Redx
Discovering Targeted Medicines

Discovery of breakthrough antibiotic compounds

27 Sep 2016

Redx Pharma Plc announces the discovery of a series of compounds that have the potential to create the first novel class of broad-spectrum antibiotics in 30 years.

As previously announced, Redx scientists have identified novel bacterial topoisomerase inhibitors that work as antibiotics against drug resistant Gram-negative bacteria. *In vivo* testing has now confirmed that Redx has discovered a series of compounds that are highly effective against drug resistant strains of Gram-negative bacteria. This could have important implications for drug resistant infections such as *E. coli* and *Pseudomonas*, which are responsible for critical illnesses such as pneumonia, blood poisoning, and urinary tract and abdominal infections.

In the pre-clinical study, Redx achieved a significant decrease in bacterial infection levels against a multi-drug resistant Gram-negative bacterial strain when compared with tigecycline, a current drug-of-last-resort used in treating antibiotic resistant bacteria. The Board believes that Redx's compounds could therefore result in the development of a first-in-class treatment in an urgent area of high unmet medical need. Redx will be progressing these compounds with the objective of selecting an optimal lead compound.

Drug-resistant infections are already responsible for more than half a million deaths globally each year and this number is expected to increase. Of these drug-resistant infections, those caused by Gram-negative bacteria are even more difficult to treat than those caused by Gram-positive bacteria.

This is because Gram-negative bacteria have an additional outer cell membrane that is not easily penetrated by drugs and antibiotics, as well as the ability to expel drugs that do manage to cross the cell membrane. This poses a huge challenge for healthcare providers as Gram-negative bacteria are increasingly becoming resistant to most available antibiotics.

Without the development of new antibiotics that kill drug-resistant bacteria, resistant infections will result in approximately 10 million extra deaths per year and cost the global economy up to US$100 trillion by 2050, according to recent findings from the Review on Antimicrobial Resistance, a UK Government initiative.

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Neil Murray, CEO of Redx, commented: We are very pleased to announce a significant development in our efforts to identify a new class of antibiotics. In vivo testing has now confirmed that we have discovered a series of compounds that are highly effective against drug-resistant strains of Gram-negative bacteria. This could have important implications for some of the most difficult to treat antibiotic resistant bacteria such as E. coli and Pseudomonas.

In 2014 there were over 750,000 cases of hospital-acquired pneumonia in the US and Europe. These infections are the primary cause of death in intensive care units, with mortality rates amongst ventilated patients reaching 50%. Developing a truly broad-spectrum antibiotic that can treat infections caused by both Gram- negative, as well as Gram-positive bacteria, would therefore be a major breakthrough in the battle to combat life threatening diseases worldwide.

20 Oct 2016

Redx Pharma Plc is pleased to announce that it has identified a drug development candidate for its reversible Bruton's Tyrosine Kinase (BTK) inhibitor program. The compound, named RXC005, has the potential to treat the majority of patients suffering from Chronic Lymphocytic Leukaemia (CLL), including those who become resistant to the increasingly used treatment Ibrutinib.

RXC005 is equally potent against the most common type of BTK protein implicated in CLL and the mutant BTK protein, which is currently estimated to be responsible for around 60% of the observed Ibrutinib resistance. Redx's BTK inhibitor could also offer a reduced side-effect profile compared to Ibrutinib.

The Company will now progress studies to prepare the RXC005 program for first-in-human clinical trials. These trials are currently expected to commence in early 2018.

Dr Neil Murray, CEO of Redx, said: We're delighted to announce another cancer drug candidate from our innovative development pipeline. The nomination of RXC005, a novel reversible BTK inhibitor, comes within a month of confirming the planned start of clinical trials for our most advanced program, the Porcupine inhibitor, in some hard-to-treat cancers.

RXC005 has the potential to become a potent therapy for chronic lymphocytic leukaemia patients, including those resistant to Ibrutinib treatment. We plan to initiate first-in-human studies for RXC005 early 2018.

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