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## **Analysis of Conjugative Plasmid Exclusion in Drug-Resistant Enteric Bacteria**

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**Project Title** - Analysis of conjugative plasmid exclusion in drug-resistant enteric bacteria

**Project Description** - Spread of antibiotic resistance genes amongst bacteria is a huge medical problem of our time that is largely attributed to horizontal gene transfer from one species to another through conjugative transfer of resistance plasmids. Conjugative plasmids carry a large number of transfer genes that are required for successful conjugation: pilus production, DNA processing, replication, transfer itself. In addition, there are proteins that are functioning to prevent conjugation of similar plasmids – the process called surface exclusion. In this project we will focus on characterization of exclusion proteins from model conjugative plasmids (such as F plasmid). For that we will design strains and constructs for comparisons of conjugation properties, complement killing resistance, phage resistance, as well as purify exclusion proteins. As a result, this project will produce necessary materials for further functional analyses of the exclusion proteins that ubiquitous in drug-resistant bacteria.