Antimicrobials, Multiple Drug Resistance & **Antibiotics Resistance**

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From bugs to drugs: Combating antimicrobial resistance by discovering novel antibiotics

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ntimicrobial resistance (AMR) is a life threatening urgent global health problem. There is increasing concern about the alarming cemergence of multidrug-resistant superbugs. Infections resulting from such superbugs are barely responsive to treatment with few if any currently available antibiotics, reviving memories of the pre-antibiotic era and raising concerns regarding a post-antibiotic era. Given the complexity of the AMR challenge and concerns about issues at the interface of human health, animal health, and the environment, it seems particularly important to emphasize the role of a one health approach in addressing the problem. Priorities should not only consist of strengthened human and animal health surveillance and monitoring for resistant organisms, antimicrobial stewardship programs, infection-control courses, and development of rapid diagnostic tests, but also should include, development and validation of new antimicrobial agents. As noticed, since combination therapeutic strategies will reach a dead-end very soon, novel antimicrobials with unexploited targets are highly needed in a timely manner. Soil microorganisms produce natural products as a significant number of drugs in clinical use are derived from these metabolites. Actinomycetes and Myxobacteria are mainly soil dwelling microorganisms that produce secondary metabolites to be screened for antibacterial activity. More than 80% of clinically utilized antibiotics are either natural products or natural product-derived molecules such as vancomycin, teicoplanin, daptomycin, tetracycline and many others. Our aim was to demonstrate the progress on isolating and identifying novel antimicrobials from new Actinomycetes and Myxobacteria from Lebanon.

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