

Antibiotics and Antibiotic Resistance

October 13-15, 2016 Manchester, UK

The synthesis and bioactivity investigation of Polymyxin components

Along Cui, Xinxin Hu, Yan Gao, Jie Jin, Yucheng Wang, Xuefu You and Zhuorong Li
Chinese Academy of Medical Sciences & Peking Union Medical College, China

Polymyxin B and Polymyxin E (colistin) have become the last resort therapy for infections caused by multidrug-resistant Gram-negative bacteria. Despite Polymyxin has been used in clinic for decades, little is known about the pharmacological differences between their minor components, except Polymyxin B1, B2, E1 and E2. Therefore, further work should be undertaken to assess the antimicrobial activity as well as the renal toxicity of Polymyxin minor components. In order to evaluate the individual bioactivity of Polymyxin components, especially these minor components, we synthesized and investigated the *in vitro* antimicrobial activity and renal toxicity of Polymyxin B and Polymyxin E components, B1, B2, B3, B4, B5, B1-Ile, E1, E2, E3, E4, E7, E1-Ile, E1-Nva, E1-Val, E2-Ile, E2-Nva and E2-Val, individually. All of the components had comparable MICs (0.25-2ug/mL) against the tested Gram-negative bacteria compared with Polymyxin B and Polymyxin E (0.25-1ug/mL). But, these minor components showed lower renal toxicity than these major components. Overall, there were no considerable differences *in vitro* antimicrobial activity among the bacterial isolates examined. However, Polymyxin B1 and E1 showed about 2-fold higher *in vitro* apoptotic effect in Vero cells derived from monkey kidney than other Polymyxin B and Polymyxin E components, respectively.

Biography

Along Cui is currently a PhD student at Institute of Medicinal Biotechnology, Chinese Academy of Medical Sciences & Peking Union Medical College. He has published one paper about Polymyxin synthesis in reputed journal.

cuialong@sina.cn

Notes: