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## Structural modification of the alpha-helical antimicrobial brevinin-2 related peptide: A comparison study of biosimilars

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Skin secretions of amphibians, including frogs, toads and salamanders, are considered as abundant resources of bioactive peptides, which possess variety bio-functions, such as antibacterial, anti-inflammation, neuro-receptor antagonism and tumor inhibition. In especial, the feature of broad spectrum antimicrobial reveals bio-therapeutic potential. Act by creating trans-membrane pores through the lipid bilayer, the alpha-helical short peptides split the microorganism based on the concentration accumulation. This mechanism avoids the drug resistance effects which are led by receptor recognition. Consequently, the natural antimicrobial peptides emerge potential as alternative and supplement candidates in antibiotics agents. Brevinin-2 is a group of antimicrobial peptides whose members are typical helix and contain approximately 30 amino acid residues and a disulfide bond on the carboxyl terminus. In this study, structural modifications were created by replace residues at specific positions into lysine containing cationic side-chains. The modified peptide analogues revealed increase, in different levels, of antimicrobial activity and tumor suppresser ability, along with unchanged or decreased haemolytic effect. These strategies redesigned the peptides structures, for instance, clustered the cationic residues from amphipathic helical and enhanced the hydrophobic property. The outcomes contributed the principles of optimizing trans-membrane ability and reducing cytotoxic property of alpha-helical peptides, and made preparation of the further researches about therapeutic.

### Biography

Siqin Liu is a PhD student in the Natural Drug Discovery group, School of Pharmacy, Queen's University Belfast, UK. His current issue is peptides from skin secretion of amphibians, which is about finding and analyzing antimicrobial peptides, neuropeptides and enzyme relevant peptides in genetic and molecule levels. He also finished the Bachelor's degree in Beijing University of Chinese Medicine, China, which was majored about natural resource of Chinese herb medicine. He is handling technologies of real-time PCR, chromatography, cell line culture, next generation sequencing, etc.

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