Scientists discover new antibiotic strain after more than 30 years

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It's been nearly three decades since a new class of antibiotics hit the market, and now a turning point is approaching. A team at McMaster University in Canada has just announced a breakthrough that could turn the tide against the tide of drug-resistant bacteria.

Led by scientist Gerry Wright, the team discovered a new molecule called lariocidin. This promising candidate has proven to kill the most dangerous strains of drug-resistant bacteria.

Medical crisis called drug-resistant bacteria

The rise of antimicrobial resistance (AMR) has become a serious threat to global health. The World Health Organization (WHO) ranks AMR as one of the top challenges facing the health sector. The urgent need for new antimicrobials is a global trend - and lariocidin offers new hope.

'Older drugs are becoming less effective as bacteria become more resistant,' explains Professor Gerry Wright (Department of Biochemistry and Biomedical Sciences, Michael G. DeGroote Institute for Infectious Disease Research). *'About 4.5 million people die each year from antibiotic-resistant infections, and that number is rising* . '

Lariocidin — a lasso peptide — attacks bacteria in an unprecedented way: it binds directly to the bacteria's protein-synthesizing machinery, blocking their ability to grow and survive.

"This is a new molecule with a new mechanism of action," Professor Wright emphasized. *"It's a big step forward* . "

From garden soil to laboratory

Lariocidin was produced by a strain of *Paenibacillus* bacteria isolated from garden soil samples in Hamilton, Canada. The team allowed the bacteria to grow in the lab for a year - a method that allowed them to detect even slow-growing strains.

"When we deciphered the antibacterial mechanism of this molecule, it was a watershed moment," said Dr. Manoj Jangra.

Lariocidin combines the following ideal properties:

1. Non-toxic to human cells
2. Disable existing antibiotic resistance mechanisms
3. Efficacy in animal infection models

The team is now working on molecular modifications and producing large enough quantities for clinical development. It will take a lot of time and resources before lariocidin reaches the market.

'The initial discovery was the wow moment, but now comes the real hard part. We are 'ripping apart' this molecule to re-engineer it into a better drug candidate . '