

The biological recognition of complex-type N-glycans is part of many key physiological and pathological events. In fact, protein glycosylation is required for proper biological and biophysical function and often, alterations in glycosylation are related to diseases. Despite their importance, the structural characterization of these events remains an unsolved task. The inherent flexibility of N-glycans hampers crystallization and the chemical equivalence of their individual branches had precluded, till now, their proper NMR-based analysis.

A multidisciplinary team lead by CIC bioGUNE, in cooperation with scientists at CIB-CSIC, USP-CEU (Madrid, Spain) and the University of Bayreuth (Germany), has set up a new protocol based on Nuclear Magnetic Resonance spectroscopy (paramagnetic tagging) to revolutionize the elucidation of the structure and molecular recognition properties of complex oligosaccharides.

The research revealed for the first time the three-dimensional structure and dynamics of the multiantennae N-glycan and also permitted showing the existence of branch selectivity for oligosaccharide recognition. This is of utmost importance: given the promise of vaccination against diseases like malaria or tuberculosis based on saccharides, the proposed method opens up new routes for studying the interaction of complex multi antennary glycans with cognate receptors.

The research has been published in *Angewandte Chemie International Edition*, the flagship journal of the *Gesellschaft Deutscher Chemiker* (Chemical Society of Germany).

See: **Breaking the limits in analyzing carbohydrate recognition by NMR: Resolving Branch-Selective Interaction of a Tetraantennary N-Glycan with lectins**

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