# BCHM 421/422 Project – 2023-24

**Project 1 Outline: A world wide problem is the antibiotic resistance of bacteria, and it is therefore essential to discover new possible targets to reduce infections. Extracellular polysaccharides of bacteria play important roles in adhesion, biofilm formation and infectivity. Polysaccharides are involved in complex interactions with the mucus layer. Our goals are to understand the mechanisms of biosynthesis and functions of these polysaccharides. We focus on the structure and function of PgaC, an enzyme that transfers N-acetylglucosamine (GlcNAc) to build a GlcNAc polymer. We will study how the GlcNAc polymer can interact with human mucus components. This work can lead to new antibacterial strategies.**

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| **Supervisor:** | **Inka Brockhausen** |
| **Project Title:** | **Role of glycans in bacteria-host interactions** |
| **Project Goals:** | **To contribute to our knowledge of bacterial polysaccharide biosynthesis and functions** |
| **Experimental Approaches:** | **Protein expression in bacteria, protein analysis, carbohydrate analyses, bioinformatics and studies of bacterial interactions with mucus components and formation of biofilms.** |

**References:**


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Kocev A, Melamed J, Torgov V, Danilov L, Veselovsky V, Brockhausen I. The wclY gene of Escherichia coli serotype O117 encodes an α1,4-glucosyltransferase with strict acceptor specificity but broad donor specificity. Glycobiology. 2020 Dec 9;30(12):9003-9014. doi: 10.1093/glycob/cwaa045.