Analysis of Conjugative Plasmid Exclusion in Drug-Resistant Enteric Bacteria

Tatyana Sysoeva

University of Alabama in Huntsville

Follow this and additional works at: https://louis.uah.edu/rceu-proposals

Recommended Citation

https://louis.uah.edu/rceu-proposals/37

This Proposal is brought to you for free and open access by the Faculty Scholarship at LOUIS. It has been accepted for inclusion in RCEU Project Proposals by an authorized administrator of LOUIS.
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.