



PRESS RELEASE

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Karolinska Institutet purchases PreciseInhale plus *in vitro* cell culturing module XposeALI for ground-breaking nanoparticle research

STOCKHOLM, SWEDEN - December 2, 2015. One of the world's most innovative research bodies in the field of environmental nanoparticles has purchased ISAB's dry powder aerosolizing system PreciseInhale, and its *in vitro* cell culturing module XposeALI. "It is the combination of aerosol capability and the culturing of primary cells in an Air/Liquid Interface (ALI) that makes this system so unique and so precise," says Karolinska Institutet Associate Professor Lena Palmberg.

The Institute of Environmental Medicine (IMM) at Sweden's Karolinska Institutet has been using XposeALI for over a year, including as part of the Europe-wide NANoREG project into assessing the environmental and toxicological risks of Manufactured Nano Materials (MNMs) - research headed by Dr Hanna Karlsson, Associate Professor of Environmental Medicine. "For me the use of ALI-exposures is an important way forward in order to improve *in vitro* systems for inhalation studies," says Dr Karlsson.

ISAB's combination of aerosol capability, through PreciseInhale, and 3D-models with primary bronchial epithelial cells cultured in ALI, through XposeALI, is unique. "Culturing the 3D-models in ALI mimics the uptake of substances in the lung *in vivo* more exactly than conventional cell culturing," says Prof Palmberg.

ISAB CEO Fredrik Sjövall: "We're delighted with the purchase. For us this is an important validation of XposeALI's capabilities. Our nearest competitors in cell exposures have limitations that we overcome, by combining ALI with dry powder aerosolization. Our competitors are limited when it comes to dry powders, they primarily use nebulized droplets instead – so it's unlikely they could achieve the deposition quality XposeALI delivers. They essentially generate static PK data, not the dynamic data, including Cmax and Tmax curves, which our technology enables."

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Milligrams not grams: Cost benefits

PreciseInhale's ability to run tests using just milligrams, not grams, of costly test substance is likely to have been an important factor in the purchase too. Scarcity of test material and the need for respirable aerosol is an acute problem for environmental researchers studying toxic airborne particles. Because XposeALI works as a module of PreciseInhale it offers significant cost savings, typically using between 50 – 100 mg of test substance for a full PK study. Lena Palmberg: "Inhalation Sciences' *in vitro* cell exposure system is cost-effective and highly accurate."

3R compliance

Replacing, refining and reducing the number of animals in research is an increasingly important factor in gaining research funding. A sophisticated *in vitro* system such as XposeALI enables 3R work of a high quality, a stated priority for the Karolinska Institutet team.

About Inhalation Sciences AB

Inhalation Sciences AB's patented aerosol generation R&D platform PreciseInhale delivers PK/PD data of a quality far beyond other existing inhalation R&D technologies. The platform delivers high-resolution lung absorption and retention data, including Coax and Tmax data, with standard deviation of, typically, <10%. Inhalation Sciences carries out extensive Contract Research work with novel and generic inhalation drug developers, toxicology and environmental research institutes and university research institutes in the inhalation and aerosolization field.

Please visit inhalation.se

About Karolinska Institutet

Karolinska Institutet (KI) in Stockholm, Sweden, is one of the world's leading medical universities, accounting for over 40 per cent of the medical academic research conducted in Sweden. It offers the country's broadest range of education in medicine and health sciences. KI is today Sweden's only purely medical university. KI has collaborations within research and education in a number of countries. The Nobel Assembly, 50 professors currently working at KI, make the final vote in the awarding of the Nobel Prize in Physiology or Medicine.

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