News

20 new drugs in pipeline to fight superbugs

Chris Smyth Health Editor

Twenty "exciting and ground-breaking" potential drugs to fight superbugs are under development, the head of a global team of scientists searching for new antibiotics has said.

Cocktails of "good" bacteria and bacteria-eating viruses are among the promising approaches to fight resistant infections but development will stagnate unless pharmaceutical companies fund costly trials, Kevin Outterson, head of Carb-X, an international antibacterial research partnership, has said.

A slew of potential drugs will have completed first-stage human tests within a few years and at least one will prove successful if the industry backs them, Professor Outterson, who teaches health law at Boston University, said.

Overuse of antibiotics is speeding up a Darwinian process by which bacteria develop resistance to the drugs. No new class of antibiotic has been discovered since the 1980s. Companies shun research in the area, knowing they cannot expect blockbuster sales, because an effective new drug would be held in reserve for emergencies.

Last month ministers set out plans for a subscription model, under which companies that developed an effective antibiotic would be paid millions of pounds a year even though the drug would rarely be used. Professor Outterson said that the principle was brilliant and the UK pledging about £20 million a year would provide an incentive for research. "We would go off to other wealthy governments saying this is what the UK has done, it's time for you to do your fair share," he said. "If the rest of Europe and the US did the same thing, we'd be set."

Carb-X is spending $500 million (£380 million), provided by the likes of the British and US governments, the Gates Foundation and the Wellcome Trust, on early stage research. "The scientists that we are working with are excited about the range and depth of the technology — the rate-limiting step is not the science, [it] is human behaviour and economics," he said.

Existing antibiotics were derived from fungi, which have been engaged in a natural arms race with bacteria for hundreds of millions of years.

As well as exploring other conventional options, scientists backed by Carb-X are looking at "microbiome transplants", which involve restoring the natural balance of healthy bacteria. These are wiped out by antibiotics along with infections, which leaves the field clear for bugs that are resistant to the drugs. "Instead of killing bad bacteria you focus on restoring the correct bacteria in your body," Professor Outterson said. Another approach involves "bacteriophages", viruses programmed to attack specific bacteria.

He predicted that in five years "we will deliver 20 exciting, really groundbreaking things. They will require a couple of hundred million dollars each. We have so many excellent shots on goal. We don't know which one will go in but we know one of them will."