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Author

Bertozzi, C.R.

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Metabolic engineering of *haemophilus ducreyi* lipooligosaccharides: Incorporation of sialic acid derivatives

Goon, S.; Schilling, B.; Gibson, B.W.; Bertozzi, C.R.

Materials Sciences Division, Lawrence Berkeley National Laboratory and
Department of Chemistry, University of California, Berkeley, CA 94720-1460

Haemophilus ducreyi is a gram-negative bacterium that causes chancroid, a sexually transmitted disease. It has been hypothesized that cell surface lipooligosaccharides (LOS) of this and similar bacterial pathogens play important biological roles in host infection, including adhesion and evasion. Structural studies of LOS has shown the vast majority of *H. ducreyi* strains to contain high levels of sialic acids, a sugar known to modulate many important biological functions in both prokaryotes and eukaryotes. Previously, we and others have shown that *N*-acetylmannosamine derivatives can be used to modify the cell surfaces of eukaryotes. To investigate if similar derivatives could be incorporated into a model prokaryote system, experiments using a series of *N*-acylmannosamine and sialic acid derivatives were carried out with *H. ducreyi*. The sugars were added to the media at various concentrations and the resulting bacterial LOS were isolated and characterized by matrix-assisted laser desorption and electrospray ionization mass spectrometry.