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Scientists to create new antibiotic drugs in €85 million study



12 February 2014

An increasing biological resistance to antibiotics treatment is to be countered by Aston University scientists who will lead a €85 million international drive to develop new and effective drugs.

The world faces a growing epidemic of antibiotic resistance, yet only two new classes of antibiotics have been brought to the market in the last 30 years. Aston is one of over 30 universities, research institutes, and companies, including GlaxoSmithKline and Uppsala University, who are joining forces in a 6 year programme supported by the Innovative Medicines Initiative (IMI) to develop novel antibiotics against Gram-negative pathogens in a project called ENABLE (European Gram-Negative Antibacterial Engine).

At Aston, a research team led by [Professor Roslyn Bill](#) and [Dr Alice Rothnie](#) will look into how the behaviour of membrane proteins, which help structure human cells, is affected by the introduction of new antibiotics developed by the ENABLE project. Membrane proteins are involved in many key processes in the cell, such as the uptake of nutrients, waste disposal and controlling how the cells interact with each other and their environment.

At Aston University, our expertise in understanding membrane proteins makes us the perfect fit to contribute to the ENABLE project

Professor Bill, Director of the [Aston Research Centre for Healthy Ageing](#), said: "At Aston University, our expertise in understanding membrane proteins makes us the perfect fit to contribute to the ENABLE project. The study of the proteins is growing in importance – indeed, eight of the top ten selling drugs are directed at membrane proteins, including asthma and anti-psychotic treatments – so this represents a fantastic opportunity to innovate intelligent drug design in future."

The discovery and development of new antibiotics is essential to maintain medical advances but poses significant scientific, clinical, and financial challenges, particularly for antibiotics active against Gram-negative bacteria (such as E. coli). Such bacteria have effective barriers against drugs, making treatment difficult, resistance likely and development costs and risks high.

Any new antibiotics brought to the market, however, would likely be used cautiously to delay the development of resistance, adding an additional financial challenge in recouping the development costs.

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The [Aston Cellular and Molecular Biomedicine](#) group have previously been involved in a Europe-wide investigation for the purposes of new drug design. As part of a four-year study, Aston scientists analysed the structure of membrane proteins, which, it was discovered, are involved in conditions such as cancer, diabetes hypertension, obesity and multi-drug resistance.

ENDS

For more information on the role of Aston University, please contact: Jonathan Garbett, Press and PR Assistant, at: 0121 204 4552. Email: j.garbett@aston.ac.uk

For more information on the ENABLE project please contact the communication manager: Dr Claire Skentelbery, European Biotechnology Network. Email: cs@european-biotechnology.net GSM : 0032 (0)493191810

Additional information

Read more about the Innovative Medicines Initiative (IMI): <http://www.imi.europa.eu/>

Read the EU Commission's "Action plan against the threats from antimicrobial resistance" http://ec.europa.eu/dgs/health_consumer/docs/communication_amr_2011_748_en.pdf

Notes To Editors

In response to such barriers in the development of novel antibiotics, the IMI, a research partnership between the European Commission and major pharmaceutical companies (through EFPIA, the European Federation of Pharmaceutical Industries and Associations), has launched New Drugs for Bad Bugs (ND4BB), a series of projects to target the bottlenecks in the development and effective use of novel antibiotics.

The ENABLE project, the third within the ND4BB series, spans 13 countries and brings together 32 partners with the mission to establish a significant anti-bacterial drug discovery platform for the progression of research programmes through discovery and Phase 1 clinical trials. A preliminary portfolio of programmes will be expanded through open calls to create a full development pipeline, with the ultimate goal to complete phase 1 clinical trials of at least one novel anti-bacterial for Gram-negative infections by 2019.

This joint public and private investment through the IMI reflects the changing nature of drug development for high-risk areas such as antibiotics, and has the mission to mobilise expertise from universities, research institutes, and industry in Europe to meet global challenges. It places Europe at the forefront of collaborative research between industry and academia for health challenges.

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