



## Automated Glycan Assembly as Basis for Life and Material Science

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Rapid preparation of polysaccharides by automated glycan assembly (AGA)<sup>1</sup> using a synthesizer<sup>2</sup> provides access to diverse glycans as large as 151-mers.<sup>3</sup> Accelerated microwave-assisted synthesis methods<sup>4</sup> are now used to prepare ever more complex glycans including cis-linked polysaccharides<sup>5</sup> are enabling fundamental investigations into the structure and function of polysaccharides.

Synthetic glycans in combination with single molecule imaging,<sup>6</sup> molecular modelling and other physical methods to characterize carbohydrate structure<sup>7-9</sup> allow us to address fundamental questions of carbohydrate structure, folding and material science.<sup>10, 11</sup> Recently, we described the design, synthesis, and characterization of the first stapled oligosaccharides with increased enzymatic stability and cell penetration.<sup>12</sup>

Synthetic glycans are the basis for the development of vaccines against different bacteria<sup>13</sup> that are currently in clinical evaluation. Monoclonal antibodies and nanobodies against glycans are the basis for a program aimed at developing novel diagnostics and therapeutics.<sup>14</sup>

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