CARBOHYDRATES AS KEYWORDS IN THE MOLECULAR DIALOGUE

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The evaluation of the structure of biomolecules built up of carbohydrates is a very challenging task due to the inherent complexity of sugar chemistry, which also impairs any computerized/automated approach. Nevertheless, this is a fundamental mission devoted to understanding interaction events at atomic level, including host-guest cross-talk. The combined use of complementary, biophysical approaches, including NMR spectroscopy, computational and biophysical techniques, native MS, together with immunological experiments is essential to unravel structure, properties, functions of glycans and understanding the mechanisms at the basis of recognition of the sugar code. In this talk, I will give a special focus to the description of bacterial glycocode, either as beneficial mediator of host homeostasis and immune system development or when harmful to the host. I will describe the chemical glyco-features located on bacterial cell surface able to tune eukaryotic immune responses.

References:
1. *JACS Au* 2025, 5(5):2257-2269; *Adv Sci* 2025:e2415782; *Nat Commun.* 2024;15(1):8411; *ACS Cent Sci.* 2024; 10(2):447-459.; *JACS Au* 2024; 4(2):697-712; *Nat Commun.* 2020;11(1):4142.