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Abstract

Design, Synthesis and Activity of New Polymyxins †

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Antibiotic resistance is a daunting challenge for public health systems worldwide. A major goal to fight resistant bacteria involves the design, discovery and development of new antibiotics, particularly against multi-drug-resistant strains. Currently, there is renewed interest in polymyxins, an old class of antimicrobial cyclic lipopeptides, highly potent against therapeutically relevant Gram-negative bacteria. Polymyxins are now used as last resort antibiotics in hospitals because of their nephrotoxicity and neurotoxicity that requires careful monitoring of the patient. Our group has embarked on a project to design and develop new polymyxins devoid of toxicity problems using a versatile and chemically accessible scaffold structure [1,2]. Compounds show excellent activity against Gram-negative bacteria. Synergistic and antibiofilm activities have also been recently described in combination with imipenem [3]. Herein, the latest results of our recently designed polymyxin analogs will be presented.

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