SYNTHESIS OF ATCC 17961 AND ATCC 17978 *ACINETOBACTER BAUMANNII* POLYSACCHARIDE FRAGMENTS

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The Gram-negative pathogen *Acinetobacter baumannii*, associated with numerous nosocomial infections, poses a significant threat to human health due to its multi-drug resistant nature. In 2017, the World Health Organization classified the bacterium as a critical priority for the development of new treatments[1]. To date, over twenty distinct surface saccharides of *A. baumannii* have been structurally elucidated, including those from the virulent ATCC 17978 and ATCC 17961 strains.[2] Both strains share the same pentasaccharide repeating unit, with the only structural difference being a single O-acetylation found in ATCC 17978 (**Figure 1**).

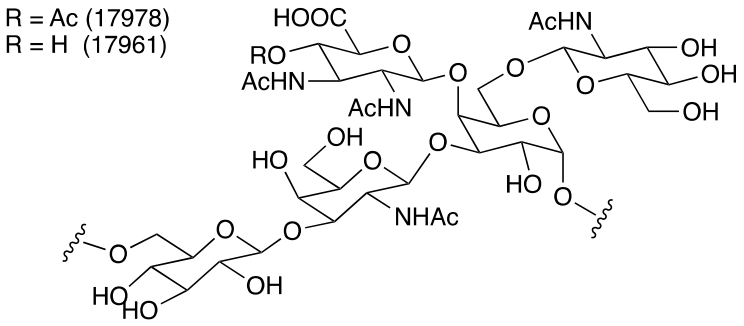

Figure 1. Structure of pentasaccharide repeating unit of ATCC 17978 and ATCC 17961 strains.

As part of the EU-funded MSCA-DN ACINETWORK, our research aims to synthesise the pentasaccharide repeating unit of both strains, along with disaccharide and trisaccharide fragments. The conjugation of the synthesised ligands to various carriers will be targeted for immunology testing, with the goal to investigate the design and development of a semi-synthetic carbohydrate-based vaccine, a therapeutic strategy that has already shown efficacy against other Gram-negative bacteria.[3] In this communication, we will introduce this ongoing project's preliminary findings, highlighting the modulable synthetic approach employed and the synthesis of monosaccharide units of each strain.

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References:

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