

Predicting Antibiotic Resistance

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Antibiotic resistance is growing as a major public health concern. Predicting antibiotic resistance and the evolutionary paths leading to resistance is key for our ability to control the spread of drug resistant pathogens. I will describe a series of experimental-computational methodologies for following and identifying recurrent patterns in the evolution of antibiotic resistance in the lab and in the clinic. Combined with machine-learning approaches applied to electronic patient records, these tools can lead to predictive diagnostics of antibiotic resistance and personalized treatments of microbial infections.