

CARBOHYDRATE SCIENCE AND NMR CENTER PUBLICATIONS

(updated Junly 2025)

2025

485. **A Circular Economy Strategy for Repurposing Heparin Manufacturing By-Products as Anti-Inflammatory Therapeutics.** Uslenghi E, Kandola T, Nizzolo S, Saunders E, Gee Jun T, Skidmore MA, Yates EA, Guerrini M, Lima AM, Bisio A. *Proteoglycan Res*, 2025 3:e70032. <https://doi.org/10.1002/pgr2.70032>

486. **Heparin and Heparinoids—Far More Than Just Anticoagulants.** Bendas G, Bisio A. Editorial to the special Issue "Heparin and Heparinoids", *Proteoglycan Res*. 2025 3:e70028. <https://doi.org/10.1002/pgr2.70028>.

484. **Modelling the Detailed Conformational Effects of the Lactosylation of Hyaluronic Acid.** Elli S, Sisto T, Nizzolo S, Freato N, Bertocchi L, Bianchini G, Yates EA, Guerrini M. *Biomacromolecules*, 2025, 26, 541–555, <https://doi.org/10.1021/acs.biomac.4c01318>.

483. **Synthetic glycol-split heparin tri- and tetrasaccharides provide new insights into structural peculiarities for antiheparanase activity.** Ni M, Parafloriti M, Esposito E, Danzi M, Cano O, Muzi L, Kayal Y, Ferro V, Vlodavsky I, Elli S, Naggi A, Petitou M, Guerrini M. *Bioorganic & Medicinal Chemistry*, 2025 118,118052.

482. **Cardiovascular Symposium on Perspectives in Long COVID.** Dieter RS, Kempaiah P, Dieter EG, Alcazar A, Tafur A, Gerotziafas G, Gonzalez Ochoa A, Abdesslem S, Biller J, Kipshidze N, Vandreden P, Guerrini M, Dieter RA Jr, Durvasula R, Singh M, Fareed J. *Clin Appl Thromb Hemost* 2025, 31:10760296251319963. doi: 10.1177/10760296251319963. PMID: 39943820; PMCID: PMC11822813.

481. **Evolution of SARS-CoV-2 spike trimers towards optimized heparan sulfate cross-linking and inter-chain mobility.** Froese J, Mandalari M, Civera M, Elli S, Pagani I, Vicenzi E, Garcia-Monge I, Di Iorio D, Frank S, Bisio A, Lenhart D, Gruber R, Yates EA, Richter RP, Guerrini M, Wegner SV & Grobe K. *Scient Rep*, 2024 <https://doi.org/10.1038/s41598-024-84276-5>

480. **Synthesis and physiochemical properties of sulphated tamarind (Tamarindus indica L.) seed polysaccharide,** Ziliani S, Alekseeva A, Antonini C, Esposito E, Neggiani F, Sansò M, Guerrini M and Bertini S, *Molecules*, 2024, 29(23), 5510.

479. **A heparan sulfate mimetic RAFT copolymer inhibits SARS-CoV-2 infection and ameliorates viral-induced inflammation.** Ling J, Lundkvist Å, Guerrini M, Ferro V, Li JP, Li J. *Advance Science* 2024, 2411737. <https://doi.org/10.1002/advs.202411737>

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478. **Enzymatic access to the rare Δ UA(1 $\rightarrow$ 4)Glc3,6,N-sulfated heparin disaccharide, implications for heparin quality control.** Kandola TK, Mycroft-West CJ, Andrade De Lima M, Turner A, Gardini C, Urso E, Miller G, Bisio A, Yates EA, Guerrini M, Wu L, Skidmore M. *bioRxiv*, 2024 <https://doi.org/10.1101/2024.09.26.615151>.
477. **Chitosan derivatives as dynamic coatings for transferrin glycoform separation in capillary electrophoresis,** Porpiglia, NM, Tagliaro I, Pellegrini B, Antonini C, Bertini S. *Int J Biol Macromol*, 2024, 254, 127888. <https://doi.org/10.1016/j.ijbiomac.2023.127888>
476. **A novel biomimetic probe for galectin-3 recognition: Chemical synthesis and structural characterization of a β -galactose branched sodium hyaluronate.** Nizzolo S, Esposito E, Ni M, Bertocchi L, Bianchini G, Freato N, Zanzoni S, Guerrini M, Bertini S. *Proteoglycan Res*, 2024;2:e19. <https://doi.org/10.1002/pgr2.19>
475. **Carbohydrate-based antithrombotics.** Bisio A, Guerrini G, Naggi A. Chapter in *Carbohydrate-Based Therapeutics*, Adamo R. and Lay L. Eds, 2024 Wiley-VCH, Weinheim, 353-380. <https://doi.org/10.1002/9783527831326.ch11>
474. **Characterization of Cyclodextrin Cross-linked Polymers Used in Environmental Applications by Solid-state NMR Spectroscopy: a Historical Review.** Lacalamita D, Bertini S, Mongiovì C, Cosentino C, Crini N, Torri G, Fourmentin M, Naggi A, Formentin S, Guerrini M, Crini G. in *The Environment in a Magnet Applications of NMR Techniques to Environmental Problems*, 2024; DOI: 10.1039/BK9781837671250-00316.
473. **Differential Solvent DEEP-STD NMR and MD Simulations Enable the Determinants of the Molecular Recognition of Heparin Oligosaccharides by Antithrombin to Be Disentangled.** Parafioriti, M., Elli, S., Muñoz-García, J. C., Ramírez-Cárdenas, J., Yates, E. A., Angulo, J., Guerrini, M. (2024). *Int J Mol Sci*, 25(9), 4669. <https://doi.org/10.3390/ijms25094669>
472. **Different Drug Mobilities in Hydrophobic Cavities of Host–Guest Complexes between β -Cyclodextrin and 5-Fluorouracil at Different Stoichiometries: A Molecular Dynamics Study in Water.** Raffaini G, Elli S, Catauro M, D'Angelo A. *Int J Mol Sci*, 2024, 25, 5888. <https://doi.org/10.3390/ijms25115888>
471. **Chitosan derivatives as dynamic coatings for transferrin glycoform separation in capillary electrophoresis.** Porpiglia N.M., Tagliaro I., Pellegrini B., Alessi A., Tagliaro F., Russo L., Cadamuro F., Musile G., Antonini C., Bertini S. *International Journal of Biological Macromolecules*, Volume 254, Part 2, January 2024, 127888

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469. **Heparins are potent inhibitors of ectonucleotide pyrophosphatase/phosphodiesterase-1 (NPP1)—a promising target for the immunotherapy of cancer.** Lopez V, Schuh HM, Mirza S, Vaaßen VJ, Schmidt MS, Sylvester K, Naggi A, Scheffler B, Lee S-Y, Bendas G, Müller CE. *Frontiers in Immunology* 2023, 14, 1173634. <https://doi.org/10.3389/fimmu.2023.1173634>
468. **Development of a cascade production system finalized to the extraction of all-tomatine-rich fraction using the tomato cannery waste as feedstock** Abbasi-Parizad P, Salvino RA, Passera A, Follador ARV, Cosentino C, Jucker C, Savoldelli S, Bacenetti J, Casati P, Scaglia B. *Journal of Cleaner Production* 2023, 401, 136743 <https://doi.org/10.1016/j.jclepro.2023.136743>
467. **Blended heparin: a new perspective to guarantee the supply of a life-saving drug?** Guerrini M. *Clinical and Applied Thrombosis/Hemostasis* 2023, 29, 1-2.
466. **Quantitative 2D 1H, 13C HSQC NMR spectroscopy for the determination of chondroitin sulfate and dermatan sulfate content in danaparoid sodium.** Gardini C., Boccardi G., Guerrini M., Kellenbach E., Lunenburg M., van der Meer JY., Naggi A., Urso E. *Thromb Haemost* 2023 DOI <https://doi.org/10.1055/s-0043-1768225>.
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464. **A sulphated glycosaminoglycan extract from *Placoepecten magellanicus* inhibits the Alzheimer's disease β -Site amyloid precursor protein cleaving enzyme 1 (BACE-1).** Mycroft -West C.J., Devlin A.J., Cooper L.C., Guimon S.E., Procter P., Miller, G.J., Guerrini M., Fernig D.G., Yates E.A., Lima M.A., Skidmore M.A. *Carbohydr. Res.* 2023, 525, 108747.
463. **Evidence for multiple binding modes in the initial contact between SARS-CoV-2 spike S1 protein and cell surface glycans.** Parafioriti M., Ni M., Petitou M., Mycroft-West C.J., Rudd T.R., Gandhi N. S., Ferro V., Turnbull J. E., Lima M.A., Skidmore M. A., Fernig G., Yates E.A., Bisio A., Guerrini M., Elli S. *Chem Eu. J.* 2023, 29, e2022025
462. **Chitosan-based coatings with tunable transparency and superhydrophobicity : A solvent-free and fluorine-free approach by steroyl derivatization,** Tagliaro I., Seccia S., Pellegrini B., Bertini S., Antonini C., *Carbohydrate Polymers*, 2023, <https://doi.org/10.1016/j.carbpol.2022.120424>.
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