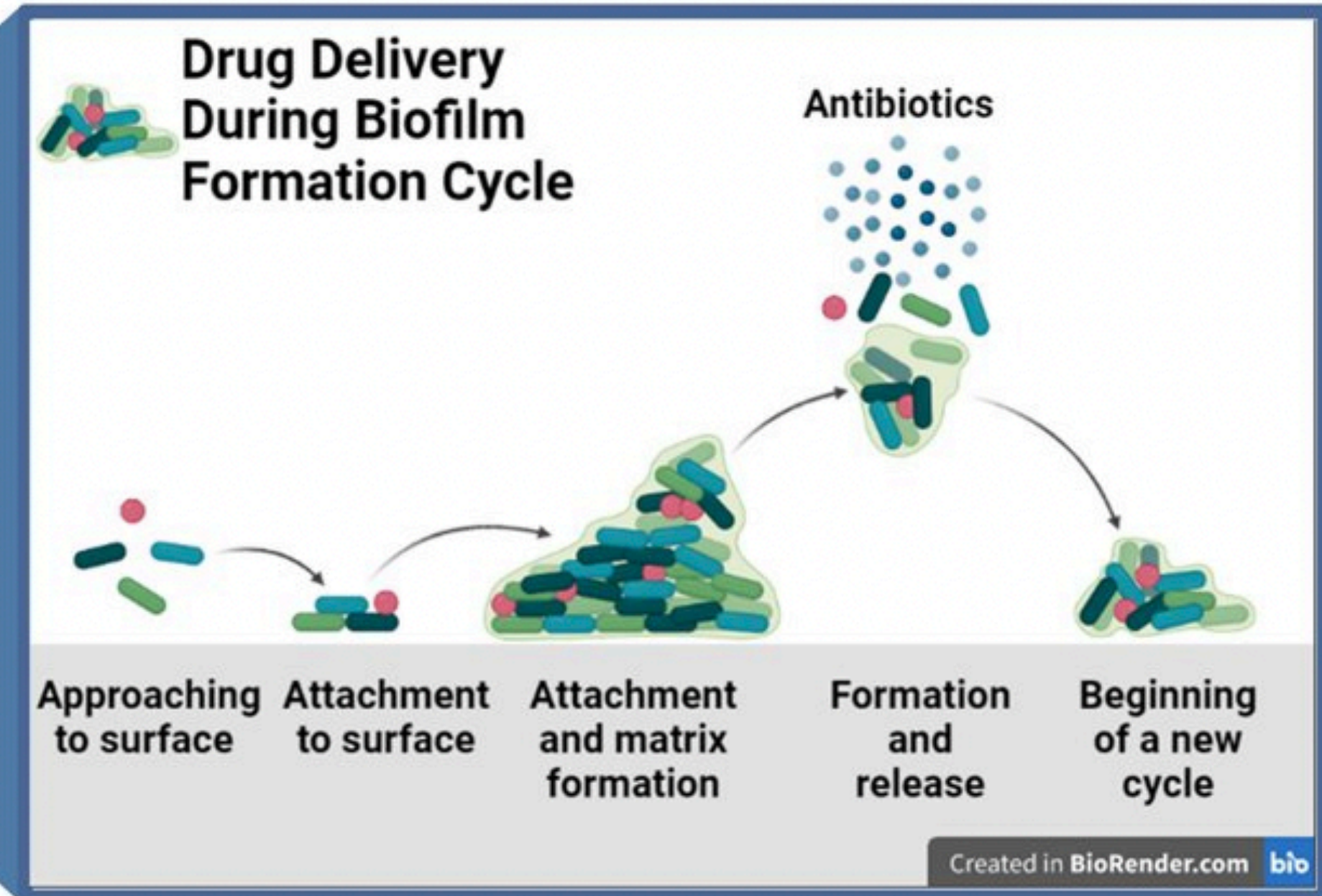


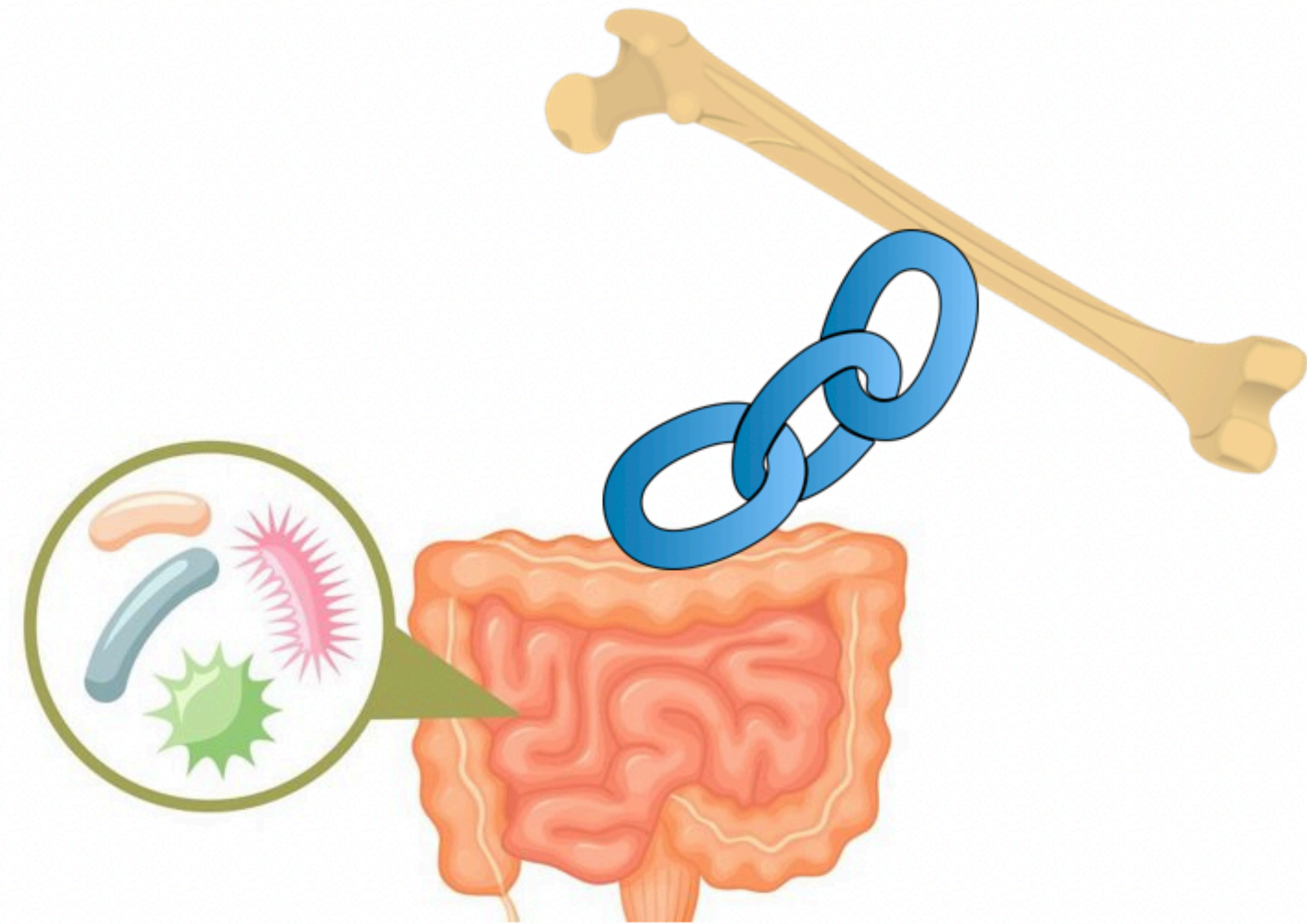
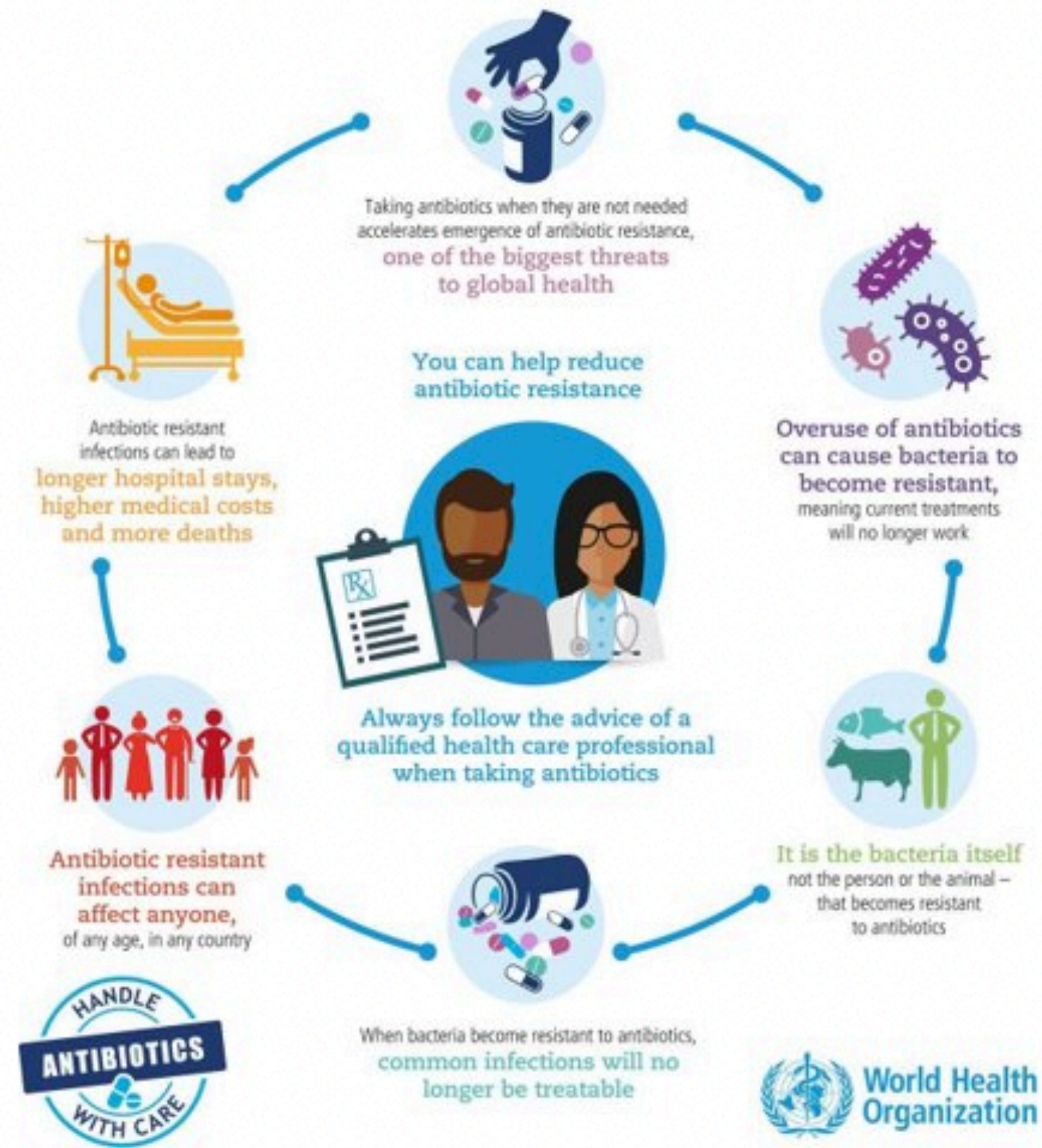
# Winning the War on Bugs: Design of Antimicrobial Materials for Biomedical Applications

Microbial biofilm formation can threaten patients with injuries or implants

Infective osteomyelitis



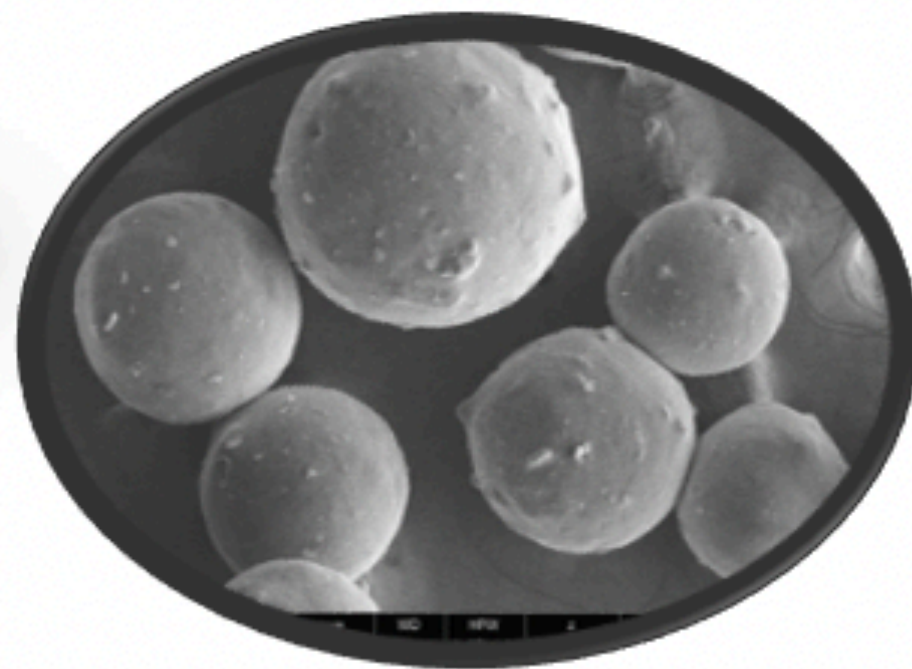
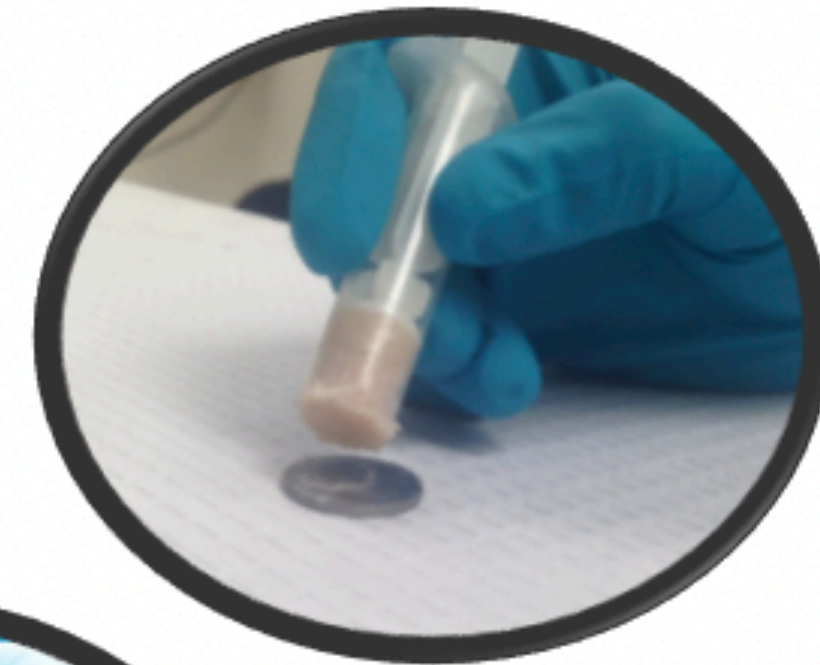
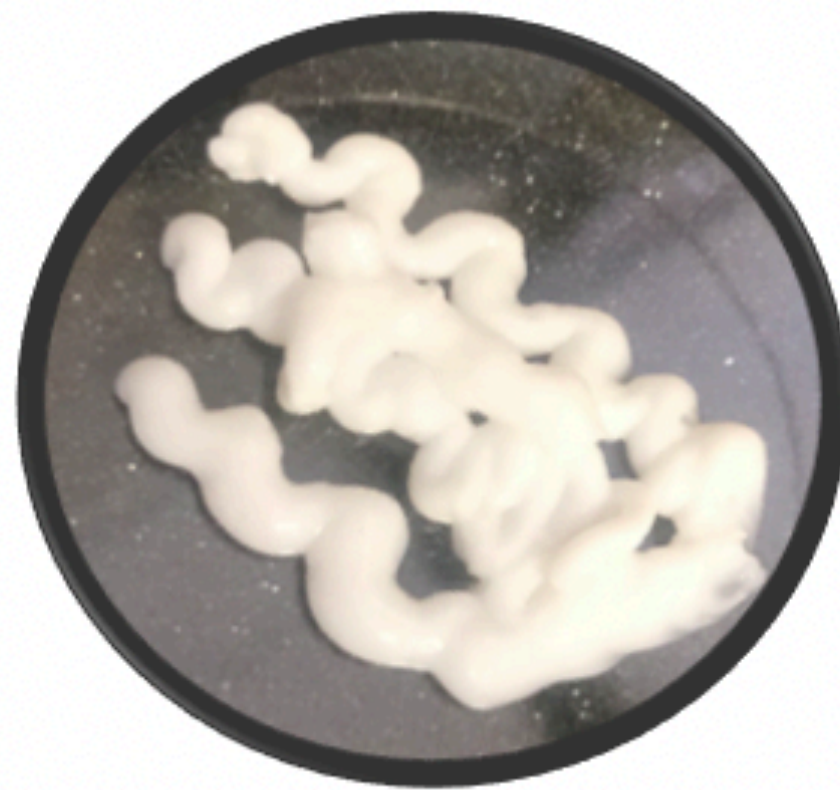
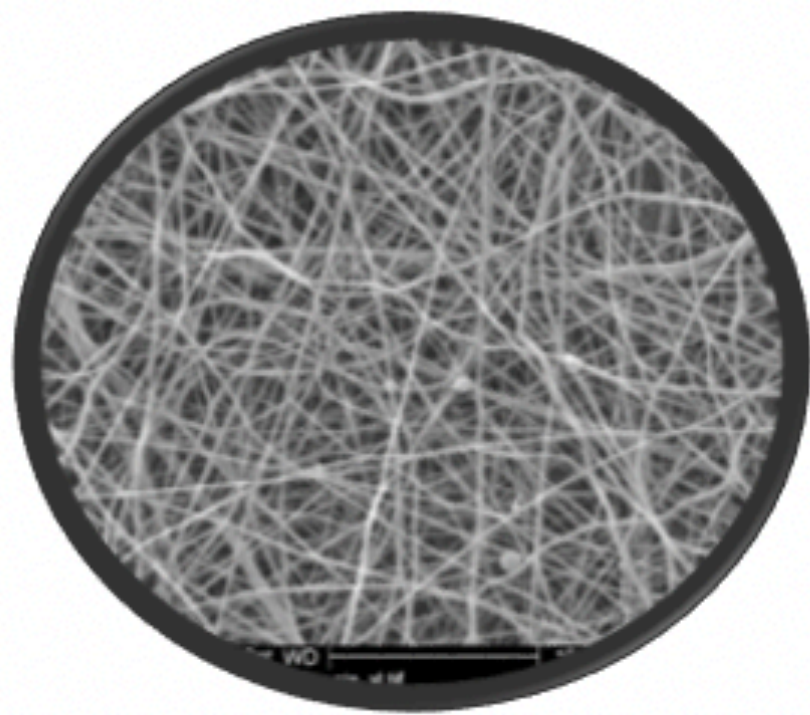
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Routine use of antibiotics works against us due to resistance and microbiome effects

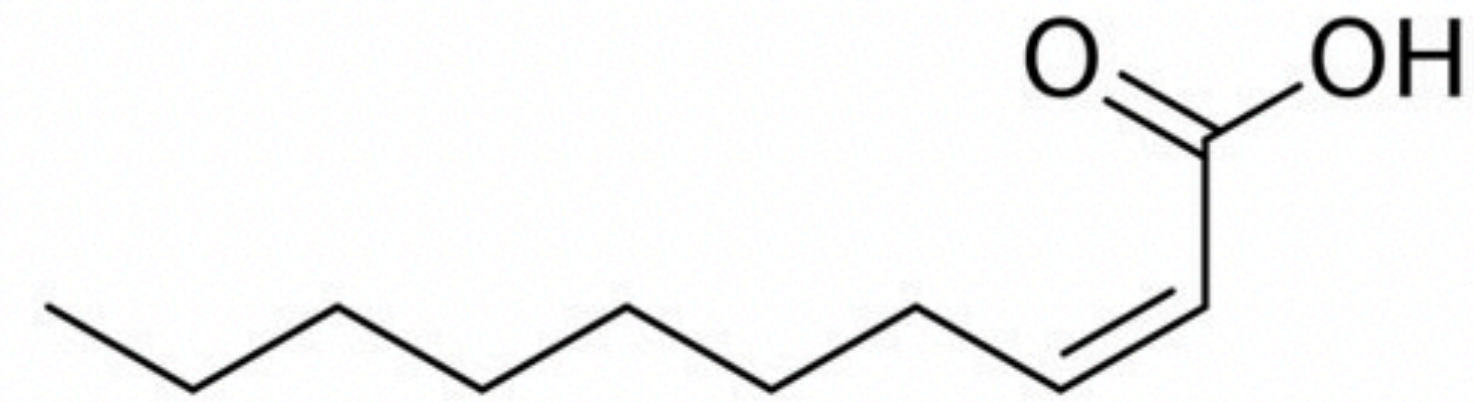
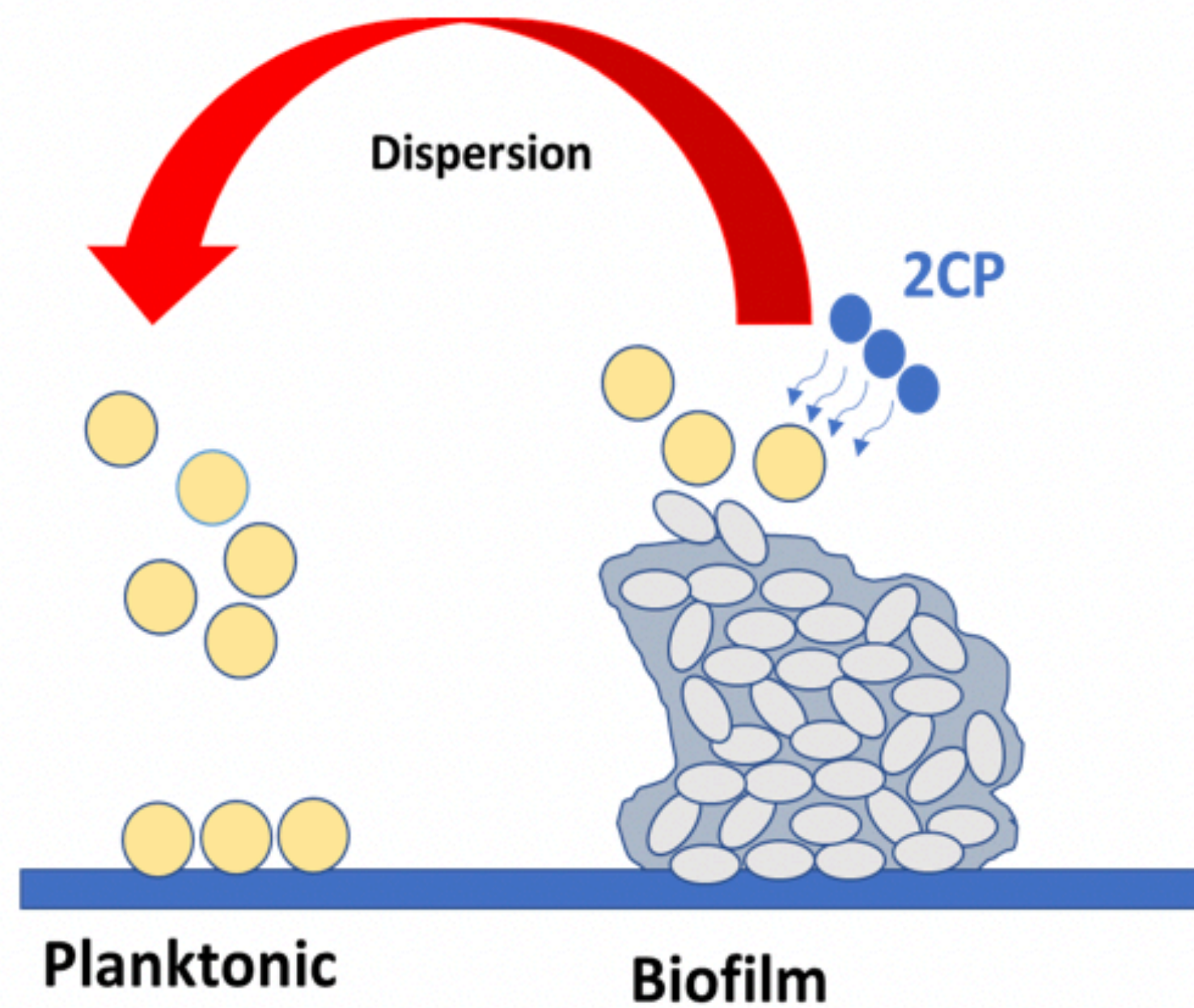
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Local antimicrobial delivery and antimicrobial materials can take multiple forms

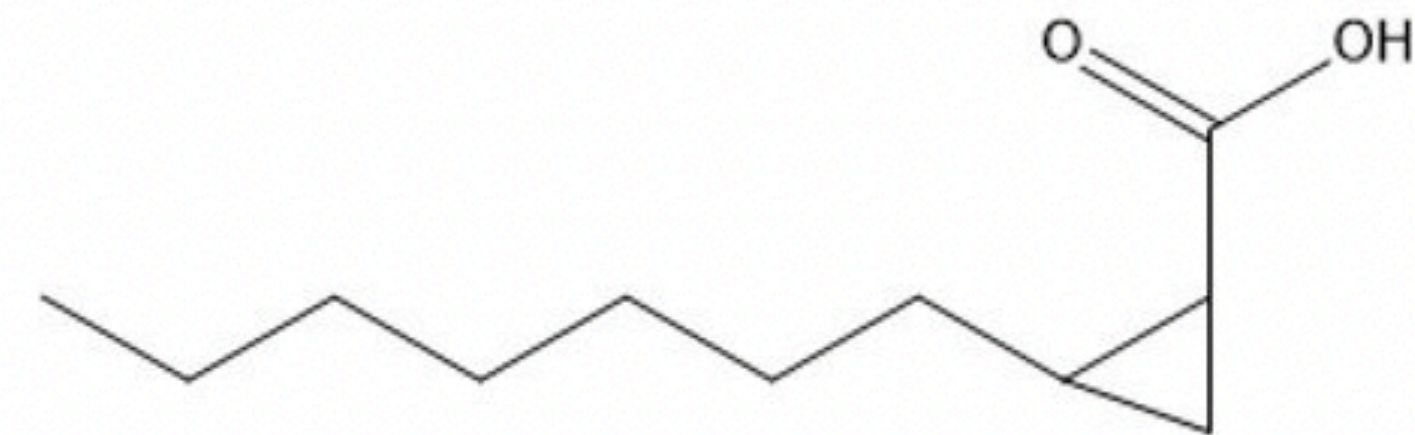


**Nanofibers, crayon-like coatings, microspheres, injectable paste and resorbable pellets**

# Winning the War on Bugs: Design of Antimicrobial Materials for Biomedical Applications



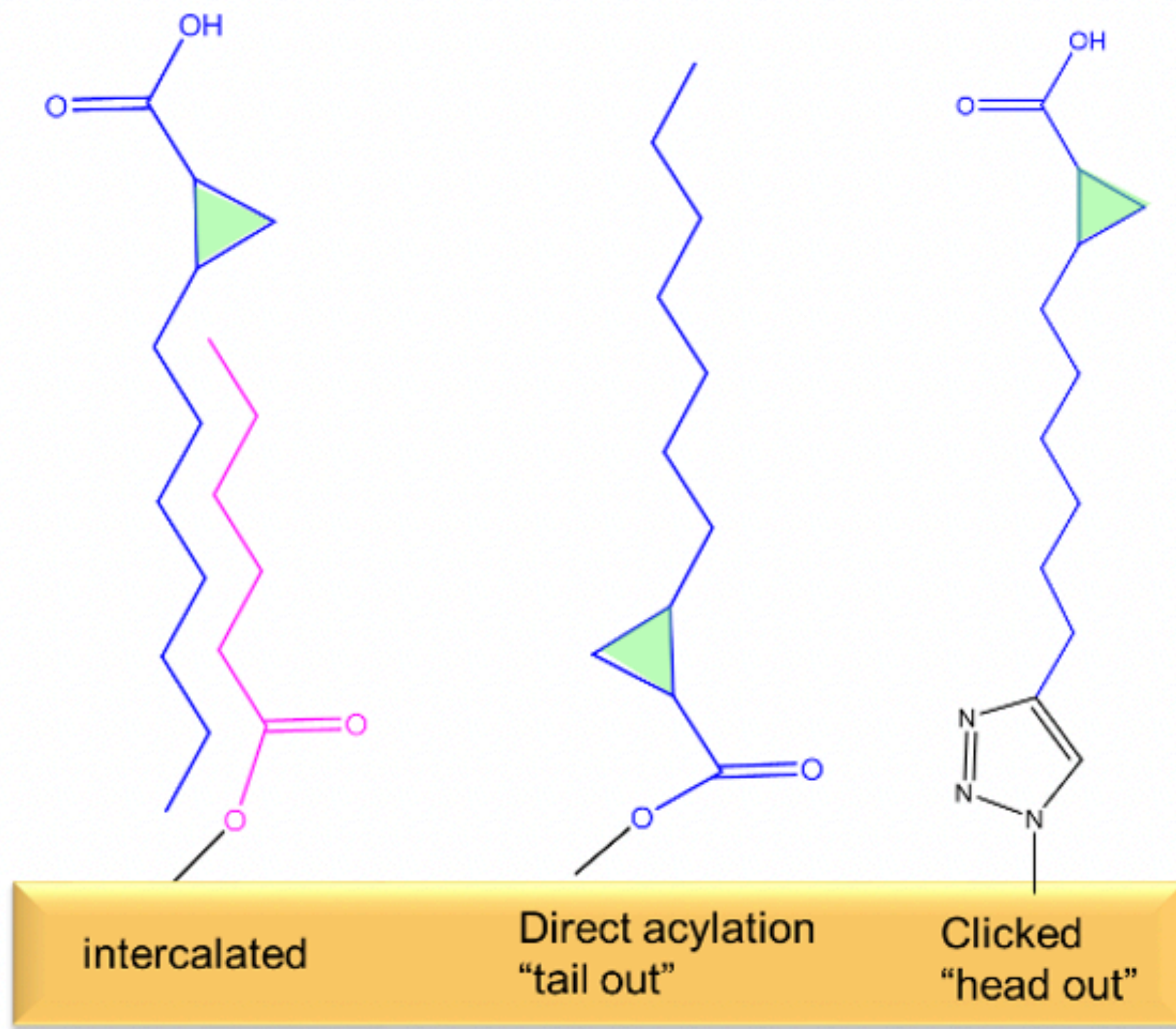
cis-2-decenoic acid (C2DA)



2-heptylcyclopropane-1-carboxylic acid (2CP)

We have worked with collaborators to evaluate and design molecules that disperse biofilm

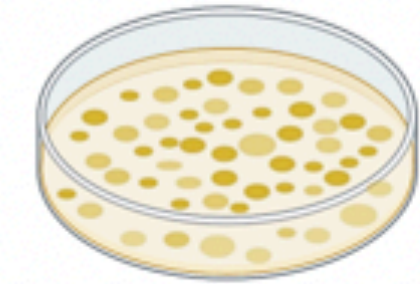
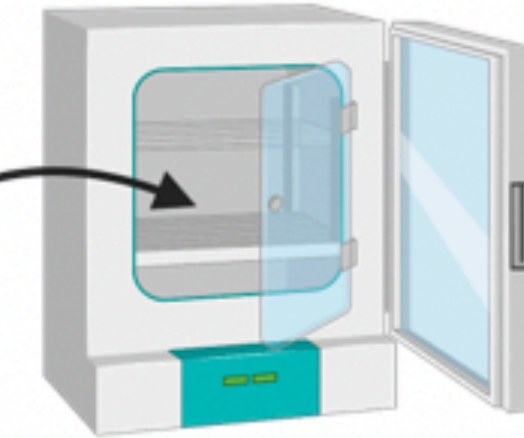
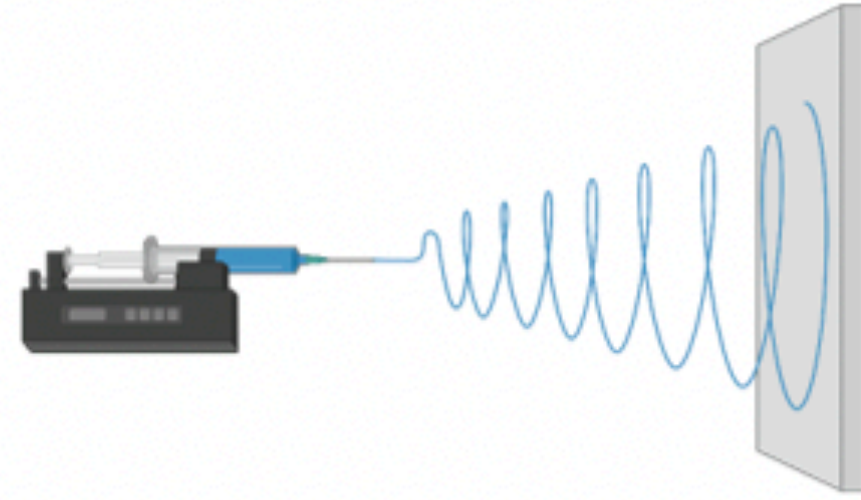
# Winning the War on Bugs: Design of Antimicrobial Materials for Biomedical Applications



**We develop ways to attach these molecules to materials to functionalize polymer, metal, and ceramics for applications in medicine and industry**

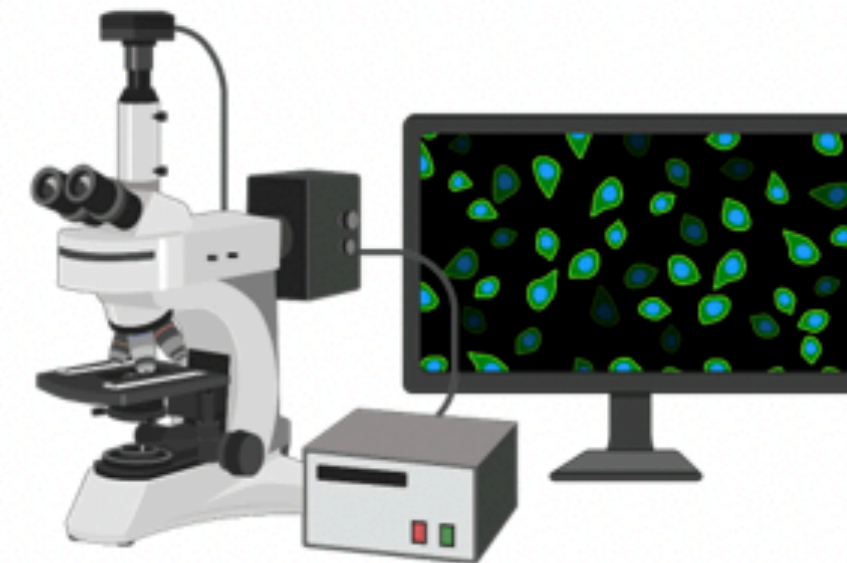
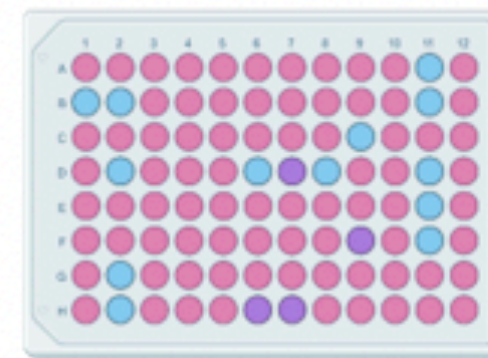
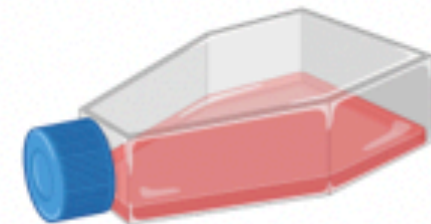
# Winning the War on Bugs: Design of Antimicrobial Materials for Biomedical Applications

Student experiences:



Chemical synthesis and material fabrication

Microbiological evaluation



Cell culture