

Technology Licensing Opportunity

Non-Confidential Summary



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APPLICATIONS OF KINOME ANALYSIS

Opportunity:

Researchers at the University of Saskatchewan have developed a novel method of kinome analysis. The invention provides customizable arrays designed for phosphorylation experiments and a data processing platform for integrated kinome analysis.

The technology background:

Cellular kinases, collectively known as the kinome, play a critical role in regulating biological functions through post-translational protein phosphorylation, making the enzymes valuable in revealing and targeting processes underlying pathological states. Kinome analysis provides a complimentary or alternative approach at multiple stages in the drug development cycle for revealing novel targets and validating them in a cost effective manner. The technology may also identify potential diagnostic biomarkers applicable to personalized medicine.

Demonstrated Contributions of Kinome Analysis to Personalized Medicine

- Patterns of protein phosphorylation determine sensitivity to dasatinib for **leukemia treatment**
- Phosphorylation provides a reliable biomarker of the efficacy and mechanism of candidate drug molecules in the treatment of **colon cancer**
- Phosphorylation based biomarkers provide indicator of recovery from **myocardial infarction**
- Phosphorylation sites predict response to phosphatidylinositol 3-kinase inhibitors in the personalized treatment of **cancer**

Proven technology applications:

Johne's disease

- Understanding the influence of Mycobacterium avium paratuberculosis infection on the immune responsiveness of bovine monocytes.

Treatment of Inflammation

- Understanding signaling events, in particular TNF dependence, induced by IL-17 and IL-32.

Target identification in Ebola infection

- Identified therapeutic targets for Ebola infections, informing both treatment and prophylaxis significantly reducing lethality.

Varroa mites resistant bees

Identify traits which help to survive Varroa mites infection

Industry Liaison Office
250 - 15 Innovation Blvd.
Saskatoon, SK, S7N 2X8
Tel: (306) 966-7340

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Researcher profiles:



Dr. Scott Napper, PhD
Professor, Dept. of Biochemistry

Research interests: prion disease, Johne's disease, kinome analysis



Dr. Anthony Kusalik, PhD
Professor, Dept. of Computer Sciences

Research interests: Logic Programming, bioinformatics, constraint logic programming, immuno-informatics, computational biology

Patent Status:

USA patent application # 13/805966 filled on 6/30/2011
European patent application # 11800019.9 filled on 6/30/2011
Canada patent application # 2802347 filled on 6/30/2011

Publications:

Li Y, Arsenault RJ, Trost B, Slind J, Griebel PJ, Napper S, Kusalik A. A systematic approach for analysis of peptide array kinome data. *Sci Signal*. 2012 Apr 17;5(220):pl2. doi: 10.1126/scisignal.2002429.

Arsenault RJ, Li Y, Maattanen P, Scruten E, Doig K, Potter A, Griebel P, Kusalik A, Napper S. Altered Toll-like receptor 9 signaling in *Mycobacterium avium* subsp. *paratuberculosis*-infected bovine monocytes reveals potential therapeutic targets. *Infect Immun*. 2013 Jan;81(1):226-37. doi: 10.1128/IAI.00785-12. Epub 2012 Oct 31.

For more information, please contact:

Neal Lemon, PhD, MBA
Tel. (306) 966-7340
neal.lemon@usask.ca

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