

PRESS RELEASE

March 31, 2017

Nanologica study published in Nanomedicine

An article on a recent Nanologica study has been accepted for publication in the April issue of the peer reviewed scientific journal Nanomedicine. The study demonstrates Nanologica's porous silica particles' ability to improve the efficacy of antibiotics in treating infectious diseases, paving the way for developing antibiotics with reduced risk for drug resistance.

In the study, Nanologica reformulated the antibiotic drug clofazimine by encapsulating into porous silica particles, NLAB Silica™ which increased its ability to treat tuberculosis infected cells. Nanologica's formulation dramatically enhanced the solubility of the poorly soluble drug, leading to increased uptake through human intestine cells. Nanologica's new formulation of clofazimine increased the drug concentration enough to kill bacteria after one administration.

The results showcase benefits of Nanologica's technology platform in meeting large unmet medical needs. The worldwide spread of antibiotic-resistant microorganisms is a major threat to worldwide public health posing great risk to human life.

"Nanologica's technology has increased the potency of an approved antibiotic drug in a safe and scalable formulation, simply using NLAB Silica™ particles without the need for other chemical ingredients" says Nanologica CTO Adj Prof. Adam Feiler.

Clofazimine is used today as part of a multidrug treatment for leprosy. Clofazimine was originally developed in the 1960s for the treatment of tuberculosis but its poor solubility prevented further development for this indication.

"The study shows a potential to quickly provide new formulations of antibiotics to help to combat infectious disease. These are early, but exciting results" says CEO Andreas Bhagwani.

The study can be found here [<http://www.futuremedicine.com/doi/abs/10.2217%2Fnnm-2016-0364>], and has the following title:

Valetti S, Xia X, Costa-Gouveia J *et al.* Clofazimine encapsulation in nanoporous silica particles for the oral treatment of antibiotic-resistant *Mycobacterium tuberculosis* infections. *Nanomedicine (Lond.)* doi:10.2217/nnm-2016-0364 (2017) (Epub ahead of print).

For further information, please contact:

Andreas Bhagwani, CEO
phone: +46 70 316 17 02 or e-mail: andreas@nanologica.com

Adam Feiler, CTO
phone: +46 723 53 66 30 or e-mail: adam@nanologica.com

About the study

Cellular studies showed that NLAB Silica™ dramatically increase the dissolution of clofazimine in biological fluids enhancing transport through intestinal tissue (Caco-2 permeability model).

Clofazimine was effectively released from the NLAB Silica™ carrier and reached the minimum inhibitory concentration to kill TB bacteria inside macrophage cells.

The work, led by Dr Sabrina Valetti, former PostDoc at Nanologica, was conducted as part of an international collaboration tackling infectious disease with financial support by the European Program FP7-PEOPLE-ITN-2013 "CyclonHit". The interdisciplinary work was conducted together with Joanna Costa-Gouveia and Dr Priscille Brodin at the Center for Infection and Immunity, Institut Pasteur de Lille, France and Dr Marie Françoise Bernet-Camard at Unité Bactéries Pathogènes et Santé, University Paris-Saclay, Châtenay-Malabry, France.

About Nanologica

Nanologica develops nanoporous silica for applications in life science. The company focuses on two business areas: drug delivery and chromatography, a technology used for the separation and purification of products on the market and in development. Nanologica's core competency is to apply its unique know-how in the field of material science for developing nanoporous silica particles with unique characteristics. The company comprises 18 employees with ten nationalities of which ten are PhDs. The manufacturing facilities are located in Södertälje, Sweden. For more information, please visit www.nanologica.com.