Synergy between Synthetic Antimicrobial Polymer and Antibiotics/Nitric Oxide

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The rising number of infections caused by multidrug- resistant (MDR) bacteria is a critical global healthcare

concern.1 Although resistance development is a natural phenomenon, the extensive overuse of antibiotics has accelerated the process in bacteria over the past few decades leading to the failure of many antibiotics in the treatment of chronic infections caused by MDR bacteria.2,3 We herein report an antimicrobial platform based on our lead synthetic antimicrobial polymer4,5 in combination with different classes of commercially available antibiotics and nitric oxide to combat MDR bacteria (**Fig.1**).6.7 We observed a synergistic effect in biofilm dispersal, planktonic and biofilm killing activities and resistance development inhibition against *Pseudomonas aeruginosa*. The overall enhanced antimicrobial performance of synergistic combinations compared to the individual compounds further suggests that combination therapy may be the way forward in combating MDR bacteria.

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**Figure 1**. Combination therapy using synthetic antimicrobial polymers, antibiotics and nitric oxide.

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