Optimizing the Treatment of Tuberculosis through an Integrated Computational / Experimental Approach

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Tuberculosis (TB) is an infectious disease that continues to be a major cause of death in large parts of the world. The principal causative agent of TB is *Mycobacterium tuberculosis*, a slow growing, aerobic bacterium. While the current first-line therapy for drug-susceptible TB has been in clinical use for nearly thirty years, the emergence and spread of drug-resistant strains of *M. tuberculosis* has motivated the search for new, more effective combination regimens. Accordingly, there are many experimental studies underway to design and create better individual drugs to treat this contagious and widespread disease. Our interest, however, is in developing mathematical tools and targeted experiments to supplement the animal studies that are currently necessary to identify and test new multi-drug regimens. In this presentation, I’ll describe our overall strategy for optimizing drug therapies and detail some of the studies we have conducted so far in this program.