

Title: Antimicrobial peptides from house fly



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Abstract:

The emergence and evolution of drug-resistant and multi-drug-resistant bacteria and the gaps in antibiotic development have led to an urgent need for the development of new antibacterial drugs. The antimicrobial peptides has been confirmed as the most promising alternative to antibiotics. However, most antimicrobial peptide products on the market are large molecular weight, high toxicity and have much lower antibacterial activity than antibiotics such as penicillin, which limits its wide application. To find antimicrobial peptides of with small molecular weight and low toxicity to maximize their activity and reduce toxicity and cost is the primary problem faced in the development of novel antimicrobial peptide drugs. Therefore, the housefly, a stable, simple and inexpensive source of antimicrobial peptides, is suitable to solve the problem of the difficulty of obtaining natural antimicrobial peptides. In addition, the housefly lives in a germ-infested environment, and it is easy to touch germs and spreads diseases. However, it never has been infected by itself, suggesting that there exists a better immune and molecular protection mechanism in its body than that of other insects. The experimental studies found antimicrobial peptides purified from the hemolymph of house fly after immunization, which have small molecular weights, high thermal stability, good water solubility, no immunogenicity, and wide antibacterial spectrum and their antibacterial activity are higher than penicillin. These antimicrobial peptides not only have wide antibacterial spectrum, but also have inhibitory activity against fungi. The study of antimicrobial peptides from housefly opens up a novel broad prospect for a new generation of antibacterial and antifungi drugs.

Keywords: antimicrobial peptides; house fly; antibacterial drugs; antifungi drugs

Biography:

Dr.Yao Liu is a research fellow of the Wicking Research and Education Centre at the University of Tasmania in Australia. She went to Germany for her PhD study in biology at Essen University and Bonn University after receiving Master's degree at Shandong University in China in 2000. After working as a lecturer at School of medicine, Shandong University

(2003-2008), she received Merle Weaver Research award (2008-2013) for her PhD study in medicine at the School of Medicine, University of Tasmania, Australia in 2008 and got her PhD in 2013. In 2015, she was awarded the Australian Distinguished Talent Permanent Visa. She has been worked as a research fellow at University of Tasmania, Australia since she completed her post-doctor in 2017. Her research interests lie in biomedical sciences. She has been a committee member of Australia Chinese Association for Biomedical Sciences.