

## CARBOHYDRATE SCIENCE AND NMR CENTER PUBLICATIONS

(updated June 2024)

### 2024

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  $\beta$ -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  $\beta$ -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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470. **Molecular modeling and phylogenetic analyses highlight the role of amino acid 347 of the N1 subtype neuraminidase in influenza virus host range and interspecies adaptation.** Elli S, Raffaini G, Guerrini M, Kosakovsky P and Matrosovich M (2023) *Front. Microbiol.* 14:1309156. doi: 10.3389/fmicb.2023.1309156

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>.

465. **Analysis of Heparin Samples by Attenuated Total Reflectance Fourier-Transform Infrared Spectroscopy in the Solid State.** Devlin A.J., Mycroft-West C.J., Turnbull J.E., Lima M.A., Guerrini M., Yates E.A., Skidmore M.A. *ACS central* 2023, <https://doi.org/10.1021/acscentsci.2c01176>

464. **A sulphated glycosaminoglycan extract from *Placoepecten magellanicus* inhibits the Alzheimer's disease  $\beta$ -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

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461. **3D bioprinted colorectal cancer models based on hyaluronic acid and signalling glycans** Cadamuro F., Marongiu L., Marino M., Tamini N., Nespoli L.,

Zucchini N., Terzi A., Altamura D., Gao Z., Giannini C., Bindi G., Smith A., Magni F., Bertini S., Granucci F., Nicotra F., Russo L., *Carbohydrate Polymers*, 2023, 120395.

460. **Further advances in identification of pentosan polysulfate monosaccharide composition by NMR** Eisele G., Alekseeva A., Bertini B., Gardini C., Paganini D., Montatixe Fonseca E. C., Guerrini M., Naggi A., *Journal of Pharmaceutical and Biomedical Analysis* 235 (2023) 115672.

459. **Carbohydrate-based antithrombotics.** In **“Carbohydrate-Based Therapeutics”** Bisio A., Guerrini G., Naggi A., Adamo R. and Lay L. Eds Wiley-VCH, Weinheim, 353-380 (2023)

458. **Glycosaminoglycans: What Remains to be Deciphered?** Perez S., Mashkakova O, Angulo J., Bedini E., Bisio A., de Paz J.L., Fadda E., Guerrini M., Hricovini M., Hricovini M., Lisacek F., Nieto P., Pagel K., Paiardi G., Richter R., Samsonov S., Vives R., Nikitovic D., Ricard-Blum S. *JACS Au* <https://doi.org/10.1021/jacsau.2c00569> PMC10052243

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453. **Initial contact between SARS-CoV-2 spike S1 protein and cell surface glycans involves multiple binding modes.** Parafioriti M., Ni M., Petitou M., Mycroft-West M.J., Rudd T.R., Gandhi N.S., Ferro V., Turnbull J.E., Lima M.A., Skidmore M.A., Fernig D.G., Yates E.A., Bisio A., Guerrini M., and Elli S. *ChemRxiv*. 2022, DOI: 10.26434/chemrxiv-2022-21brb

452. **Pentosan polysulfate inhibits attachment and infection by SARS-CoV-2 *in vitro*: insights into structural requirements for binding.** Bertini S., Alekseeva A., Elli S., Pagani I., Zanzoni S., Eisele G., Krishnan R., Maag K.P., Reiter C., Lenhart D.,

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450. **Prevention of triglyceridemia by (non-) anticoagulant heparin (oids) does not preclude transplant vasculopathy and glomerulosclerosis.** Shrestha, P., Katta, K., Talsma, D., Naggi, A., Hillebrands, J. L., van de Sluis, B., & Van Den Born, J. (2022). *Frontiers in cell and developmental biology*, 10.

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448. **Innovative technologies to remove alkylphenols from wastewater: a review** Crini, G., Cosentino, C., Bradu, C., Fourmentin, M., Torri, G., Ruzimuradov, O., ... & Morin-Crini, N. (2022). *Environmental Chemistry Letters*, 1-32.

447. **Worldwide cases of water pollution by emerging contaminants: a review** Morin-Crini, N., Lichtfouse, E., Liu, G., Balaram, V., Ribeiro, A. R. L., Lu, Z., G. Torri, ... & Crini, G. (2022). *Environmental Chemistry Letters*, 1-28.

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## 2021

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441. **130 years of cyclodextrin discovery for health, food, agriculture, and the industry: A review.** Morin-Crini, N., Fourmentin, S., Fenyvesi, É., Lichtfouse, E., Torri, G., Fourmentin, M., & Crini, G. (2021). Environmental Chemistry Letters, 19(3), 2581-2617.
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429. **Heparin Inhibits Cellular Invasion by SARS-CoV-2: Structural Dependence of the Interaction of the Spike S1 Receptor-Binding Domain with Heparin** Mycroft-West C., Su D., Pagani I, Rudd T., Elli S., Ghandi N., Guimond S., Miller G., Meneghetti M., Nader H., Li Y., Nunes Q., Procter P., Mancini N., Clementi M., Bisio A., Forsyth N., Ferro V., Turnbull J., Guerrini M., Fernig D., Vicenzi E., Yates E., Lima M., Skidmore M.A. *Thrombosis and Haemostasis*, 2020, 120(12), pp. 1700–1715

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