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LETTER

Thoughtful Discussion on Article "Antimicrobial Peptide Cec4 Eradicates Multidrug-Resistant Acinetobacter baumannii in vitro and in vivo" [Letter]

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Dear editor

The works performed by Peng et al were much appreciated, as the effects of Cec4 on bacterial membrane permeability, membrane potential, and the production of bacterial reactive oxygen species were well-explored.[1] Based on the previous study, 41 amino acids-antimicrobial peptide Cec4 had been reported to be effective against the in vitro growth of *A. baumannii* ATCC19606 reference strain with a minimum inhibitory concentration (MIC) of 4 μg/mL which even quantitatively inhibits 50% formation of bacterial biofilm formed by *A. baumannii* ATCC19606 and carbapenem resistant *A. baumannii* clinical isolates.[2] The results reported in their recently published study were obviously promising. Furthermore, results regarding the *A. baumannii* bacterial load in *C. elegans* showed that the bacterial count in the nematodes was significantly lower compared under the treatment with Cec4 compared to the control group. This data showed the effectiveness of Cec4 antimicrobial peptides. However, after reading and reviewing this study in detail, a few suggestions for improving future studies in the field are provided here.

The control used in the experimental work designed to unravel the bactericidal effects of peptide Cec4 exerted through its binding ability to the bacterial cell membrane was not clearly explained. If the control used was the buffer system of the experiment, we advise that additional positive and negative controls be included in any future study.[3] In addition, since a growing body of evidence suggests that potential antimicrobial peptides not only directly kill pathogens, but may also modulate and even bridge innate and adaptive immune responses,[4,5] detailed information regarding immune response and essential survival protein levels of the cells under antimicrobial peptide treatment are highly suggested to be revealed together with the in vitro toxicity assay. Regardless, the works performed by the authors were appreciated since the detailed mechanisms of Cec4 antimicrobial activity started to be unraveled by proving that bacterial cell membrane was disrupted by Cec4 peptide and a higher level of ROS production in *A. baumannii* ATCC19606. A suggestion of exploring the specific protein or site targeted by the Cec4 peptide could be considered in future studies in this field.

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Disclosure

All authors stated that there is no conflict of interest related to the work, authors, and affiliation of the discussed study.

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