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CARB-X announces funding to speed treatments for the world's deadliest super bugs

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Scientists developing promising new antibiotics in India, Ireland, France, Switzerland, the USA and UK are to share up to US$17.6 million.

A year since launching, the international partnership CARB-X announced its second round of antibiotic research and development funding – alongside a call for greater global support.

The seven projects supported include:

- five potential new class antibiotics for Gram-negative bacteria
- potential new treatment for drug-resistant gonorrhea
- new molecule targeting a superbug causing serious infections in cystic fibrosis patients
- phase 1 clinical trial of a new oral broad-spectrum antibiotic.

The funding announcement is for one company in France, one in India, one in Switzerland, two in the USA, one in the UK and one in Ireland.

Drug-resistant infections currently cause around 700,000 deaths worldwide annually – if antibiotic resistance continues at its current rate that could rise significantly within a generation.

Kevin Outterson, Executive Director of CARB-X and Professor of Law at Boston University, said in a press release "Drug-resistant infections are complex and developing new antibiotics challenging, timely and costly. But restoring the R&D pipeline is vital to address the seriously increasing threat of superbugs which have become resistant to existing drugs. This is a global problem and CARB-X is a critical part of the global solution. We are looking to support the best potential new treatments and diagnostics across the world. We are especially pleased that today's awards mean we are now supporting scientists in six countries. The projects offer exciting potential. But we need greater global support from governments, industry and civil society to get the new treatments the world urgently needs."

CARB-X – which stands for Combating Antibiotic Resistant Bacteria Biopharmaceutical Accelerator – is a partnership between:

- UK charity Wellcome
- the US Department of Health and Human Services Biomedical Advanced Research and Development Authority (BARDA), part of the Office of the Assistant Secretary for Preparedness and Response
- the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health.

CARB-X was launched in July 2016 to address the gap in antibiotic research and development and innovations to improve diagnosis and treatment of drug-resistant infections. The G20 has called for global antibiotic R&D efforts like CARB-X to refill the pipeline with safe and effective drugs.

Antibiotic discovery is challenging due to the complexity of bacteria, which are easily able to genetically modify and become resistant to medicines, but also because of declining investment by larger companies.

The most recently approved new class of antibiotics was discovered in the early 1980s. However, CARB-X funding is focused on the most resistant, Gram-negative, bacteria, and the last new class of antibiotics approved for treatment against these was discovered in 1962.

Responsible use of existing antibiotics and equitable access, particularly in low-income countries where need is greatest, is also vital to address the global health problem. Both are a condition of CARB-X funding.

Tim Jinks, Head of Drug-Resistant Infections at Wellcome, said in the release"Antibiotics are fundamental to modern medicine but overuse and inappropriate use have led to dangerous bacteria developing deadly resistance. Wellcome is committed to helping ensure we get the urgently needed new treatments. Drug discovery must also go hand-in-hand with concerted action to ensure antibiotics of last resort are reserved for patients where first-line treatments will not work. And we must ensure these treatments can be made available in all countries for those who need them."

Many of the CARB-X projects are at an early stage and it will still take some time before it is known whether they can become safe, effective treatments for patients. CARB-X is also supporting a Phase 1 clinical trial of a new oral and intravenous broad-spectrum antibiotic. Ensuring appropriate use of this type of antibiotic is critical – and used appropriately it can save lives.

BARDA’s Director Rick Bright, PhD, said "The support announced today will help speed development of new antibacterial products to treat patients with serious, life-threatening infections to enhance domestic health security and global preparedness. We are committed to revitalizing the antibacterial pipeline through a combination of incentives; today’s announcement is another example of our commitment to promote and accelerate medical countermeasure innovation through novel public-private partnerships like CARB-X."

"These awards build upon the scientific opportunities created by prior NIAID investments in drug development programs to assist with antibiotic development, and are consistent with our strategies for new approaches to address antibiotic resistance," said NIAID Director Anthony S Fauci, MD.

This latest funding is part of an overall commitment of up to US$455m by the US government and Wellcome over a five-year period and follows the announcement in March 2017 of the first 11 projects to receive funding – eight in the US and three in the UK.

The projects were selected from among 368 applications from around the world. CARB-X expects to make further funding announcements later this year.