Abstract

A NOVEL ANTIBIOTIC COMPRISING AN ANTIBODY MIMETIC, PREPARATION METHODS AND USES THEREOF

The present invention belongs to field of biology and medicine, and especially relates to a novel antibiotic comprising a mimetic antibody, its preparation methods and uses thereof. The novel antibiotic comprising comprising an antibody mimetic and a colicin, or comprising an antibody mimetic and a channel-forming domain of a colicin, the antibody mimetic covalently bonded to the carboxyl end of the polypeptide of the colicin or the channel-forming domain of the colicin, wherein the colicin is selected from a group consisting of colicin E1, Ia, Ib, A, B, N; wherein said antibody mimetic being yielded by fusing two complementarity determining regions (CDRs), V_HCDR_1 and V_LCDR through a cognate framework region (V_HFR_2) of an immunoglobulin; wherein the immunoglobulin specifically recognizes bacterium porins. Its antibacterial ability is a thousandfold powerful than normal antibiotics. Due to its unique action mechanism, drug resistance resulted in mutation can hardly be acquired by pathogenic bacteria. And the antibiotic will not hurt normal human cells when it kills pathogenic bacteria. Therefore, it can be used for manufacturing antibacterial medicament of killing Dipococcus intracellularis, vancomycin-resistant enterococci, Methicillin-resistant Staphylococcus aureus, or multidrug resistant Pesudomonas aeruginosa.