

Simple Gd³⁺-Neu5: N Ac complexation results in NMR chemical shift asymmetries of structurally equivalent complex-type N -glycan branches

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Abstract

© The Royal Society of Chemistry 2017. In the present Communication, we propose a quite simple but previously overlooked approach for conveniently analyzing, assigning, and extracting sialic acid-containing N-glycan structures using high-resolution NMR spectroscopy without pre-installing metal chelators. Paramagnetic metals, such as Gd³⁺, appear to bind to the carboxyl groups of N-acetylneuraminic acid when introduced at room temperature, leading to the measurement of nonequivalent proton and carbon NMR spectral signals among otherwise "identical" glycan branched structures.

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