



Plenary 15

Automated Oligosaccharide Synthesis, Microreactors and Synthetic Vaccines

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The importance of cell surface oligosaccharides and glycosaminoglycans in signal transduction processes of biomedical significance is now well established.¹ Described is the development of a fully integrated platform based on automated oligosaccharide synthesis² and carbohydrate arrays to address biological problems. Particular emphasis in this lecture will be placed on the new automated synthesis platform that will be made available to laboratories around the world.

Based on the automated synthesis platform, carbohydrate arrays can be accessed for use in screening of proteins and blood sera.³ Described will be the development of carbohydrate-based vaccines against a series of diseases. Recent examples that will be discussed include vaccine candidates against malaria,⁴ Leishmaniasis,⁵ and anthrax.⁶ The malaria vaccine candidate is now in preclinical development.

Finally, the use of microreaction systems constructed from etched silicon for rapid reaction optimization will be described. This new reaction system should find wide application in academic and industrial research laboratories from discovery to process chemistry and production.⁷

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