



Nanotechnology to combat pandemics and resistance to antibiotics

Diagnostics, personalised treatment of serious diseases and the fight against infections caused by multi-resistant bacteria and viruses – new opportunities with nanotechnology.

Infections caused by resistant bacteria, known as multi-resistant bacteria, were responsible for 33 000 deaths only in Europe in 2015¹. Many of the fatalities were infants. Resistance to antibiotics is increasing and is one of the greatest global threats to humanity according to the WHO.

WILL RESISTANCE TO ANTIBIOTICS ERADICATE HUMANITY?

A British study estimates that 10 million people worldwide will probably die of untreatable bacterial infections in 2050².

One important reason for the increase in resistant bacteria is the lack of cost-effective, accurate and accessible diagnostics for infections enabling the appropriate antibiotic treatment to be applied. In many countries, broad spectrum antibiotics are very easily accessible and therefore over-used. The pharmaceutical market for antibiotic treatment of humans and animals is unregulated in large parts of the world.

In order to enable the right antibiotics to be used to treat infections, Lund University is conducting world-leading research in nanoscience to develop equipment for rapid diagnosis that is easy to use, easily accessible and cost-effective. Nanotechnology

could also be used in the fight against covid-19 and other viral pandemics as well

The ability to exclude bacteria as a cause of infection is another essential reason to work for simple and rapid diagnostics. Antibiotic treatment also breaks down the good, health-promoting intestinal flora in humans and weakens the patient's immune defence system. Antibiotic treatment of viral infections can worsen the health of the patient. Antibiotics can lead to the patient becoming more vulnerable to a bacterial infection as well.

The researchers at NanoLund are also studying potential applications of nanotechnology for more efficient diagnostics and treatment of cancer, neurological diseases and diabetes.

In the development of nanotechnology for the new generation of diagnostics and treatment of serious diseases, Nanolab Science Village will be a crucial asset!

Imagine this being possible thanks to you!

CONTACT

Pia Siljeklint

Head of Development Office, Lund University

E-mail: pia.siljeklint@fsi.lu.se

Phone: +46 46 222 34 39

Cell Phone: +46 70 640 48 09

1. The Lancet, 5 Nov 2018

2. Review on Antimicrobial Resistance. Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations, 2014