HPLC-Based Automated Synthesis: Building Blocks for the Development of New Technologies

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HPLC-Based Automated Synthesis: Building Blocks for the Development of New Technologies

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INTRODUCTION
• Carbohydrates play key roles in cell function and in the development of drugs
• Detailed biochemical studies of carbohydrates require sufficient quantities of defined oligosaccharides
• Synthesis is challenging and time consuming because each oligosaccharide is unique
• Automation would enable researchers to focus on exploring functions of these biooligomers instead of their synthesis

TARGET OLIGOSACCHARIDES
• Our goal is to synthesize two oligosaccharides of biological interest via a fully automated HPLC to display the reliability and versatility of the instrument

BUILDING BLOCK SYNTHESIS

AUTOMATION: HPLC SET-UP
• This HPLC set-up employs a programmable autosampler and a split-valve for recirculation and direction of reagents
• Complete automation can now be achieved

REQUIRED BUILDING BLOCKS
• Building blocks are the foundation of glycan syntheses
• They incorporate donors and acceptors

COMPLETE PROGRAMMING
• Programming has the possibility of building customizable sequences which can be adapted to a specific synthesis

CONCLUSIONS
• All building blocks for the target oligosaccharides have been synthesized
• We are currently refining the automation sequences
• The automated technology is expected to provide a quicker and more universally available way of generating glycans in the future

REFERENCES & ACKNOWLEDGEMENTS