competition with respect to ATP. Compounds can be supplied by the client as DMSO stocks of known concentration, as solid material in vials, or in 96-well plates.

A large body of information and instruction is provided with this Kinase Inhibitor Compound Profiling Service Customer Information Package. Your careful review of this package will ensure that we can offer the highest level of quality in providing this and our other unique proteomics services to you. Should you have any questions or concerns, we would be pleased to hear from you. Thank you in advance for letting Kinexus become one of your trusted service providers.

## 2. QUANTITY OF COMPOUND REQUIRED

The amount of each compound required for the KICP Service depends on how many kinase activity measures are to be performed and the concentrations at which each compound will be tested. The final volume of the KICP assays are 25 µl, and the stock concentration of the compound to be tested should be at least 10-times the final concentration of the highest dose desired for KICP analysis. For example, if 100 µM is the single concentration of a compound to be tested against one kinase in triplicate, then (3 x 2.5 µl =) 7.5 µl of a 1 mM compound solution would be the minimum amount required. **However, we recommend that a minimum volume of 50 µl of 10X concentrated compound stock solution in water or 2% DMSO is provided in a 1.5 ml Eppendorf vial; please Paraffin wax wrap the closed lid for further protection. If the compound is supplied in powder form, please provide sufficient material so that the compound can be prepared at as 10X concentrated solution with a volume of at least 500 µl.**

## 3. KINASE ASSAY CONDITIONS

Due to the distinct protein/peptide substrate and other assay conditions for the different protein kinases, the components of the various assays are optimized for each enzyme and are not described here. If left unspecified by the client, most assays are performed for 15 minutes duration, at 30°C, with 50 µM [$\gamma$-$^{33}$P]ATP in a final volume of 25 µl. The assays are typically terminated by spotting 20 µl of the reaction mixture onto a phosphocellulose P81 plate. The phosphocellulose P81 plate is washed 3 times for approximately 15 minutes each in a 1% phosphoric acid solution to remove unreacted [$\gamma$-$^{33}$P]ATP. The radioactivity in the captured $^{33}$P-labeled peptide/protein substrate on the P81 plate is quantified in a scintillation counter.

## 4. SHIPPING INFORMATION

The aforementioned procedure has been designed to reduce the use of shipping materials and courier costs, and to ensure that your precious compound samples arrive in a safe and stable form at our laboratory facilities. Note that clients are responsible for payment of courier costs. The sample vials should be sent to the address listed below by any express courier that accepts dry ice shipments if necessary. We recommend Federal Express for shipments

originating in North America, and World Express is the preferred courier choice outside of North America. Ship the samples to the following address:

Kinase Inhibitor Compound Profiling Services
Kinexus Bioinformatics Corporation
Suite 1, 8755 Ash Street
Vancouver, B.C. Canada V6P 6T3
Telephone: (604) 323-2547
Facsimile: (604) 323-2548
E-mail info@kinexus.ca

Please ensure 3 copies of a signed commercial invoice accompany your shipment which specifies your samples are non hazardous. 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 highly recommended that customers e-mail their courier airway bill number and the date of departure to info@kinexus.ca so we can track your shipment in transit and ensure it arrives in a timely manner. We will send a confirmation e-mail once your shipment arrives at our facility.

## 5. PRICING INFORMATION

In view of the customized nature and the opportunity for volume discounts for the KICP Service, it is necessary to obtain a quotation from Kinexus for the desired work. To obtain a quotation, clients should complete the Kinase Inhibitor Compound Profiling - Service Order Form (KICP-SOF-01) in the sections under "Customer Information" and "Requested Work and Pricing Information" up to the point indicated on this form. In addition, clients should complete the appropriate Kinase Inhibitor Compound Profiling - Service Information Forms (KICP-SIF-01A and KICO-SIF-01B). These forms should be transmitted by facsimile to 604-323-2548 or by e-mail to info@kinexus.ca attention to "KICP Service." Completion and submission of the KICP-SOF01 and KICP-SIF-01A/B forms will permit us to determine your specific needs and provide an accurate estimate of the costs.

Issued quotations are valid for 30 days from issuance. In the event that a special promotion on the KICS Service is offered at a lower price within 30 days of the receipt of Samples for KICP Service from a client, the lower promotional price will be applied at the time of billing the client.

## 6. FOLLOW UP SERVICES

Once you receive your Kinase Inhibitor Compound Profiling results back, you may find that your compound(s) targets additional protein kinases as perhaps even greater potency and selectivity than the intended target(s). This could offer new opportunities for development of intellectual property and clinical exploitation of your compounds. Only about 75 protein kinases are presently being targeted with drug leads in clinical trials. But, over 400 different diseases have been correlated with defects in cell signalling pathways that involve protein kinases. However, for the majority of the human protein kinases, it is unclear how they participate within cell signalling pathways, and no physiological substrates have been identified. With our unique suite of integrated systems proteomics and

bioinformatics services, Kinexus can further assist you in your disease biomarker and therapeutic drug discovery programs in so many ways in a cost-effect and timely fashion.

For example, with our Custom Kinase Substrate Profiling Service that uses our Kinex™ 800 Antibody Microarray (KAM-1.2 chip), we can identify a panel of physiological phosphoprotein substrates for over 360 different human protein kinases. This service can further identify the actual site of phosphorylation by the target kinase as well as commercial phospho-site antibodies for its detection in follow up studies. This is extremely useful for development of even more specific *in vitro* kinase activity assays. Moreover, this aids in the identification of a panel of biomarkers for the activity of the target kinase in the tissues of animals and isolated cells treated with compounds *in vivo*. Using our free access on-line PhosphoNET services (www.phosphonet.ca), you can identify the protein kinases that we have determined with our proprietary algorithms are most likely to target more than 90,000 known human phospho-sites.

Our Kinex™ 800 Antibody Microarray services with the KAM-1.2 chip provide both qualitative and semi-quantitative analyses of the expression and phosphorylation states of cell signalling proteins in cell and tissue lysates. This can be useful to ascertain whether a lead compound actually targets the intended kinase *in vivo*, has potentially toxic effects in living systems, and how wide spread its actions may be. The qualitative analyses from the Kinex™ services include TIFF and JPEG files of the scanned Kinex™ antibody microarray that features the detected target signalling proteins in control and experimental (e.g. drug-treated) 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, the percent range in error, and fold-changes ratios. Because the Kinex™ services use lysates that contain non-denatured proteins, the interpretation of results with the KAM-1.2 microarray chip is complicated by the possibilities of changes in protein-protein interactions and possible cross-reactivity with off target proteins.

Kinexus offers two types of Western blotting follow-up services to cost-effectively validate the results from the KAM-1.2 microarray chip. Clients can choose the Kinetworks™ Custom KCPS 1.0 (Multi-Antibody) Protein Screen, where any 18 antibodies can be selected and we will optimize it to their model system. Alternatively, with our Kinetworks™ Custom KCSS 1.0 (Multi-Sample) Protein Screen, customers send up to 8 different samples and choose up to 3 different antibodies (provided the molecular weights are significantly separated by SDS-PAGE).

Once the results are confirmed by Western blotting, clients can correlate their own data with hundreds of other data points from hundreds of different model systems using our on-line KiNET database. For more information about this and our other bioinformatics services, please contact one of our customer service representatives at info@kinexus.ca.

## 7. FORMS TO BE COMPLETED

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

A. Kinexus Kinase Inhibitor Compound Profiling Services Agreement - Customers are required to complete and sign our standard Kinexus KICP Services 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 (KICP-SOF-01). The Service Order Form (SOF) allows us to track all of the requested work to be performed with your order. And your contact and billing information.

C. Service Identification Form (KICP-SIF-01A and KICP-01B). The Service Identification Forms (SIF) permits us to determine which kinases and compounds are to be assayed. Two possible forms are provided depending on whether multiple kinases or multiple compounds are to be analyzed.

D. Confidential Sample Description Form (KICP-CSDF-01). The Confidential Sample Description Form (CSDF) provides information on the specific compounds to be tested for safety and efficiency purposes. It is not necessary to disclose the name or structure of the compound to be analyzed.

E. Commercial Invoice (required for all customers located outside of Canada). Two possible forms are provided depending on the stability of the compounds to be tested for shipping without freezing.

All orders with compounds should have as a minimum: 1 SOF, 1 SIF, and 1 CSDF forms completed, along with a courier airway bill and commercial invoice. A new KICP Service Agreement is not necessary if the client has previously placed an order with Kinexus and submitted a signed KICP Service Agreement at that time.

## FOR ALL CUSTOMERS

### A. Kinexus Kinase Inhibitor Compound Profiling Services Agreement

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

- This Agreement is required to be signed and dated by an authorized representative, typically a Senior Officer, Senior Scientist, 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 Kinexus KICP Services 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 (KICP-SOF-01)

*Please ensure:*

- Shipping address and contact name and numbers are specified
- Billing information is completed
- Any promotional vouchers or quotations are listed in the “Requested Works and Pricing Information” section

- Include a Purchase Order, Visa or MasterCard number for payment
- The form is signed and dated

**C. Service Identification Form (KICP-SIF-01A and KICP-SIF-01B)**

*Please ensure:*

- You have selected the most appropriate form for your needs. With multiple compounds and multiple kinases, it will be necessary to use multiple copies of these forms.
- In Section A, you must assign a unique KICP-SIF ID name for each separate KICP-SIF form submitted and these are all recorded on the KICP-SOF form in the "Requested Works and Pricing Information" section
- In Section B, you must calculate the total number of individual assays requested for each separate KICP-SIF form submitted and these are all recorded on the KICP-SOF form in the "Requested Works and Pricing Information" section
- For Section B of the **KICP-SIF-01A** form, you must list the "Compound ID" name on each line in the first blank column that you provided in Section A of the KICP-CSDF-01 forms that have been completed
- For Section B of the **KICP-SIF-01B** form, you must list the "Kinase Code and Name from Table 1 or Appendix A together on each line in the first blank column that you provided in Section A of the KICP-CSDF-01 forms that have been completed
- When completing Section B of either the KICP-SIF-01A or KICP-SIF-01B forms for different concentrations of compound, make sure that you include a zero concentration control. Also ensure that you specify whether the concentrations shown in the table in Section B are in μM or μg/ml.
- Complete Section D if you require an assay time different from 15 minutes
- Complete Section F if you have any special instructions, such as a different temperature from 30°C for the assay incubation temperature or a concentration of ATP different from 50 μM for use in the assays
- The form is certified correct and signed and dated

For an example, in the completion of the Section B, consider the case of where 3 kinases (i.e. CDK1/CyclinB1, ERK2 and p38$\alpha$) are to be tested against four concentrations of a compound in duplicate as well as in the absence of the compound. Section B of the KICP-SIF-01B form would be completed as exemplified on the next page:

**C. KINASE SELECTION:**

*Use Appendix A of the Kinase Inhibitor Compound Profiling Customer Information Package to obtain the code (Column A) and name (Column B) of the protein kinase that will be tested for inhibition by the compounds listed in Section B. A more detailed MS-Excel spreadsheet with information about each kinase can be downloaded from the Kinexus website at www.kinexus.ca/ services/kinase_inhibitor_profiling.php. For each concentration of the compound to be tested (up to 6) indicate the amount and whether this represents "μM" or " μg/ml" by ticking the appropriate box. Also indicate whether each assay is to be performed in single ("Once"), duplicate {"Depl.") or triplicate ("Tripl.) measurements. Under "Subtotal" for each compound, indicate the number of individual assays that you intend to be performed.*

| Kinase Code + Name | Compound Final Conc. (μM) ■ or (μg/ml) ❑ Dil. 1 | Dil. 2 | Dil. 3 | Dil. 4 | Dil. 5 | Dil. 6 | Replicates Once | Dupl. | Tripl. | Subtotal |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. C1B1–CDK1 /CyclinB1 | 0 | 0.01 | 0.1 | 1.0 | 10 | | ❑ | ■ | ❑ | 10 |
| 2. ERK2 - ERK2 | 0 | 0.01 | 0.1 | 1.0 | 10 | | ❑ | ■ | ❑ | 10 |
| 3. P38A - p38α | 0 | 0.01 | 0.1 | 1.0 | 10 | | ❑ | ■ | ❑ | 10 |
| 4. | | | | | | | ❑ | ❑ | ❑ | |
| 5. | | | | | | | ❑ | ❑ | ❑ | |
| 6. | | | | | | | ❑ | ❑ | ❑ | |
| 7. | | | | | | | ❑ | ❑ | ❑ | |
| 8. | | | | | | | ❑ | ❑ | ❑ | |
| 9. | | | | | | | ❑ | ❑ | ❑ | |
| 10. | | | | | | | ❑ | ❑ | ❑ | |
| 11. | | | | | | | ❑ | ❑ | ❑ | |
| 12. | | | | | | | ❑ | ❑ | ❑ | |
| 13. | | | | | | | ❑ | ❑ | ❑ | |
| 14. | | | | | | | ❑ | ❑ | ❑ | |
| 15. | | | | | | | ❑ | ❑ | ❑ | |

Total Number of Assays 30

**D. Confidential Sample Description Form (KICP-CSDF-01)**

*For each compound submitted, please ensure the following:*

- Each sample tube is labeled and properly identified with the "Client ID Name" on the form in Section A, including final concentration and volume if it is a solution or weight if it is a powder.
- Up to two different compounds can be listed on the same page. Use additional copies of this form for more compounds to be analyzed
- You have indicated whether there are any safety concerns with the compounds on this form
- The form is certified correct and signed and dated

**E. Airway bill for Federal Express or any courier that you choose to ship your compounds to Kinexus**

*Complete the airway bill and specify:*

- Priority overnight delivery
- Bill transportation charges to your institute

- Place sufficient dry ice if necessary to last several days into a Styrofoam shipping container
- Seal the edges of the Styrofoam container with tape to preserve dry ice longer
- Dry ice is a "*hazardous"* item, so ensure proper labels are attached to the outside of the box
- Do not specify Saturday delivery or hold at courier location
- For Federal Express shipments telephone 1-800-GO-FEDEX or visit them on-line 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 a Thursday or Friday.
- For international shipments coming from outside of North America, the best day to ship is on a Monday to ensure arrival in Canada for delivery later the same week
- It is recommended that customers e-mail the date of your shipment and the courier airway bill number with the number of samples 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 U.S AND INTERNATIONAL CUSTOMER ONLY

**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
- Name of courier and the airway bill number
- Number, type and total weight of package(s)
- Total declared value of shipment (number of samples x $1.00 per sample) and please specify currency
- Date, name, signature, and title of authorized person
- Include three (3) copies of the commercial invoice with the airway bill

***NOTE: Do not change the value of your shipment to more than $1.00 per sample 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 go to a Canada Customs facility to claim the package of samples for client order due to inadequate completion of the commercial invoice, additional charges will apply.

## Appendix A - List of Available Active Protein Kinases for Compound Profiling - 2010 May 1

This list may change depending on availability.

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| ABL1 | Abl (Abl1) | Proto-oncogene tyrosine-protein kinase Abl1 | ABL; JTK7; p150; c-ABL; v-abl; bcr/abl | P00519 | NP_005148 | Recombinant human ABL1 (27-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~135 |
| ACK1 | ACK (TNK2) | Activated CDC42 kinase 1 | ACK, ACK1, FLJ44758, FLJ45547, p21cdc42Hs | Q07912 | NP_005772 | Recombinant human ACK (110-476) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~66 |
| AKT1 | Akt1/PKBα | RAC-alpha serine/threonine-protein kinase | PKB; RAC; PRKBA; MGC99656; RAC-ALPH | P31749 | NP_005154 | Recombinant full-length human AKT1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~85 |
| AKT2 | Akt2/PKBβ | RAC-beta serine/threonine-protein kinase | PRKBB; PKBBETA; RAC-BETA | P31751 | NP_001617 | Recombinant full-length human AKT2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~85 |
| AKT3 | Akt3/PKBγ | Rac-gamma serine/threonine-protein kinase | PKBG; PRKBG; STK-2; RAC-gamma; RAC-PK-gamma; DKFZP434N0250 | Q9Y243 | NP_005456 | Recombinant full-length human AKT3 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~85 |
| ALK1 | ALK1 | Serine/threonine-protein kinase receptor R3 | ACVRL1, ACVRLK1, ALK1, HHT, HHT2, ORW2, SKR3, ALK1, TSR-I | P37023 | NP_000011 | Recombinant human ALK1 (144-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~64 |
| ALK2 | ALK2 | Activin receptor type I | ACVR1, ACTRI, ACVR1A, ACVRLK2, FOP, SKR1, TSRI | Q04771 | NP_001096 | Recombinant human ALK2 (147-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~67 |
| ALK4 | ALK4 (ACVR1B) | Serine/threonine-protein kinase receptor R2 | ACVR1B, SKR2, ACTRIB, ACVRLK4 | P36896 | NP_004293 | Recombinant human ALK4 (150-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~64 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| AM11 | AMPKα1/β1/γ1 (PRKAA1/B1/G1) | 5'-AMP-activated protein kinase, catalytic alpha-1 chain | Subunit A1: PRKAA1, MGC33776, MGC57364 Subunit B1: PRKAB1, AMPK, HAMPKb, MGC17785 Subunit G1: PRKAG1, AMPKG, MGC8666 | Q13131 | NP_996790 | Recombinant full-length human AMPK (combination of A1/B1/G1 subunits) was expressed by baculovirus in Sf9 insect cells using a C-terminal His tags. | ~68k (A1), ~38 (B1), ~4 (G1) |
| AM12 | AMPKα1/β1/γ2 (PRKAA1/B1/G2) | 5'-AMP-activated protein kinase, catalytic alpha-1 chain | Subunit A1: PRKAA1, MGC33776, MGC57364 Subunit B1: PRKAB1, AMPK, HAMPKb, MGC17785 Subunit G2: PRKAG2, AAKG, CMH6, WPWS, AAKG2, H91620p | Q13131 | NP_996790 | Recombinant full-length human AMPK (combination of A1/B1/G2 subunits) was expressed by baculovirus in Sf9 insect cells using a C-terminal His tags. | ~68k Da (A1), ~38 (B1), ~65 (G2) |
| AM13 | AMPKα1/β1/γ3 (PRKAA1/B1/G3) | 5'-AMP-activated protein kinase, catalytic alpha-1 chain | Subunit A1: PRKAA1, MGC33776, MGC57364 Subunit B1: PRKAB1, AMPK, HAMPKb, MGC17785 Subunit G3: PRKAG3 | Q13131 | NP_996790 | Recombinant full-length human AMPK (combination of A1/B1/G3 subunits) was expressed by baculovirus in Sf9 insect cells using a C-terminal His tags. | ~68 (A1), ~38 (B1), ~51 (G3) |
| AM21 | AMPKα1/β2/γ1 (PRKAA1/B2/G1) | 5'-AMP-activated protein kinase, catalytic alpha-1 chain | Subunit A1: PRKAA1, MGC33776, MGC57364 Subunit B2: PRKAB2, MGC61468 Subunit G1: PRKAG1, AMPKG, MGC8666 | Q13131 | NP_996790 | Recombinant full-length human AMPK (combination of A1/B2/G1 subunits) was expressed by baculovirus in Sf9 insect cells using a C-terminal His tags. | ~68 (A1), ~36 (B2), ~40 (G1) |
| AP11 | AMPKα2/β1/γ1 (PRKAA2/B1/G1) | 5'-AMP-activated protein kinase, catalytic alpha-2 chain | Subunits A2: PRKAA2, AMPK, AMPK2, PRKAA Subunit B1: PRKAB1, AMPK, HAMPKb, MGC17785 Subunit G1: PRKAG1, AMPKG, MGC8666 | P54646 | NP_006243 | Recombinant full-length human AMPK (combination of A2/B1/G1 subunits) was expressed by baculovirus in Sf9 insect cells using a C-terminal His tags. | ~69 (A2), ~38 (B1), and ~40 (G1) |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| AP22 | AMPKα2/β2/γ2 (PRKAA2/B2/G2) | 5'-AMP-activated protein kinase, catalytic alpha-2 chain | Subunits A2: PRKAA2, AMPK, AMPK2, PRKAA Subunit B2: PRKAB2, AMPK, HAMPKb, MGC17785 Subunit G2: PRKAG2, AMPKG, MGC8666 | P54646 | NP_006243 | Recombinant full-length human AMPK (combination of A2/B1/G1 subunits) was expressed by baculovirus in Sf9 insect cells using a C-terminal His tags. | ~69 (A2), ~38 (B1), and ~40 (G1) |
| ABL2 | Arg (Abl2) | Tyrosine-protein kinase Abl2 | ARG; ABLL | P42684 | NP_005149 | Recombinant human ABL2 (38-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~132 |
| ASK1 | Ask1 (MAP3K5) | Mitogen-activated protein kinase kinase kinase 5 | MAP3K5; MEKK5; MAPKKK5 | Q99683 | NP_005914 | Recombinant human ASK1(649-946) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~60 |
| AUR1 | Aurora A (AurA, STK6) | Serine/threonine-protein kinase 6 | AURKA, AIK, ARK1, AURA, BTAK, STK6, STK7, STK15, AURORA2, MGC34538 | O14965 | NP_940835 | Recombinant full-length human AURORA A was expressed by baculovirus in Sf9 cells using an N-terminal GST tag. | ~72 |
| AUR2 | Aurora B (AurB, AURKB, INCENP) | Serine/threonine-protein kinase 12 | AURKB, AIK2; AIM1; ARK2; AurB; IPL1; AIM-1; STK12 | Q96GD4 | NP_004208 | Recombinant full-length human AURORA B was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~68 |
| AUR3 | Aurora C (AurC, AURKC) | Serine/threonine-protein kinase 13 | AURKC, AIE2, AIK3, AurC, STK13, aurora-C | Q9UQB9 | NP_001015878 | Recombinant full-length human AURORA C was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~61 |
| AXL1 | Axl | Tyrosine-protein kinase receptor UFO | UFO, JTK11 | P30530 | NP_068713 | Recombinant human AXL (473-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~55 |
| GRK2 | BARK1 (ADRBK1, GRK2) | Adrenergic, beta, receptor kinase 1 | BETA-ARK1, FLJ16718, GRK2 | P25098 | NP_001610 | Recombinant full length human GRK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~102 |
| BLK1 | Blk | B lymphoid tyrosine kinase | MGC10442 | P51451 | NP_001706 | Recombinant full-length human BLK was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~84 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| BMX1 | Bmx | Cytoplasmic tyrosine-protein kinase BMX | ETK; PSCTK2; PSCTK3 | P51813 | NP_001712 | Recombinant full-length human BMX was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~110 |
| RAF2 | B-Raf | B-Raf proto-oncogene serine/threonine-protein kinase | BRAF1, RAFB1, B-raf 1, MGC126806, MGC138284 | P15056 | NP_004324 | Recombinant human BRAF (416-766) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~63 |
| RAF4 | B-Raf [V599E] | B-Raf proto-oncogene serine/threonine-protein kinase | BRAF1, RAFB1, B-raf 1, MGC126806, MGC138284 | P15056 | NP_004324 | Recombinant human BRAF (416-end; V599E) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~63 |
| BRK1 | Brk (PTK6) | Tyrosine-protein kinase 6 | PTK6; FLJ42088 | Q13882 | NP_005966 | Recombinant full-length human BRK was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~80 |
| BTK1 | Btk | Tyrosine-protein kinase BTK | AT; ATK; BPK; XLA; IMD1; AGMX1; PSCTK | Q06187 | NP_000052 | Recombinant full-length human BTK was expressed by baculovirus in Sf9 insect cells using a N-terminal His tag. | ~78 |
| CM1A | CaMK1α (CAMK1) | Calcium/calmodulin-dependent protein kinase type 1 | AI505105; D6Ertd263e | Q14012 | NP_003647 | Recombinant full-length mouse CAMK1α was expressed in E-coli cells using an N-terminal GST tag. | ~70 |
| CM1B | CaMK1β (PNCK) | Calcium/calmodulin-dependent protein kinase 1beta | Punc; Bstk3; CaMKIb2; caMKIb1; Pnck | Q6P2M8 | AAH64422 | Recombinant full-length mouse CAMK1β was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~64 |
| CM1D | CaMK1δ (CAMK1D) | Calcium/calmodulin-dependent protein kinase I detla | RP11-462F15.1; CKLiK; CaM-K1; CaMKID | Q8IU85 | NP_705718 | Recombinant full-length human CAMK1δ was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~68 |
| CM1G | CAMK1γ | Calcium/calmodulin-dependent protein kinase 1 gamma | VWS1; CLICKIII; dJ272L16.1 | Q96NX5 | NP_065172 | Recombinant human CAMK1γ (C-terminal truncation) protein was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. Recombinant , GST-tagged human CAMK1γ (1-330) is also available. | ~60 |
| CM2A | CAMK2α (CAMK2A) | Calcium/calmodulin-dependent protein kinase type II alpha | CAMKA; KIAA0968 | Q9UQM7 | NP_057065 | Recombinant full-length human CAMK2α was expressed in Sf9 cells using an N-terminal GST tag. | ~74 |
| CM2B | CaMK2β (CAMK2B) | Calcium/calmodulin-dependent protein kinase type II beta | CAMKB, CAM2, CAMK2, MGC29528 | Q13554 | NP_001211 | Recombinant full-length human CAMK2β was expressed by baculovirus in Sf9 cells using an N-terminal His tag. | ~58 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| CM2D | CAMK2δ | Calcium/calmodulin-dependent protein kinase type delta | CAMKD, MGC44911 | Q8IU85 | NP_742125 | Recombinant full length human CAMK2delta was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~77 |
| CM2G | CAMK2γ | Calcium/calmodulin-dependent protein kinase type II gamma | CAMKG, CAMK, CAMK-II, MGC26678 | Q13555 | NP_751911 | Recombinant human CAMK2γ (C-terminal truncation) was expressed by baculovirus in Sf9 cells using an N-terminal GST tag. | ~60 |
| CMK4 | CAMK4 | Calcium/calmodulin-dependent protein kinase type IV | CaMK-GR; MGC36771 | Q16566 | NP_001735 | Recombinant full-length human CAMK4 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~79 |
| CKK1 | CAMKK1 (CAMKKA ) | Calcium/calmodulin-dependent protein kinase kinase 1 | CAMKKA, MGC34095, DKFZp761M0423 | Q8N5S9 | NP_115670 | Recombinant full-length human CAMKK1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~94 |
| CKK2 | CAMKK2 | Calcium/calmodulin-dependent protein kinase kinase 2 | CAMKK; CAMKKB; KIAA0787; MGC15254 | Q96RR4 | NP_006540 | Recombinant full-length human CAMKK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~88 |
| C1A1 | CDK1 (CDC2)/CyclinA1 | Cell division control protein 2 homolog | CDK1: CDC2 CDC28A; MGC111195; DKFZp686L20222 | P06493 | NP_001777 | Recombinant full-length human CDK1 and CyclinA1 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~59 and CyclinA1 ~78 |
| C1A2 | CDK1 (CDC2)/CyclinA2 | Cell division control protein 2 homolog | CDK1: CDC2 CDC28A; MGC111195; DKFZp686L20222 CyclinA2: CCN1; CCNA | P06493 | NP_001777 | Recombinant full-length human CDK1 and CyclinA2 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~59 and CyclinA2 ~78 |
| C1B1 | CDK1 (CDC2)/CyclinB1 | Cell division control protein 2 homolog | CDK1: CDC2 CDC28A; MGC111195; DKFZp686L20222 | P06493 | NP_001777 | Recombinant full-length human CDK1 and CyclinB1 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~59 and CyclinB1 ~62 |
| C2A1 | CDK2/CyclinA1 | Cell division protein kinase 2 | CDK2: p33(CDK2) | P24941 | NP_001789 | Recombinant full-length human CDK2 and CyclinA1were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~58 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| C2A2 | CDK2/CyclinA2 | Cell division protein kinase 2 | CDK2: p33(CDK2) CyclinA2: CCN1; CCNA | P24941 | NP_001789 | Recombinant full-length human CDK2 and CyclinA2 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~58 and CyclinA2 ~78 |
| C2E1 | CDK2/CyclinE1 | Cell division protein kinase 2 | CDK2: p33(CDK2) CyclinE1: CCNE1; CCNE | P24941 | NP_001789 | Recombinant full-length human CDK2 and CyclinA2 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~58 and CyclinE1 ~78 |
| C3E1 | CDK3/CyclinE1 | Cell division protein kinase 3 | CDK3: None; CyclinE1: CCNE1, CCNE | Q00526 | NP_001249 | Recombinant full-length human CDK3 and Cyclin E1 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~60 and CyclinE1 ~73 |
| C4D1 | CDK4/Cyclin D1 | Cell division protein kinase 4 | CDK4: CMM3; PSK-J3; MGC14458 CyclinD1: BCL1, PRAD1, U21B31, D11S287E | P11802 | NP_000066 | Recombinant full-length human CDK4 and CyclinD1 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~57 and CyclinD1 ~61 |
| C4D3 | CDK4/CyclinD3 | Cell division protein kinase 4 | CDK4: CMM3; PSK-J3; MGC14458 Cyclin D3: CCND3 | P11802 | NP_000066 | Recombinant full-length human CDK4 and CyclinD3 were co-expressed by baculovirus in Sf9 cells using an N-terminal GST tag on both proteins. | ~58 and CyclinD3 ~58 |
| C5P2 | CDK5/p25 | Cell division protein kinase 5 | CDK5: PSSALRE; p25: CDK5R1; CDK5P35, CDK5R, NCK5A, p23, p35, p35nck5a | Q00535 | NP_004926 | Recombinant full-length human CDK5 and p25 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~59 and p25 ~49 |
| C5P9 | CDK5/p29 | Cell division protein kinase 5 | CDK5: PSSALRE | Q00535 | NP_004926 | Recombinant full-length human CDK5 and p29 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~59 and p25 ~53 |
| C5P3 | CDK5/p35 | Cell division protein kinase 5 | CDK5: PSSALRE | Q00535 | NP_004926 | Recombinant full-length human CDK5 and p29 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~59 and p35 ~63 |
| C6D1 | CDK6/CyclinD1 | Cell division protein kinase 6 | PLSTIRE, MGC59692 /CCND1 | Q00534 | NP_001250 | Recombinant full-length human CDK6 and CyclinD3 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | ~40 and CyclinD1 ~35 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| C6D3 | CDK6/CyclinD3 | Cell division protein kinase 6 | PLSTIRE, MGC59692 /CCND3 | Q00534 | NP_001250 | Recombinant full-length human CDK6 and CyclinD3 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | ~40 and CyclinD3 ~35 |
| C7H1 | CDK7/Cyclin H1/MAT1 | Cell division protein kinase 7 | CDK7: CAK1, STK1, CDKN7, p39MO15; Cyclin H1: CCNH, CAK, p34, p37; MNATI: MAT1, RNF66 | P50613 | NP_001790 | Recombinant full-length human CDK7, Cyclin H1 and MNATI were co-expressed by baculovirus in Sf9 insect cells using N-terminal His tags. | ~40, Cyclin H1 ~39, and MNAT1 ~37 |
| C9CK | CDK9/Cyclin K | Cell division protein kinase 9 | CDC2L4, C-2k, TAK, PITALRE; CCNK, CPR4, MGC9113 | P50750 | NP_001252 | Recombinant full-length human CDK9 and CyclinK were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. | ~68 and CyclinK~67 |
| CHK1 | CHK1 (CHEK1) | Serine/threonine-protein kinase Chk1 | CHEK1 | O14757 | NP_001265 | Recombinant full-length human CHK1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. Also available with N-terminal His tag. | ~82 |
| CHK2 | CHK2 (CHEK2) | Serine/threonine-protein kinase Chk2 | RP11-436C9.1, CDS1, CHEK2, HuCds1, LFS2, PP1425, RAD53 | O96017 | NP_009125 | Recombinant full-length human CHK2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~88 |
| CK21 | CK2α1 (CSNK2A1) | Casein kinase II, alpha chain | CKII; CK2A1; CKIIα | P68400 | NP_808227 | Recombinant full-length human CK2α1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~70 |
| CK22 | CK2α2 (CSNK2A2) | Casein kinase 2, alpha prime | CKII; CK2A2; CKIIα, CSNK2A1, FLJ43934 | P19784 | NP_001887 | Recombinant full-length human CK2α2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~70 |
| CLK1 | CLK1 | Dual specificity protein kinase CLK1 | CLK, STY, CLK/STY | P49759 | NP_004062 | Recombinant human CLK1 (129-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~66 |
| CLK2 | CLK2 | Dual specificity protein kinase CLK2 | hCLK2, MGC61500 | P49760 | NP_003984 | Recombinant human CLK2 (137-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~68 |
| CLK3 | CLK3 | Dual specificity protein kinase CLK3 | CDC-like kinase 3 | P49761 | NP_003983 | Recombinant full-length human CLK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~86 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| COT1 | COT (MAP3K8) | Mitogen-activated protein kinase kinase kinase 8 | MAP3K8, EST, ESTF, TPL2, Tpl-2, c-COT, FLJ10486 | P41279 | NP_005195 | Recombinant human COT (30-397) was expressed by baculovirus in Sf9 insect cells. | ~70 |
| CSK1 | Csk | Tyrosine-protein kinase CSK | MGC117393 | P41240 | NP_004374 | Recombinant full-length human CSK was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~78 |
| DAP1 | DAPK1 | Death-associated protein kinase 1 | DAPK, DKFZp781I035 | P53355 | NP_004929 | Recombinant human DAPK1 (1-363) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~71 |
| DAP2 | DAPK2 | Death-associated protein kinase 2 | DRP-1; MGC119312 | Q9UIK4 | NP_055141 | Recombinant human full-length DAPK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~67 |
| DAP3 | DAPK3 (ZIPK ) | Death-associated protein kinase 3 | ZIP, ZIPK, FLJ36473 | O43293 | NP_001339 | Full-length recombinant human DAPK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~79 |
| DCA2 | DCAMKL2 | Serine-threonine-protein kinase DCAMKL2 | DCLK2; DCK2; DCDC3; DCDC3B; DKFZp761I032; MGC45428 | Q8N568 | NP_689832 | Recombinant human DCAMKL2 (1-690) was expressed by baculovirus in Sf9 cells using an N-terminal GST tag. | ~105 |
| DDR2 | DDR2 | Discoidin domain receptor 2 | TKT; MIG20a; NTRKR3; TYRO10 | Q16832 | NP_001014796 | Recombinant human DDR2 (467-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~70 |
| DMPK | DMPK | Myotonic Dystrophy Protein Kinase | DM; DM; DMK; MDPK; DM1PK; MT-PK | Q09013 | NP_004400 | Recombinant full-length human DMPK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~105 |
| DY1A | DYRK1A | Dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1A | DYRK, DYRK1, HP86, MNB, MNBH | Q13627 | NP_569120 | | |
| DYR3 | DYRK3 | Dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 3 | DYRK5, RED, REDK, hYAK3-2 | O43781 | NP_003573 | | |
| EF2K | eEF2K | Eukaryotic elongation factor-2 kinase | HSU93850, MGC45041, eEF-2K | O00418 | NP 037434 | Recombinant full-length human EEF2K was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~125 |
| EPA1 | EPHA1 | Ephrin type-A receptor 1 | EPH, EPHT, EPHT1 | P21709 | NP_005223 | Recombinant mouse EPHA1 (569-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~71 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| EPA2 | EPHA2 | Ephrin type-A receptor 2 | ECK | P29317 | NP_004422 | Recombinant human EPHA2 (561-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~72 |
| EPA3 | EPHA3 | Ephrin type-A receptor 3 | ETK, HEK, ETK1, HEK4, TYRO4 | P29320 | NP_005224 | Recombinant human EPHA3 (571-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~72 |
| EPA4 | EPHA4 | Ephrin type-A receptor 4 | SEK, HEK8, TYRO1 | P54764 | NP_004429 | Recombinant human EPHA4 (610-887) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~58 |
| EPA6 | EPHA6 | Ephrin type-A receptor 6 | EPA6, FLJ35246, PRO57066, DKFZp434C1418 | Q9UF33 | NP_775926 | Recombinant human EPHA6 (561-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~73 |
| EPB1 | EphB1 | Ephrin type-B receptor 1 | Elk, Net, Cek6, Elkh, Hek6, EPHT2, AW488255, 9330129L11 | P54762 | NP_004432 | Recombinant mouse EPHB1 (591-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~62 |
| EPB2 | EphB2 | Ephrin type-B receptor 2 | DRT, ERK, CAPB, Hek5, PCBC, EPHT3, Tyro5, MGC87492 | P29323 | NP_059145 | Recombinant human EPHB2 (570-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~66 |
| EPB3 | EphB3 | Ephrin type-B receptor 3 | ETK2, HEK2, Cek10, Mdk5, TYRO6 | P54753 | NP_004434 | Recombinant human EPHB3 (585-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~68 |
| EPB4 | EphB4 | Ephrin type-B receptor 4 | HTK, MYK1, TYRO11, Mdk2 | P54760 | NP_004435 | Recombinant human EPHB4 (561-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~50 |
| ERK1 | Erk1 (MAPK3) | Mitogen-activated protein kinase 3 | MAPK3; PRKM3; P44ERK1; P44MAPK; HS44KDAP; HUMKER1A; MGC20180 | P27361 | AAA36142.1 | Recombinant full-length, tag-free human ERK1 was expressed in Sf9 cells and activated by active MEK1in vitro. | ~44 |
| ERK2 | Erk2 (MAPK1) | Mitogen-activated protein kinase 1 | MAPK1, P42MAPK, MAPK2, PRKM2, PRKM1, p41mapk, ERT1, p40, p41, ERK | P28482 | NP_002736 | Recombinant full-length human ERK2 was expressed by E. coli cells using an N-terminal GST tag and activated by MEK1 in vitro. | ~68 |
| FAK1 | FAK (PTK2) | Focal adhesion kinase 1 | PTK2, FADK, FAK1, pp125FAK | Q05397 | NP_722560 | Recombinant human FAK (393-698) was expressed in Sf9 insect cells using an N-terminal His tag. | ~35 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| FER1 | Fer | Proto-oncogene tyrosine-protein kinase Fer | Fert, Fert2, AV082135, C330004K01Rik | P16591 | NP_005237 | Recombinant mouse FER (542-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~59 |
| FES1 | Fes (Fps) | Proto-oncogene tyrosine-protein kinase Fes/Fps | Fps | P07332 | NP_001996 | Recombinant full-length human FES was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~125 |
| FGR1 | FGFR1 (Flt2) | Basic fibroblast growth factor receptor 1 | CEK; FLG; FLT2; KAL2; BFGFR; CD331; FGFBR; HBGFR; N-SAM; C-FGR | P11362 | NP_000595 | Recombinant human FGFR1 (399-822) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~73 |
| FGRM | FGFR1 (Flt2) [V561M] | Basic fibroblast growth factor receptor 1 | FLT2, CEK, FLG, KAL2, BFGFR, C-FGR, CD331, N-SAM | P11362 | NP_000595 | Recombinant human FGFR1 (399-822; V561M) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~75 |
| FGR2 | FGFR2 | Basic fibroblast growth factor receptor 2 | K-SAM, BFR-1, CEK3, ECT1, TK14, TK25, CD332, JWS, TK14 | P21802 | NP_000132 | Recombinant human FGFR2 (285-end) was expressed by baculovirus in Sf9 cells using an N-terminal GST tag. | ~72 |
| FGR3 | FGFR3 | Fibroblast growth factor receptor 3 | ACH, CEK2, JTK4, CD333, HSFGFR3EX | P22607 | NP_000133 | Recombinant human FGFR3 (397-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~73 |
| FGR4 | FGFR4 | Fibroblast growth factor receptor 4 | | P22455 | NP_002002 | Recombinant human FGFR4 (460-end) was expressed by baculovirus in Sf9 cells using an N-terminal GST tag. | ~65 |
| FGR1 | Fgr | Proto-oncogene tyrosine-protein kinase Fgr | SRC2, c-fgr, c-src, FLJ43153, MGC75096, p55c-fgr, p58c-fgr | P09769 | NP_005239 | Recombinant full-length human FGR was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~86 |
| FLT1 | Flt1 | Vascular endothelial growth factor receptor 1 [Precursor] | FLT, VEGFR1 | P17948 | NP_002010 | Recombinant human FLT1 (784-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~94 |
| FLT3 | Flt3 | FL cytokine receptor | FLK2, STK1, CD135 | P36888 | NP_004110 | Recombinant human FLT3 (571-993) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~73 |
| FMS1 | Fms (CSF1R) | Macrophage colony stimulating factor I receptor | CSF1R, CSFR, FIM2, C-FMS, CD115 | P07333 | NP_005202 | Recombinant human FMS (539-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~76 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| FRK1 | FRK | Fyn-related kinase | GTK; RAK; PTK5 | P42685 | NP_002022 | Recombinant human FRK (208-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~60 |
| FYN1 | FynA | Fyn oncogene related to Src, Fgr, Yes | RP1-66H14.1; MGC45350; SLK; SYN | P06241 | NP_002028 | Recombinant full length human FYN A was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~85 |
| GCK1 | GCK | Mitogen-activated protein kinase kinase kinase kinase 2 | MAP4K2, BL44, RAB8IP | Q12851 | NP_004570 | Recombinant full-length human GCK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~125 |
| GRK5 | GPRK5 (GRK5) | G protein-coupled receptor kinase 5 | GPRK5 | P34947 | NP_005299 | Recombinant full-length human GRK5 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~95 |
| GRK6 | GRK6 | G protein-coupled receptor kinase 6 | GPRK6 | P43250 | NP_002073 | Recombinant full length human GRK6 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~93 |
| GRK7 | GRK7 | G protein-coupled receptor kinase 7 | GPRK7 | Q8WTQ7 | NP_631948 | Recombinant full length human GRK7 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~89 |
| GS3A | GSK3α | Glycogen synthase kinase-3 alpha | GSK3 alpha | P49840 | NP_063937 | Recombinant full-length human GSK3? was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~81 |
| GS3B | GSK3β | Glycogen synthase kinase-3 beta | GSK3 beta | P49841 | NP_002084 | Recombinant full-length human GSK3? was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~73 |
| HCK1 | Hck | Hemopoietic cell kinase | JTK9 | P08631 | NP_002101 | Recombinant human HCK (230-497) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~57 |
| ERB2 | HER2 (ErbB2, Neu) | v-erb-b2 erythroblastic leukemia viral oncogene homologue 2 | CD340, HER-2, HER-2/neu, NEU, NGL, TKR1 | P04626 | NP_004439 | Recombinant human HER2 (676-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~116 |
| ERB4 | HER4 (ErbB4) | Receptor tyrosine-protein kinase erbB4 | HER4, MGC138404, p180erbB4 | Q15303 | NP_005226 | Recombinant human ErbB4 (682-993) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~57 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| HIP1 | HIPK1 (Myak ) | Homeodomain-interacting protein kinase 1 | Myak, Nbak2, KIAA0630, MGC26642, MGC33446, MGC33548 | Q86Z02 | NP_938009 | Recombinant human HIPK1 (156-555) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~71 |
| HIP3 | HIPK3 | Homeodomain-interacting protein kinase 3 | PKY, YAK1, DYRK6, FIST3 | Q9H422 | NP_005725 | Recombinant human HIPK3 (163-562) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~49 |
| HIP4 | HIPK4 | Homeodomain interacting protein kinase 4 | FLJ32818 | Q8NE63 | NP_653286 | Recombinant full-length human HIPK4 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~110 |
| IGF1 | IGF1R | Insulin-like growth factor I receptor | CD221, IGFIR, JTK13, MGC142170, MGC142172 | P08069 | NP_000866 | Recombinant human IGF1R (960-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~53 |
| INSR | InsR | Insulin receptor [Precursor] | HHF5, CD220 | P06213 | NP_000199 | Recombinant human InsR (1011-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~70 |
| ISRR | INSRR (IRR ) | Insulin receptor-related protein | IRR | P14616 | NP_055030 | Recombinant human IRR (945-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~65 |
| IRA2 | IRAK2 | Interleukin-1 receptor-associated kinase-like 2 | IRAK-2, MGC150550 | O43187 | NP_001561 | Recombinant full-length human IRAK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~103 |
| IRA4 | IRAK4 | Interleukin-1 receptor-associated kinase 4 | IPD1, REN64, NY-REN-64 | Q9NWZ3 | NP_057207 | Recombinant full-length human IRAK4 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~81 |
| ITK1 | Itk | Tyrosine-protein kinase Itk/Tsk | EMT, LYK, PSCTK2, MGC126257, MGC126258 | Q08881 | NP_005537 | Recombinant human ITK (352-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~53 |
| JAK3 | JAK3 | Tyrosine-protein kinase JAK3 | JAKL, LJAK, JAK-3, L-JAK, JAK3_HUMAN | P52333 | NP_000206 | Recombinant human JAK3 (781-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~64 |
| JNK1 | JNK1 (MAPK8) - mouse | Mitogen-activated protein kinase 8 | JNK, PRKM8, SAPK1, AI849689, JNK1A2, JNK21B1/2 | P45983 | NP_002741 | Recombinant full-length mouse JNK1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~71 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| JNK2 | JNK2 (MAPK9) | Mitogen-activated protein kinase 9 | JNK-55, JNK2, JNK2A, JNK2ALPHA, JNK2B, JNK2BETA, PRKM9, SAPK, p54a, p54aSAPK | P45984 | NP_002743 | Recombinant full-length human JNK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~70 |
| JNK3 | JNK3 (MAPK10) | Mitogen-activated protein kinase 10 | FLJ12099, FLJ33785, JNK3, JNK3A, MGC50974, PRKM10, p493F12, p54bSAPK | P53779 | NP_002744 | Recombinant full-length human JNK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~71 |
| KDR1 | KDR (VEGFR2) | Kinase insert domain receptor | FLK1, VEGFR, VEGFR2 | P35968 | NP_002244 | Recombinant human KDR (789-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~110 |
| KHS1 | KHS1 (MAP4K5) | Mitogen-activated protein kinase kinase kinase kinase 5 | MAP4K5, KHS, GCKR, MAPKKKK5 | Q9Y4K4 | NP_006566 | Recombinant full-length human KHS1 was expressed by baculovirus in Sf9 insect cells using an N-terminal tag. | ~135 |
| KIT1 | Kit | Mast/stem cell growth factor receptor | PBT, SCFR, CD117 | P10721 | NP_000213 | Recombinant human c-KIT (544-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~73 |
| KITM | Kit [V654A] | Mast/stem cell growth factor receptor | PBT, SCFR, CD117 | P10721 | NP_000213 | Recombinant human c-KIT (544-end, V654A) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~73 |
| LCK1 | Lck | Proto-oncogene tyrosine-protein kinase Lck | YT16, p56lck, pp58lck | P06239 | NP_005347 | Recombinant full-length human LCK was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~84 |
| LIM1 | LIMK1 | LIM domain kinase 1 | LIMK | P53667 | NP_002305 | | ~73 |
| LKB1 | LKB1 | Serine-threonine-protein kinase 11 | STK11; MO25a; STRADa | Q15831 | NP_000446 | | ~49 |
| LOK1 | LOK (STK10) | Serine/threonine-protein kinase 10 | STK10, PRO2729 | O94804 | NP_005981 | Recombinant human LOK (1-348) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~65 |
| LRR2 | LRRK2 | Leucine-rich repeat kinase 2 | AURA17, DARDARIN, PARK8, RIPK7, ROCO2 | Q5S007 | NP_940980.3 | | ~290 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| LYNA | Lyn A | Tyrosine-protein kinase Lyn | JTK8, FLJ26625 | P07948 | NP_002341 | Recombinant full-length human LYN A was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~81 |
| LYNB | Lyn B | v-yes-1 Yamaguchi sarcoma viral related oncogene homolog | JTK8, FLJ26625, p65 | P07948 | NP_002341 | Recombinant full-length human LYN B was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~85 |
| MKA2 | MAPKAPK2 | Mitogen-activated protein kinase-activated protein kinase 2 | | P49137 | NP_004750 | Recombinant human MAPKAPK2 (46-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~68 |
| MKA3 | MAPKAPK3 | Mitogen activated protein kinase activated protein kinase 3 | 3PK, MAPKAP3, 3pK | Q16644 | NP_004626 | Recombinant full-length human MAPKAPK3 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~69 |
| MKA5 | MAPKAPK5 | Mitogen-activated protein kinase-activated protein kinase 5 | PRAK | Q8IW41 | NP_620777 | Recombinant full-length human MAPKAPK5 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~79 |
| MAR1 | MARK1 | MAP/microtubule affinity-regulating kinase 1 | MARK, KIAA1477, MGC126512, MGC126513 | Q9P0L2 | NP_061120 | Recombinant full-length human MARK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~125 |
| MAR2 | MARK2 | MAP/microtubule affinity-regulating kinase 2 | EMK1, MGC99619, PAR-1, Par1b, ELKL | Q7KZI7 | NP_059672 | | ~88 |
| MAR3 | MARK3 | Microtubule affinity-regulating kinase 3 | KP78, CTAK1, PAR1A | P27448 | NP_002367 | Recombinant full-length human MARK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~110 |
| MAR4 | MARK4 | MAP-microtubule affinity-regulating kinase 4 | MAP/microtubule affinity-regulating kinase-like 1 | Q96L34 | NP_113605 | | ~83 |
| MEKA | MEK1 (MAP2K1) [S218E, S222E] | Dual specificity mitogen-activated protein kinase kinase 1 | MAP2K1, MKK1, MAPKK1, PRKMK1 | Q02750 | NP_002746 | Recombinant full-length mouse MEK1 (S218E, S222E) was expressed in E. coli cells using a N-terminal GST tag. | ~69 |
| MEK1 | MEK1 (MKK1, MAP2K1) | Dual specificity mitogen-activated protein kinase kinase 1 | MAP2K1, MKK1, MAPKK1, PRKMK1 | Q02750 | NP_002746 | Recombinant full-length human MEK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~72 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| MEK2 | MEK2 (MAP2K2) | Dual specificity mitogen-activated protein kinase kinase 2 | MAP2K2, MKK2, PRKMK2, MAPKK2 | P36507 | NP_109587 | Recombinant full-length human MEK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~71 |
| MKK2 | MEKK2 (MAP3K2) | Mitogen-activated protein kinase (MAPK) kinase kinase 2 | MAP3K2, MEKK2B | Q9Y2U5 | NP_006600 | Recombinant full-length human MEKK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~115 |
| MKK3 | MEKK3 (MAP3K3) | Mitogen-activated protein kinase kinase kinase 3 | MAP3K3, MAPKKK3 | Q99759 | NP_002392 | Recombinant full-length human MEKK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~105 |
| MER1 | Mer (MERTK ) | Proto-oncogene tyrosine-protein kinase Mer | MER, MERTK, MGC133349 | Q12866 | NP_006334 | Recombinant human MERTK (578-872) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~58 |
| MET1 | Met | Hepatocyte growth factor receptor | HGFR | P08581 | NP_000236 | Recombinant rat MET (958-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~74 |
| MLK3 | MLK3 (MAP3K11) | Mitogen-activated protein kinase kinase kinase 11 | MGC17114; Mixed lineage kinase 3; MLK-3; MLK3; PTK1; SPRK | Q16584 | NP_002410 | | ~93 |
| MNK1 | MNK1 (MKNK1) | MAP kinase interacting serine/threonine kinase 1 | RP11-49P4.3 | Q9BUB5 | NP_003675 | | ~51 |
| MNK2 | MNK2 (MKNK2) | MAP kinase-interacting kinase 2 | MKNK2, GPRK7 | Q9HBH9 | NP_060042 | Recombinant full-length human MNK2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~74 |
| MRCA | MRCKα (CDC42BPA) | Myotonic dystrophy kinase-related Cdc42-binding kinase alpha | CDC42BPA, MRCK, PK428, FLJ23347, KIAA0451, DKFZp686L1738, DKFZp686P1738 | Q5VT25 | NP_003598 | Recombinant human MRCKα (1-473) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag | ~73 |
| MRCB | MRCKβ (CDC42BPB) | Myotonic dystrophy kinase-related Cdc42-binding kinase beta | CDC42BPB, KIAA1124 | Q9Y5S2 | NP_006026 | Recombinant human MRCKβ (1-473) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~73 |
| MSK1 | MSK1(PRS6KA5) | Mitogen- and stress-activated protein kinase 1 | RPS6KA5, RLPK, MSPK1, MGC1911 | O75582 | NP_004746 | Recombinant full-length human MSK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~120 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| MSS1 | MSSK1 (STK23) | Serine/threonine-protein kinase 23 | STK23, SRPK3, SFRS protein kinase 3, MGC102944 | Q9UPE1 | NP_055185 | Recombinant full-length human MSSK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~98 |
| MST1 | MST1 (STK4) | Mammalian Sterile 20-like kinase 1 | KRS2, YSK3, DKFZp686A2068, STK4 | Q13043 | NP_006273 | Recombinant full-length human MST1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~83 |
| MST2 | MST2 (STK3) | Serine/threonine kinase 3 | KRS1; MST2; FLJ90748 | Q13188 | NP_006272 | Recombinant full-length human STK3 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~87 |
| MST3 | MST3 (STK24) | Mammalian Sterile 20-like kinase 3 | STK24, MST-3, STK3, MST3B, RP11-111L24.5 | Q9Y6E0 | NP_003567 | Recombinant human MST3 (1-311) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~63 |
| MST4 | MST4 | Mammalian Sterile 20-like kinase 4 | MASK, RP6-213H19.1 | Q9P289 | NP_057626 | Recombinant full-length human MST4 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~72 |
| MUSK | MUSK | Muscle, skeletal receptor tyrosine protein kinase | MGC126323, MGC126324 | O15146 | NP_005583 | Recombinant human MUSK (519-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~63 |
| MYO3 | MYO3β | Myosin IIIB | Myosin IIIB | Q8WXR4 | NP_620482 | Recombinant Human MYO3β (1-326) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~63 |
| MYT1 | MYT1 | Membrane-associated tyrosine-and threonine-specific cdc2-inhibitory kinase | MYT1 kinase; PKMYT1 | O14731 | NP_004194 | | ~55 |
| NDR1 | NDR1 | Serine-threonine-protein kinase 38 | STK38 | Q15208 | NP_009202 | Recombinant full length human NDR was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~54 |
| NK11 | NEK11 | Serine-threonine-protein kinase Nek11 | BC009414; FLJ23495 | Q8TBY1 | NP_079076 | Recombinant full-length human NEK11 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~110 |
| NK02 | NEK2 | Serine/threonine-protein kinase Nek2 | NLK1, HsPK21, NEK2A | P51955 | NP_002488 | Recombinant full-length human NEK2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~76 |
| NK03 | NEK3 | Serine-threonine-protein kinase Nek3 | NimA-related protein kinase 3; HSPK 36; MGC29949 | P51956 | NP_002489 | Recombinant full-length human NEK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~86 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| NK06 | NEK6 | NimA-related protein kinase 6 | SID6-1512 | Q9HC98 | NP_055212 | Recombinant full-length human NEK6 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~63 |
| NK07 | NEK7 | NimA-related protein kinase 7 | | Q8TDX7 | NP_598001 | Recombinant full-length human NEK7 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~63 |
| NK09 | NEK9 | Serine-threonine-protein kinase Nek9 | NEK8, NERCC, NERCC1, MGC16714, MGC138306, DKFZp434D0935 | Q8TD19 | NP_149107 | Recombinant human NEK9 (1-979; deleted fragment of 346-731) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~115 |
| NUA2 | NUAK2 | NUAK family, SNF1-like kinase, 2 | DKFZp434J037, DKFZp686F01113, FLJ90349, SNARK | Q9H093 | NP_112214 | | |
| P38A | p38α (MAPK14) | Mitogen-activated protein kinase 14 | CSBP1, CSBP2, CSPB1, PRKM14, PRKM15, SAPK2A, MAPK14, RK, p38, EXIP, Mxi2 | Q16539 | NP_001306 | Recombinant full-length human p38alpha was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~67 |
| P38B | p38β (MAPK11) | Mitogen-activated protein kinase 11 | MAPK11, SAPK2, p38-2, PRKM11, SAPK2B, p38b, P38b2 | Q15759 | NP_002742.3 | Recombinant full-length human p38beta was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~71 |
| P38D | p38δ (MAPK13) | Mitogen-activated protein kinase 13 | SAPK4, PRKM13, MAPK13, MGC99536 | O15264 | NP_002745 | Recombinant full-length human p38delta was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~71 |
| P38G | p38γ (MAPK12) | Mitogen-activated protein kinase 12 | ERK3, ERK6, SAPK3, PRKM12, MAPK12 | P53778 | NP_002960 | Recombinant full-length human p38gamma was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~71 |
| P70A | p70S6K (RPS6KB1) | Ribosomal protein S6 kinase 1 | S6K, PS6K, S6K1, STK14A, RPS6KB1, p70-alpha, p70(S6K)-alpha | P23443 | NP_003152 | Recombinant full-length human p70S6K was expressed by baculovirus in Sf9 insect cells using a N-terminal His tag. | ~76 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| P70B | p70S6Kb (RPS6KB2) | Ribosomal protein S6 kinase, 70kDa, polypeptide 2 | RPS6KB2, STK14B, KLS, P70-beta, P70-beta-1, P70-beta-2, S6K2, p70(S6K)-beta, S6K-beta2, SRK | Q9UBS0 | NP_003943 | Recombinant full-length human p70S6Kb was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~85 |
| PAK1 | PAK1/CDC42 | Serine/threonine-protein kinase PAK 1 | PAKalpha, MGC130000, MGC130001 | Q13153 | NP_002567 | Recombinant full-length human PAK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. Combined with Cdc42 in assays. | ~96 |
| PAK2 | PAK2 | p21 protein (Cdc42/Rac)-activated kinase 2 | PAK65, PAKgamma, S6/H4 kinase | Q13177 | NP_002568 | Recombinant full-length mouse PAK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~58 |
| PAK3 | PAK3 | Serine/threonine-protein kinase PAK3 | Stk4, mPAK-3, Pak65beta, Pak65alpha | O75914 | NP_002569 | Recombinant full-length mouse PAK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~89 |
| PAK4 | PAK4 | Serine/threonine-protein kinase PAK4 | p21-activated kinase 4; PAK-4 | O96013 | NP_005875 | Recombinant full-length human PAK4 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~90 |
| PAK5 | PAK5 (PAK7) | Serine/threonine-protein kinase PAK 7 | PAK5, KIAA1264, MGC26232 | Q9P286 | NP_065074 | Recombinant full-length human PAK7 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~130 |
| PAK6 | PAK6 | Serine-threonine-protein kinase PAK 6 | p21-activated kinase 6; PAK-6; PAK-5 | Q9NQU5 | NP_064553 | Recombinant full-length human PAK6 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~110 |
| PASK | PASK | PAS domain containing serine-threonine-protein kinase | STK37; PASKIN; KIAA0135; DKFZp434O051; DKFZp686P2031 | Q96RG2 | NP_055963 | Recombinant human PASK (981-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~66 |
| PBK1 | PBK (TOPK) | T-lymphokine-activated killer cell-originated protein kinase | SPK, Nori-3, FLJ14385 | Q96KB5 | NP_060962 | Recombinant full-length human TOPK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~68 |
| PDGA | PDGFRα | Platelet-derived growth factor receptor alpha | CD140A, PDGFR2, MGC74795, Rhe-PDGFRA | P16234 | NP_006197 | Recombinant human PDGFRα (550-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~100 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| PDGB | PDGFRβ | Platelet-derived growth factor receptor beta | JTK12, PDGFR, CD140B, PDGFR1 | P09619 | NP_002600 | Recombinant human PDGFRbeta (557-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~104 |
| PDK1 | PDK1 (PDPK1) | 3-Phosphoinositide-dependent protein kinase 1 | PRO0461, PDPK1, MGC20087, MGC35290, PkB-like, PkB-like 1 | O15530 | NP_002604 | Recombinant full-length human PDK1 was expressed by baculovirus in Sf9 insect cells using a N-terminal His tag. | ~67 |
| PEK1 | PEK (EIF2AK3) | Eukaryotic translation initiation factor 2-alpha kinase 3 | DKFZp781H1925, HRI, PEK, PERK, WRS | Q9NZJ5 | NP_004827 | | |
| PHK2 | PHKG2 | Phosphorylase b kinase gamma catalytic chain, testis-liver isoform | GSD9C; PHK-gamma-T; Phosphorylase kinase gamma subunit 2; PSK-C3 | P15735 | NP_000285 | Recombinant full-length human PHKG2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~70 |
| PIKT | PI3K (p110α/p65α) | Phosphatidylinositol 3-kinase-alpha | p110α; PIK3CA; MGC142161; MGC142163; p110-alpha | | | Recombinant full-length human p110alpha and truncated human p85alpha were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | |
| PIK1 | PI3K (p110α/p85α) | Phosphatidylinositol 3-kinase-alpha | p110α; PIK3CA; MGC142161; MGC142163; p110-alpha | | | Recombinant full-length mouse p110alpha and human p85alpha were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | ~111 |
| PIKM | PI3K (p110α (E545K/p85α) | Phosphatidylinositol 3-kinase-alpha | p110α; PIK3CA; MGC142161; MGC142163; p110-alpha | | | Recombinant full-length human p110α (E545K) mutant subunit and human p85-alpha wild-type subunit were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | ~111 |
| PIK4 | PI3K (p110δ/p85α) | Phosphatidylinositol 3-kinase-delta | p110δ | | | Recombinant full-length human p110δ and human p85α were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | ~111 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| PIK2 | PI3K (p110β/p85α) | Phosphatidylinositol 3-kinase-beta | p110α; PIK3CB; PI3K; PIK3C1; PI3Kbeta; MGC133043; p110-BETA; DKFZp779K1237; | | | Recombinant full-length human p110beta and human p85alpha were co-expressed by baculovirus in Sf9 insect cells using an N-terminal His tag on both proteins. | ~111 |
| PIK3 | PI3K (p120γ) | Phosphatidylinositol 3-kinase-gamma | p110γ; PI3K; PIK3; PI3CG; PI3Kgamma | | | Recombinant full-length human PI3K (p120γ) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~121 |
| PIM1 | Pim1 | Proto-oncogene serine/threonine-protein kinase Pim-1 | PIM | P11309 | NP_002639 | Recombinant full-length human PIM1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~62 |
| PIM2 | Pim2 | Serine/threonine-protein kinase Pim2 | | Q9P1W9 | NP_006866 | Recombinant full-length human PIM2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~61 |
| PKAA | PKAcα (PRKACA) | cAMP-dependent protein kinase, alpha-catalytic subunit | PKAa, cAPKa, MGC48865, MGC102831 | P17612 | NP_002721 | Recombinant full-length human PKAcalpha was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~69 |
| PKAB | PKAcβ (PRKACB) | cAMP-dependent protein kinase, beta-catalytic subunit | PKAb, cAPKb, MGC9320, MGC41879, DKFZp781I2452 | P22694 | NP_891993 | Recombinant full-length human PKAcbeta was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~65 |
| PKAG | PKAcγ (PRKACG) | cAMP-dependent protein kinase, gamma-catalytic subunit | KAPG, PKAr, cAPKr | P22612 | NP_002723 | Recombinant full-length human PKAcgamma was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~65 |
| PKCA | PKCα (PRKCA) | Protein kinase C, alpha type | AAG6, PKCA, PRKCA, PRKACA, MGC129900, MGC129901 | P17252 | NP_002728 | Recombinant full-length human PKCalpha was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~103 |
| PKC1 | PKCβ1 (PRKCB1) | Protein kinase C, beta | PKCB; PRKCB; PRKCB2; MGC41878; PKC-beta | P05771 | NP_002729 | Recombinant full-length human PKCbeta I was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~102 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| PKC2 | PKCβ2 (PRKCB2) | Protein kinase C, beta type | PRKCB1, PKCB2, PRKCB1, PRKCB (X07109) | P05771 | NP_002729 | Recombinant full-length human PKCbeta II was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~105 |
| PKCD | PKCδ (PRKCD) | Protein kinase C, delta | PRKCD, MAY1, MGC49908, nPKC-delta | Q05655 | NP_006245 | Recombinant full-length human PKCdelta was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~104 |
| PKCE | PKCε (PRKCE) | Protein kinase C, epsilon type | PRKCE, MGC125656, MGC125657, nPKC-epsilon | Q02156 | NP_005391 | Recombinant full-length human PKCepsilon was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~110 |
| PKCG | PKCγ (PRKCG) | Protein kinase C, gamma type | PKCC, PKCG, SCA14, MGC57564, PKC-gamma, PRKCG | P05129 | NP_002730 | Recombinant full-length human PKCgamma was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~105 |
| PKCH | PKCη (PRKCH) | Protein kinase C, eta | PKCL, PKC-L, PRKCL, MGC5363, MGC26269, nPKC-eta, PRKCH | P24723 | NP_006246 | Recombinant full-length human PKCeta was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~103 |
| PKCI | PKCι (PRKCI) | Protein kinase C, iota type | PRKCI, DXS1179E, MGC26534, nPKC-iota | P41743 | NP_002731 | Recombinant full-length human PKCiota was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~98 |
| PKCQ | PKCθ (PRKCQ) | Protein kinase C, theta | PRKCQ, PRKCT, MGC126514, MGC141919, nPKC-theta | Q04759 | NP_006248 | Recombinant full-length human PKC-theta was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~110 |
| PKCZ | PKCζ (PRKCZ) | Protein kinase C, zeta type | PRKCZ, PRKCZ, PKC2 | Q05513 | NP_002735 | Recombinant full-length human PKCzeta was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~93 |
| PKD1 | PKD1 (PRKD1, PKCμ) | Protein kinase C, mu | PKD, PKCM, PRKCM | Q15139 | NP_002733 | Recombinant full-length human PKCmu was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~131 |
| PKD2 | PKD2 (PRKD2) | Protein kinase C, D2 | HSPC187, DKFZp586E0820, PRKD2 | Q9BZL6 | NP_057541 | Recombinant full-length human PKD2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~130 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| PKD3 | PKD3 (PRKD3, PKCv) | Protein kinase C, nu | PKCv, EPK2, PRKCN, PKD3, nPKC-NU | O94806 | NP_005804 | Recombinant full-length human PKCnu was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~142 |
| PKG1 | PKG1α (PRKG1A) | cGMP-dependent protein kinase 1, alpha | PGK, CGKI, PRKG1B, PRKGR1B, FLJ36117, MGC71944, cGKI-BETA, cGKI-alpha, DKFZp686K042 | Q13976 | NP_006249 | Recombinant full-length human PRKG1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~100 |
| PKN1 | PKN1 | Protein kinase N1 | DBK, MGC46204, PAK1, PKN, PKN-ALPHA, PRK1, PRKCL1 | Q16512 | NP_998725 | | |
| PKN2 | PKN2 | Protein kinase N2 | PRK2; PRKCL2, PKN2, PRK2, PAK2, Pak-2, PRO2042, MGC71074, MGC150606; Protein kinase C-like 2; Protein-kinase C-related kinase 2 | Q16513 | NP_006247 | Recombinant full-length human PKN2/PRK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~145 |
| PKR1 | PKR (EIF2AK2) | Interferon-induced, double-stranded RNA-activated protein kinase | PKR, PRKR, EIF2AK1 | P19525 | NP_002750 | Recombinant human EIF2AK2 (252-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~64 |
| PLK1 | PLK1 | Serine/threonine-protein kinase Plk1 | STPK13 | P53350 | NP_005021 | Recombinant full-length human PLK1 was expressed by baculovirus in Sf9 insect cells using a N-terminal His tag. | ~70 |
| PLK2 | PLK2 | Polo-like kinase 2 | SNK | Q9NYY3 | NP_006613 | | |
| PLK4 | PLK4 | | | O00444 | NP_055079 | | |
| PYK2 | PYK2 (PTK2B) | Protein tyrosine kinase 2 beta | FAK2, PTK2B, CADTK, FADK2, CAKB, PKB, PTK, RAFTK, PYK2 | Q14289 | NP_775266 | Recombinant human PYK2 (360-690) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~39 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| QIK1 | QIK (SNF1LK2) | SNF1-like kinase 2 | DKFZp434K1115, KIAA0781, LOH11CR1I, SIK2 | Q9H0K1 | NP_056006 | | |
| RAF1 | Raf1 | Raf proto-oncogene serine/threonine-protein kinase | | P04049 | NP_002871 | Recombinant human Raf1(306-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~63 |
| RAFM | Raf1 [Y340E, Y341E] | Raf proto-oncogene serine/threonine-protein kinase | | P04049 | NP_002871 | Recombinant human RAF1(Y340E Y341E, 306-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~63 |
| RET1 | Ret | Ret proto-oncogene-encoded kinase | CDHF12, HSCR1, MEN2A, MEN2B, MTC1, PTC, RET-ELE1 | P07949 | NP_066124 | | |
| RIP2 | RIPK2 | Receptor-interacting serine/threonine-protein kinase 2 | RICK, RIP2, CARD3, CARDIAK, CCK, GIG30 | O43353 | NP_003812 | Recombinant human RIPK2 (1-299) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~59 |
| RIP5 | RIPK5 (SGK496) | Receptor interacting protein kinase 5, isoform 1 | DSTYK; DustyPK; HDCMD38P; KIAA0472; RIP5; SgK496 | Q6XUX3 | NP_056190 | Recombinant full-length human RIPK5 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~140 |
| ROKB | ROCK1 (ROKβ) | Rho-associated protein kinase 1 | P160ROCK, ROCK-I, ROKbeta | Q13464 | NP_005397 | Recombinant human ROCK1 (17-535) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~85 |
| ROKA | ROCK2 (ROKα) | Rho-associated protein kinase 2 | KIAA0619, ROCK-II, ROKalpha | O75116 | NP_004841 | Recombinant human ROCK2 (5-554) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~88 |
| RON1 | RON (MST1R) | Macrophage-stimulating protein receptor | MST1R, PTK8, CDw136 | Q04912 | NP_002438 | Recombinant human RON (983-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~71 |
| ROS1 | ROS | Proto-oncogene tyrosine-protein kinase ROS | c-ros-1; MCF3 | P08922 | NP_002935 | Recombinant human ROS1 (1883-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~82 |
| RSK1 | RSK1 (RPS6KA2) | Ribosomal protein S6 kinase alpha 2 | RPS6KA1, HU-1, MAPKAPK1A, S6K-alpha 1 | Q15418 | NP_066958 | Recombinant full-length human RSK1 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~108 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| RSK2 | RSK2 (PRS6KA3) | Ribosomal S6 kinase 2 (alpha 3) | RPS6KA3, HU-3, MAPKAPK1B, CLS, MRX19, ISPK-1, p90-RSK2, pp90RSK2, S6K-alpha3 | P51812 | NP_004577 | Recombinant full-length human RSK2 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~112 |
| RSK3 | RSK3 (RPS6KA1) | Ribosomal protein S6 kinase alpha 1 | RSK, HU-2, RPS6KA2, p90-RSK3, pp90RSK3, MAPKAPK1C, S6K-alpha, S6K-alpha2 | Q15349 | NP_002944 | Recombinant full-length human RSK3 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~112 |
| RSK4 | RSK4 (RPS6KA6) | Ribosomal protein S6 kinase alpha 6 | RPS6KA6 | Q9UK32 | NP_055311 | Recombinant full-length human RSK4 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~112 |
| SGK1 | SGK1 | Serine-threonine-protein kinase Sgk1 | Serum/glucocorticoid-regulated kinase 1 | O00141 | NP_005618 | Recombinant human SGK1 (60-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag | ~73 |
| SGK2 | SGK2 | Serine-threonine-protein kinase Sgk2 | Serum/glucocorticoid-regulated kinase 2; H-SGK2; dJ138B7.2 | Q9HBY8 | NP_057360 | Recombinant full-length human SGK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~71 |
| SGK3 | SGK3 | Serine-threonine-protein kinase Sgk3 | Serum/glucocorticoid-regulated kinase 3; CISK; SGKL | Q96BR1 | NP_037389 | Recombinant full-length human SGK3 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~82 |
| SIK1 | SIK | Serine-threonine-protein kinase SNF1-like kinase 1 | BG719047; SNF1LK; MSK; SIK1 | P57059 | NP_775490 | Recombinant human SIK (1-303) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~36 |
| SKMK | skMLCK (MYLK2) | Myosin light chain kinase 2, skeletal/cardiac muscle | skMLCK, KMLC, MLCK, MLCK2 | Q9H1R3 | NP_149109 | Recombinant full-length human MYLK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~74 |
| SLK1 | SLK | CTCL tumor antigen se20-9 | Ste20-related serine/threonine kinase; LOSK; STK2; se20-9; KIAA0204; MGC133067; bA16H23.1 | Q9H2G2 | NP_055535 | Recombinant full-length human SLK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~180 |
| SMMK | smMLCK (MLCK2) | Myosin light chain kinase, smooth muscle and non-muscle isozymes | MYLK, MLCK2, KRP, MLCK108, MLCK210, MSTP083, FLJ12216, DKFZp686I10125 | Q15746 | NP_444253 | Recombinant human MLCK (1425-1776) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~70 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| SRC1 | Src | Proto-oncogene tyrosine-protein kinase Src | ASV, SRC1, c-SRC, p60-Src | P12931 | NP_005408 | Recombinant full-length human SRC was expressed in E.coli cells using an N-terminal GST tag. | ~83 |
| SRP1 | SRPK1 | SFRS protein kinase 1 | SFRSK1 | Q96SB4 | NP_003128 | Recombinant full-length human SRPK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~130 |
| SRP2 | SRPK2 | SFRS protein kinase 2 | FLJ36101, SFRSK2 | P78362 | NP_872633 | Recombinant full-length human SRPK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~135 |
| ST33 | STK33 | Serine/threonine-protein kinase 33 |  | Q8NEF5 | NP_112168 | Recombinant full-length human STK33 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~94 |
| SYK1 | SYK | Tyrosine-protein kinase SYK | Spleen tyrosine kinase | P43405 | NP_003168 | Recombinant full-length human SYK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~100 |
| TAK1 | TAK1-TAB1 | Mitogen-activated protein kinase kinase kinase 7 | Transforming growth factor-beta-activated kinase 1; TGF-beta-activated kinase 1; MAP3K7 | O43318 | NP_003179 | Recombinant human proteins TAK1 (1-303) and TAB1 (437-end), linked by a small peptide (DFGGGGG), were expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~74 |
| TAO1 | TAO1 (TAOK1) | Serine/threonine-protein kinase TAO1 | PSK2, MARKK, MAP3K16, FLJ14314, KIAA1361 | Q7L7X3 | NP_065842 | Recombinant human TAOK1 (1-314) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~63 |
| TAO2 | TAO2 (TAOK2) | Serine/threonine-protein kinase TAO2 | PSK, PSK1, TAO1, TAO2, MAP3K17, KIAA0881 | Q9UL54 | NP_004774 | Recombinant human TAOK2 (1-314) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~63 |
| TAO3 | TAO3 (TAOK3, JIK ) | TAO kinase 3 | DKFZp666H245, DPK, FLJ31808, JIK, MAP3K18, TAOK3 | Q9H2K8 | NP_057365 |  |  |
| TBK1 | TBK1 | TANK-binding kinase 1 | NFkB-activating kinase, NAK, T2K, FLJ11330 | Q9UHD2 | NP_037386 | Recombinant full-length human TBK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~105 |
| TEC1 | TEC | Tec protein-tyrosine kinase | MGC126760, MGC126762, PSCTK4 | P42680 | NP_003206 |  |  |
| TES1 | TESK1 | Dual-specificity testis-specific protein kinase 1 | Testicular protein kinase 1 | Q15569 | NP_006276 |  |  |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| TGF1 | TGFβR1 | Transforming growth factor, beta receptor 1 | AAT5, ACVRLK4, ALK-5, ALK5, LDS1A, LDS2A, SKR4; TGFR1 | P36897 | NP_004603 | Recombinant human TGFβR1 (80-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~65 |
| TGF2 | TGFβR2 | TGF-beta receptor type II | AAT3, FAA3, MFS2, RIIC, HNPCC6, TGFR-2, TGFbeta-RII, TAAD2 | P37173 | NP_003233 | Recombinant human TGFβR2 (190-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~68 |
| TIE2 | Tie2 (Tek) | Angiopoietin 1 receptor | TEK, VMCM, VMCM1, CD202B | Q02763 | NP_000450 | Recombinant human TIE 2 (771-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~61 |
| TLK2 | TLK2 | Serine-threonine-protein kinase tousled-like 2 | MGC44450; PKU-ALPHA; Tousled-like kinase 2 | Q86UE8 | NP_006843 | Recombinant human TLK2 (388-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~67 |
| TRKA | TrkA (NTRK1) | High affinity nerve growth factor receptor | NTRK1, MTC, TRK, TRK1, p140-TrkA, DKFZp781I14186 | P04629 | NP_002520 | Recombinant human TRKA (440-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~66 |
| TRKB | TrkB (NTRK2) | BDNF/NT-3 growth factors receptor | Neurotrophic tyrosine kinase receptor type 2; NTRK2, GP145-TrkB | Q16620 | NP_001018074 | Recombinant human TRKB (455-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~67 |
| TRKC | TrkC | NT-3 growth factor receptor | Neurotrophic tyrosine kinase receptor type 3; NTRK3, gp145(trkC) | Q16288 | NP_002521 | Recombinant human TRKC (507-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag. | ~38 |
| TSS1 | TSSK1 (STK22D) | Testis-specific serine kinase 1B | FKSG81, SPOGA4, STK22D, TSSK1 | Q9BXA7 | NP_114417 | | |
| TSS2 | TSSK2 (STK22B) | Testis-specific serine/threonine protein kinase 2 | DGS-G, SPOGA2, STK22B, FLJ38613 | Q96PF2 | NP_443732 | Recombinant full-length human TSSK2 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~66 |
| TTK1 | TTK | Dual specificity protein kinase TTK | Phosphotyrosine picked threonine kinase; ESK; PYT; MPS1; MPS1L1; FLJ38280 | P33981 | NP_003309 | Recombinant full-length human TTK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~130 |
| TXK1 | TXK | Tyrosine-protein kinase TXK | RLK, TKL, BTKL, PTK4, PSCTK5, MGC22473 | P42681 | NP_003319 | Recombinant human TXK (239-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~53 |

| Kinexus ID Code | Protein Kinase Name | Full Name | Alias | UniProt | Refseq | Description | Recombinant Mol. Mass (KDa) |
|---|---|---|---|---|---|---|---|
| TYK2 | TYK2 | Tyrosine kinase 2 | JTK1 | P29597 | NP_003322 | | ~125 |
| TYR3 | TYRO3 (RSE ) | Tyrosine-protein kinase receptor TYRO3 | BYK, RSE, Dtk, Sky, Tif, Brt | Q06418 | NP_006284 | Recombinant human TYRO3 (455-end) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~77 |
| ULK1 | ULK1 | Serine-threonine-protein kinase ULK1 | ATG1; FLJ38455; Unc-51-like kinase 1; UNC51; Unc51.1 | O75385 | NP_003556 | Recombinant human ULK1 (1-649) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~125 |
| ULK2 | ULK2 | Serine-threonine-protein kinase ULK2 | KIAA0623; Unc-51-like kinase 2; Unc51.2 | Q8IYT8 | NP_055498 | Recombinant human ULK2 (1-631) was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~98 |
| WEE1 | WEE1 | WEE1 homologue | DKFZp686I18166, FLJ16446, WEE1A, WEE1hu | P30291 | NP_003381 | | |
| YES1 | Yes (Yes1) | v-Yes-1 Yamaguchi sarcoma viral oncogene homologue 1 | HsT441, P61-YES, Yes1, c-yes | P07947 | NP_005424 | Recombinant full length human YES1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~91 |
| YSK1 | YSK1 (STK25, SOK1) | Serine/threonine kinase 25 | DKFZp686J1430, SOK1, STK25 | O00506 | NP_006365 | Recombinant full length human YSK1 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~76 |
| ZAK1 | ZAK | Sterile alpha motif and leucine zipper containing kinase AZK | AZK, MLK7, MLT, MLTK, MRK, mlklak | Q9NYL2 | NP_057737 | Recombinant full-length human ZAK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. | ~82 |
| ZA70 | ZAP70 | Tyrosine-protein kinase ZAP-70 | SRK, STD, ZAP-70 | P43403 | NP_001070 | Recombinant full-length human ZAP70 was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~96 |
| ZC03 | ZC3 (MINK1) | Mitogen-activated protein kinase kinase kinase kinase 6 | B55, ZC3, MINK, YSK2, hMIN, MAP4K6, MGC21111, hMINKβ | Q8N4C8 | NP_056531 | Recombinant human MINK1 (1-320) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. | ~61 |

KINEXUS

Form: KICP-SOF-01

KINASE INHIBITOR COMPOUND PROFILING

# SERVICE ORDER FORM

**KINEXUS ORDER NUMBER**

## CUSTOMER INFORMATION ❑ REPEAT CUSTOMER OR ❑ NEW CUSTOMER

❑ 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*

## KINASE INHIBITOR COMPOUND PROFILING REPORTS

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

## REQUESTED WORK AND PRICING INFORMATION

***Refer to Service Identification Forms (KICP-SIF-01A and KCIP-SIF-01B)*** ***All prices in U.S. Funds***

| Sheet No. | KICP-SIF ID Name (from Section A of KICP-01 Forms) | Total Number of Assays (from Section B of KICP-01 Forms) |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8. | | |

Total Number Assays (*Sum 1-8*) _____ (Complete up to this point for quotation purposes only)

***Quotation or Reference Number***: _____ **TOTAL COST AS PER QUOTATION** = $ _____

**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 KICP Services?*** ❑ *Direct Mail* ❑ *Email* ❑ *Web Site* ❑ *Advertisement* ❑ *Referral* ❑ *Conference or Trade Show* ❑ *Other*

KINASE INHIBITOR
COMPOUND PROFILING

# SERVICE INFORMATION FORM

*Subject to terms of the Kinexus Service Agreement*

Form: KICP-SIF-01A

**KINEXUS ORDER NUMBER**

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

## Confidential Service Requested: One Kinase; Multiple Numbers and/or Dilutions of Compounds

Use the KICP-SIF-01B Form is you wish to have many kinases tested against only one compound. Please refer to the Kinase Inhibitor Compound Profiling Customer Information Package for further details about this in vitro custom compound screening service. Initially use this form to obtain a quotation from Kinexus for pricing of your custom order. Please also provide a copy of this completed form at the time of submission of your compounds for analysis. Use additional copies of this form if you have more compounds or a larger number of kinases to be tested. If you need assistance completing this form, 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.

**CUSTOM SERVICE REQUESTED: KICP-1.0**
**Custom multi-compound (1-15) and single target kinase (1) screen**

***Depending on the scale of your order, make sure that you are supplying at least five-times as much as minimally necessary of the compound to be tested..***

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

**A. KICP-SIF IDENTIFICATION NAME:**

Client ID: _____

*Use this ID name of your choice for your internal reference and completion of the KICP-SOF form. This is useful when multiple copies of this KICP-SIF forms are to be used in your order.*

**B. COMPOUND SELECTION:**

*For each separate compound, under "Compound ID" please provide the assigned client name that has been entered into Box A from the completed and attached "Confidential Sample Description" form (KICP-CSDF-01). For each concentration of the compound to be tested (up to 6) indicate the amount and whether this represents "µM" or " µg/ml" by ticking the appropriate box. Also indicate whether each assay is to be performed in single ("Once"), duplicate {"Depl.") or triplicate ("Tripl.) measurements. Under "Subtotal" for each compound, indicate the number of individual assays that you intend to be performed.*

| Compound ID. | Final Conc. (µM) ❑ or (µg/ml) ❑ | | | | | | Replicates | | | Subtotal |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dil. 1 | Dil. 2 | Dil. 3 | Dil. 4 | Dil. 5 | Dil. 6 | Once | Dupl. | Tripl. | |
| 1. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 2. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 3. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 4. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 5. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 6. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 7. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 8. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 9. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 10. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 11. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 12. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 13. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 14. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |
| 15. _____ | | | | | | | ❑ | ❑ | ❑ | _____ |

Total Number of Assays _____

**C. KINASE SELECTION:**

*Use Appendix A of the Kinase Inhibitor Compound Profiling Customer Information Package to obtain the code (Column A) and name (Column B) of the protein kinase that will be tested for inhibition by the compounds listed in Section B. A more detailed MS-Excel spreadsheet with information about each kinase can be downloaded from the Kinexus website at www.kinexus.ca/ services/kinase_inhibitor_profiling.php.*

Kinase ID code: _____

Kinase target name: _____

**D. ASSAY TIME:**

*If you have a recommended or required incubation time, please provide this here.*

Assay time (minutes): _____

**E. PRICING:**

*Pricing varies with the number of kinases and compounds to be tested in each custom order. It is also feasible for Kinexus to test compounds against protein kinases that are provided by clients. Therefore, it is necessary to complete this form and transmit it by facsimile to 1-604-323-2548 with your e-mail address, facsimile and telephone number to obtain a quotation for each custom analysis. We will endeavor to issue a quotation that is valid for four weeks within 24 hours of receipt.*

**F. SPECIAL INSTRUCTIONS:**

_____

_____

_____

_____

_____

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

Form: KICP-SIF-01B

KINASE INHIBITOR
COMPOUND PROFILING

# SERVICE INFORMATION FORM

*Subject to terms of the Kinexus Service Agreement*

**KINEXUS ORDER NUMBER**

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

## Confidential Service Requested: One Compound at One or More Dilutions; Multiple Kinases

Use the KICP-SIF-01A Form instead if you wish to have many compounds tested against only one kinase. Please refer to the Kinase Inhibitor Compound Profiling Customer Information Package for further details about this in vitro custom compound screening service. Initially, use this form to obtain a quotation from Kinexus for pricing of your custom order. Please also provide a copy of this completed form at the time of submission of your compounds for analysis. Use additional copies of this form if you have more compounds or a larger number of kinases to be tested. If you need assistance completing this form, 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.

**CUSTOM SERVICE REQUESTED: KICP-1.0**
**Custom multi-kinase (1-15) and single compound (1) screen**

***Depending on the scale of your order, make sure that you are supplying at least three-times as much as minimally necessary of the compound to be tested.***

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

**A. KICP-SIF IDENTIFICATION NAME:**
Client ID: _____

*Use this ID name of your choice for your internal reference and completion of the KICP-SOF form. This is useful when multiple copies of this KICP-SIF forms are to be used in your order.*

**B. COMPOUND SELECTION:**

*Please provide the assigned client name that has been entered into Box A from the completed and attached "Confidential Sample Description" form (KICP-CSDF-01).*

Compound ID: _____

**C. KINASE SELECTION:**

*Use Appendix A of the Kinase Inhibitor Compound Profiling Customer Information Package to obtain the code (Column A) and name (Column B) of the protein kinase that will be tested for inhibition by the compounds listed in Section B. A more detailed MS-Excel spreadsheet with information about each kinase can be downloaded from the Kinexus website at www.kinexus.ca/ services/kinase_inhibitor_profiling.php. For each concentration of the compound to be tested (up to 6) indicate the amount and whether this represents "µM" or " µg/ml" by ticking the appropriate box. Also indicate whether each assay is to be performed in single ("Once"), duplicate {"Depl.") or triplicate ("Tripl.) measurements. Under "Subtotal" for each compound, indicate the number of individual assays that you intend to be performed.*

| Kinase Code + Name | Compound Final Conc. (µM) ❑ or (µg/ml) ❑ Dil. 1 | Dil. 2 | Dil. 3 | Dil. 4 | Dil. 5 | Dil. 6 | Replicates Once | Dupl. | Tripl. | Subtotal |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 2. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 3. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 4. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 5. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 6. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 7. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 8. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 9. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 10. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 11. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 12. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 13. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 14. _____ | | | | | | | ❑ | ❑ | ❑ | |
| 15. _____ | | | | | | | ❑ | ❑ | ❑ | |

Total Number of Assays _____

**D. ASSAY TIME:**

*If you have a recommended or required incubation time, please provide this here.*

Assay time (minutes): _____

**E. PRICING:**

*Pricing varies with the number of kinases and compounds to be tested in each custom order. It is also feasible for Kinexus to test compounds against protein kinases that are provided by clients. Therefore, it is necessary to complete this form and transmit it by facsimile to 1-604-323-2548 with your e-mail address, facsimile and telephone number to obtain a quotation for each custom analysis. We will endeavor to issue a quotation that is valid for four weeks within 24 hours of receipt.*

**F. SPECIAL INSTRUCTIONS:**

_____
_____
_____
_____
_____
_____
_____

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

KINASE INHIBITOR
COMPOUND PROFILING

# CLIENT SUPPLIED
# CONFIDENTIAL SAMPLE DESCRIPTION FORM

*Subject to terms of the Kinexus Service Agreement*

Form: KICP-CSDF-01

**KINEXUS ORDER NUMBER**

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

## Compound Details:

Please refer to the Kinase Inhibitor Compound Profiling Customer Information Package for details on how to prepare and ship your compounds to Kinexus for testing. Clients are required to complete Sections A and B for a confidential analysis with this in vitro screening service. Use additional copies of this form if you have more than two compounds for testing. For each compound to be tested, please send enough material to complete the analysis. If you need assistance completing this form, 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 IDENTIFICATION NAME**

CLIENT ID: _____

*Use the Client ID Name that you entered here in Box A on the Custom Kinase Inhibitor Compound Profiling Service Identification Form" (KICP-SIF-01A or KICP-SIF-01B). Provide a separate Client ID number for each different compound to be tested.*

**KINEXUS ID NUMBER** (FOR INTERNAL USE ONLY)
*(Bar Code Identification Number)*

**B. COMPOUND DETAILS:** Compound name (not required): _____ Supplied form of compound ❑ Solid ❑ Liquid

**FOR SOLIDS PROVIDE**: Mass (mg): _____ Formula Weight: _____ Is the compound or solution toxic? ❑ Yes ❑ No

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

For solids, what is the recommended solvent? _____ Is the compound soluble in water or 2% DMSO? _____

Provide safety instructions and storage details for handling, or any other special information: _____

_____

_____

_____

**A. CLIENT IDENTIFICATION NAME**

CLIENT ID: _____

*Use the Client ID Name that you entered here in Box A on the Custom Kinase Inhibitor Compound Profiling Service Identification Form" (KICP-SIF-01. Provide a separate Client ID number for each different compound to be tested.*

**KINEXUS ID NUMBER** (FOR INTERNAL USE ONLY)
*(Bar Code Identification Number)*

**B. COMPOUND DETAILS:** Compound name (not required): _____ Supplied form of compound ❑ Solid ❑ Liquid

**FOR SOLIDS PROVIDE**: Mass (mg): _____ Formula Weight: _____ Is the compound or solution toxic? ❑ Yes ❑ No

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

For solids, what is the recommended solvent? _____ Is the compound soluble in water or 2% DMSO? _____

Provide safety instructions and storage details for handling, or any other special information: _____

_____

_____

_____

*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 details if the information provided is unclear.*

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

# COMMERCIAL INVOICE

| DATE OF EXPORTATION | EXPORT REFERENCES<br>(*not required*) |
|---|---|
| SHIPPER/EXPORTER | CONSIGNEE<br><br>Kinexus Bioinformatics Corporation<br>Suite 1, 8755 Ash Street<br>Vancouver, B.C.<br>Canada V6P 6T3<br><br>Telephone: (604) 323-2547 Ext. 1 or 10<br>Facsimile: (604) 323-2548<br>Email: info@kinexus.ca |
| COUNTRY OF EXPORT | TERMS OF SALE<br>Not for resale, sample for analysis |
| COUNTRY OF ORIGIN | PURPOSE<br>Research and development |
| COUNTRY OF ULTIMATE DESTINATION<br>Canada | EXPORTING CARRIER |
| INTERNATIONAL AIR WAYBILL NUMBER<br>Courier Number: | |

| NO. OF PKGS | TYPE OF PACKAGING | QUANTITY OF SAMPLES | COMPLETE AND ACCURATE COMMODITY DESCRIPTION | UNIT VALUE |
|---|---|---|---|---|
| | _ FedEx Letter<br>_ FedEx Pak<br>_ Box<br>_ Other | *Total number of 1.5 ml Eppendorf tubes:* | Non-hazardous, compounds for research and development for therapeutic purposes. Samples are not for resale and there is no commercial value. | $1.00<br>*per sample* |

| TOTAL NO. OF PACKAGES | TOTAL WEIGHT OF PACKAGES | TOTAL DECLARED VALUE |
|---|---|---|
| | | $ |

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

**SIGNATURE AND STATUS OF AUTHORIZED PERSON**

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

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

# COMMERCIAL INVOICE

| DATE OF EXPORTATION | EXPORT REFERENCES |
|---|---|
| | |
| **SHIPPER/EXPORTER** | **CONSIGNEE**<br><br>Kinexus Bioinformatics Corporation<br>Suite 1, 8755 Ash Street<br>Vancouver, B.C.<br>Canada V6P 6T3<br><br>Telephone: (604) 323-2547 Ext. 1 or 10<br>Facsimile: (604) 323-2548<br>Email: info@kinexus.ca |
| **COUNTRY OF EXPORT** | **TERMS OF SALE**<br>Not for resale, sample for analysis |
| **COUNTRY OF ORIGIN** | **PURPOSE**<br>Research and development |
| **COUNTRY OF ULTIMATE DESTINATION**<br>Canada | **EXPORTING CARRIER** |
| **INTERNATIONAL AIR WAYBILL NUMBER**<br>Courier Number: | |

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

| TOTAL NO. OF PACKAGES | TOTAL WEIGHT OF PACKAGES | TOTAL DECLARED VALUE |
|---|---|---|
| | | $ |

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

**SIGNATURE AND STATUS OF AUTHORIZED PERSON**

_____ _____

*Print Name* *Title*

_____ _____

*Authorized Signature* *Date (month/day/year)*

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

# 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: _____ |