

MEDIA RELEASE

For immediate release

Real-time Imaging of Blood Vessel Leakiness to Improve Cancer Drugs
Innovascreen Develops new High Throughput ASET Platform Assay

HALIFAX, NOVA SCOTIA, CANADA – April 10, 2012 – While there are many new and exciting cancer drugs under development around the world, their ability to target and then penetrate a patient’s tumor is critical for their success in the clinic. But what if one could use real-time imaging to watch a drug as it leaks into a tumor? A team of researchers led by Innovascreen’s Dr. John Lewis have developed a new method that does just this, by watching the accumulation of drug in human tumors implanted in chicken embryos using a new application of their ASET platform. Their findings appear in an article entitled “Real-Time Visualization and Quantitation of Vascular Permeability In Vivo: Implications for Drug Delivery”, published in the journal PLoS ONE.

The delivery of anti-cancer drugs to tumors is hindered by the erratic blood flow and variable blood vessel leakiness of tumors. Uneven cell division in the tumor creates irregular patches of dense tissue that restrict the flow of fluids and therefore drugs out of blood vessels. “These dense areas are a challenge for cancer treatment approaches that rely heavily on the delivery of chemotherapeutic agents to tumors via the blood stream”, says Dr. Desmond Pink, lead author of the study. “In order for these potentially life-saving treatments to be effective, they must escape from the blood vessels into these high-density areas to destroy the surrounding cancer cells”.

Vascular dynamics within tumors are often studied through surgically-prepared skin flaps in rodent models. These models have indeed been useful to predict drug localization, and studies in these models suggest that temporary manipulation of blood flow could enhance systemic drug delivery. “However, these surgical skin flap models are expensive and require complex invasive protocols.” Dr. Lewis explains, “As a result, they are prone to complications like inflammation and are difficult to implement in a high-throughput manner.”

Innovascreen’s new assay involves the real-time visualization of changes in vascular permeability in a non-invasive chicken embryo model of human cancer. By using fluorescently-labeled particles of defined sizes, they were able to visualize changes in vascular permeability within tumors grown on the chicken embryo chorioallantoic membrane

(CAM). They showed that transiently increasing vascular permeability increases delivery of the chemotherapeutic drug, doxorubicin, to the tumor core. “This clearly demonstrates that tumor vascular permeability might be modulated to enhance cancer drug delivery,” says Dr. Missag Parseghian, a key study collaborator. “Importantly, this imaging technique in the chicken embryo model helps predict drug penetration in tumors and provides an effective method to test emerging drug delivery strategies.”

Authors of the report included Desmond Pink and Wendy Schulte from Innovascreen Inc., in Nova Scotia, Canada, Missag Parseghian from Advanced Molecular Creations Inc., in California, U.S.A., Andries Zijlstra at Vanderbilt University in Tennessee, U.S.A., and John Lewis at University of Alberta, in Alberta, Canada. The article can be found at <http://dx.plos.org/10.1371/journal.pone.0033760>.

About The ASET Platform

Called the Avian System for Evaluating Therapeutics (ASET) Platform, the proprietary system is a combination of nanotechnology, intravital imaging, and a novel animal model creating the potential for a powerful tool in preclinical therapeutic analytics. The combination of these innovative technologies into the ASET Platform allows Innovascreen to visualize and directly measure the results of a pharmaceutical therapy in vivo in a substantially reduced time compared to conventional in vivo models.

About Innovascreen

Innovascreen is an ideal partner for early stage preclinical development of therapeutic candidates. The Avian System for Evaluating Therapeutics (ASET) Platform allows our clients and partners to screen compound libraries and validates lead candidates for further investment, faster, better and cheaper than other available options. Innovascreen is a privately held company, headquartered in Nova Scotia, Canada. For more information, please visit www.innovascreen.com

Contact:

John Lewis,
(902) 401-0304, jdlewis@innovascreen.com