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Japan develops method to design new peptide therapeutics for combating antibiotic resistance

February 13, 2023 | News

A novel method to design and develop peptide antibiotics in large numbers



Applications of new molecules as drugs are expected to be effective in treating diseases that are difficult to cure with currently used conventional drugs. Peptides are one such type of molecule. They are well studied, and several drugs have been developed by the modification of different peptides.

Modifying and testing new peptide structures is a time-consuming process, so any method that could reduce the time required for this process would rapidly accelerate drug development.

Researchers at Hokkaido University in Japan have developed a “scanning and direct derivatisation” method for targeted modification of polymyxin, an antibiotic of last resort.

While the modification of peptides to enhance and alter their properties and biological effects is quite common, the process of making these changes in a targeted and deliberate manner is still very difficult. The research team approached this problem by modifying a technique known as peptide scanning, which is used to determine the role and importance of each amino acid in a peptide, to modify specific amino acids in polymyxin by the addition of different chemical groups.

“Due to how easy it is to modify them, peptides have great potential as drugs to treat diseases. Modified peptides currently in use include drugs to treat diabetes, cancer, and other diseases”, said the researchers.