# Robert J Linhardt

## List of Publications by Citations



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|---|---|---|---|
| 649 papers | 26,150 citations | 81 h-index | 135 g-index |
| 677 ext. papers | 30,028 ext. citations | 6.6 avg, IF | 7.35 L-index |

| # | Paper | IF | Citations |
|---|---|---|---|
| 649 | Heparin-protein interactions. *Angewandte Chemie - International Edition*, **2002**, 41, 391-412 | 16.4 | 1487 |
| 648 | Crystal structure of a ternary FGF-FGFR-heparin complex reveals a dual role for heparin in FGFR binding and dimerization. *Molecular Cell*, **2000**, 6, 743-50 | 17.6 | 919 |
| 647 | Dengue virus infectivity depends on envelope protein binding to target cell heparan sulfate. *Nature Medicine*, **1997**, 3, 866-71 | 50.5 | 795 |
| 646 | Heparin structure and interactions with basic fibroblast growth factor. *Science*, **1996**, 271, 1116-20 | 33.3 | 731 |
| 645 | Oversulfated chondroitin sulfate is a contaminant in heparin associated with adverse clinical events. *Nature Biotechnology*, **2008**, 26, 669-75 | 44.5 | 492 |
| 644 | Glycosaminoglycan-protein interactions: definition of consensus sites in glycosaminoglycan binding proteins. *BioEssays*, **1998**, 20, 156-67 | 4.1 | 457 |
| 643 | 2003 Claude S. Hudson Award address in carbohydrate chemistry. Heparin: structure and activity. *Journal of Medicinal Chemistry*, **2003**, 46, 2551-64 | 8.3 | 419 |
| 642 | Lessons learned from the contamination of heparin. *Natural Product Reports*, **2009**, 26, 313-21 | 15.1 | 304 |
| 641 | Chemoenzymatic synthesis of homogeneous ultralow molecular weight heparins. *Science*, **2011**, 334, 498-501 | 33.3 | 303 |
| 640 | Examination of the substrate specificity of heparin and heparan sulfate lyases. *Biochemistry*, **1990**, 29, 2611-7 | 3.2 | 258 |
| 639 | Ionic liquid solvent properties as predictors of lignocellulose pretreatment efficacy. *Green Chemistry*, **2010**, 12, 1967 | 10 | 255 |
| 638 | Green solvents in carbohydrate chemistry: from raw materials to fine chemicals. *Chemical Reviews*, **2015**, 115, 6811-53 | 68.1 | 236 |
| 637 | Preparation of biopolymer fibers by electrospinning from room temperature ionic liquids. *Biomacromolecules*, **2006**, 7, 415-8 | 6.9 | 230 |
| 636 | Role of glycosaminoglycans in cellular communication. *Accounts of Chemical Research*, **2004**, 37, 431-8 | 24.3 | 227 |
| 635 | Polysaccharide lyases. *Applied Biochemistry and Biotechnology*, **1986**, 12, 135-76 | 3.2 | 224 |
| 634 | Differences in the interaction of heparin with arginine and lysine and the importance of these basic amino acids in the binding of heparin to acidic fibroblast growth factor. *Archives of Biochemistry and Biophysics*, **1995**, 323, 279-87 | 4.1 | 204 |
| 633 | Preparation and structural characterization of large heparin-derived oligosaccharides. *Glycobiology*, **1995**, 5, 83-95 | 5.8 | 184 |

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|---|---|---|---|
| 632 | Polysaccharide-based nanocomposites and their applications. *Carbohydrate Research*, **2015**, 405, 23-32 | 2.9 | 157 |
| 631 | Specificity studies on the heparin lyases from Flavobacterium heparinum. *Biochemistry*, **1993**, 32, 8140-5 | 3.2 | 154 |
| 630 | Electron detachment dissociation of glycosaminoglycan tetrasaccharides. *Journal of the American Society for Mass Spectrometry*, **2007**, 18, 234-44 | 3.5 | 153 |
| 629 | Characterization of heparin and severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2) spike glycoprotein binding interactions. *Antiviral Research*, **2020**, 181, 104873 | 10.8 | 148 |
| 628 | Structural differences and the presence of unsubstituted amino groups in heparan sulphates from different tissues and species. *Biochemical Journal*, **1997**, 322 ( Pt 2), 499-506 | 3.8 | 148 |
| 627 | Homogeneous low-molecular-weight heparins with reversible anticoagulant activity. *Nature Chemical Biology*, **2014**, 10, 248-50 | 11.7 | 147 |
| 626 | Purification and characterization of heparin lyases from Flavobacterium heparinum. *Journal of Biological Chemistry*, **1992**, 267, 24347-55 | 5.4 | 147 |
| 625 | Sulfated polysaccharides effectively inhibit SARS-CoV-2 in vitro. *Cell Discovery*, **2020**, 6, 50 | 22.3 | 144 |
| 624 | Masquerading microbial pathogens: capsular polysaccharides mimic host-tissue molecules. *FEMS Microbiology Reviews*, **2014**, 38, 660-97 | 15.1 | 143 |
| 623 | Chemoenzymatic synthesis of heparan sulfate and heparin. *Natural Product Reports*, **2014**, 31, 1676-85 | 15.1 | 142 |
| 622 | The proteoglycan bikunin has a defined sequence. *Nature Chemical Biology*, **2011**, 7, 827-33 | 11.7 | 141 |
| 621 | Solution structures of chemoenzymatically synthesized heparin and its precursors. *Journal of the American Chemical Society*, **2008**, 130, 12998-3007 | 16.4 | 140 |
| 620 | Gradient polyacrylamide gel electrophoresis for determination of molecular weights of heparin preparations and low-molecular-weight heparin derivatives. *Journal of Pharmaceutical Sciences*, **1992**, 81, 823-7 | 3.9 | 136 |
| 619 | Lysostaphin-functionalized cellulose fibers with antistaphylococcal activity for wound healing applications. *Biomaterials*, **2011**, 32, 9557-67 | 15.6 | 134 |
| 618 | Kinetic model for FGF, FGFR, and proteoglycan signal transduction complex assembly. *Biochemistry*, **2004**, 43, 4724-30 | 3.2 | 134 |
| 617 | Conformational changes and anticoagulant activity of chondroitin sulfate following its O-sulfonation. *Carbohydrate Research*, **1998**, 306, 35-43 | 2.9 | 133 |
| 616 | Syntheses and applications of sucrose-based esters. *Journal of Surfactants and Detergents*, **2001**, 4, 415-421 | 1.9 | 133 |
| 615 | Liquid chromatography/mass spectrometry sequencing approach for highly sulfated heparin-derived oligosaccharides. *Journal of Biological Chemistry*, **2004**, 279, 2608-15 | 5.4 | 128 |

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|---|---|---|---|
| 614 | Chemoenzymatic design of heparan sulfate oligosaccharides. *Journal of Biological Chemistry*, **2010**, 285, 34240-9 | 5.4 | 127 |
| 613 | Mapping and quantification of the major oligosaccharide components of heparin. *Biochemical Journal*, **1988**, 254, 781-7 | 3.8 | 127 |
| 612 | Substrate specificity of the heparin lyases from Flavobacterium heparinum. *Archives of Biochemistry and Biophysics*, **1993**, 306, 461-8 | 4.1 | 126 |
| 611 | Action pattern of polysaccharide lyases on glycosaminoglycans. *Glycobiology*, **1994**, 4, 289-96 | 5.8 | 123 |
| 610 | Structural basis for interaction of FGF-1, FGF-2, and FGF-7 with different heparan sulfate motifs. *Biochemistry*, **2001**, 40, 14429-39 | 3.2 | 122 |
| 609 | Regulating malonyl-CoA metabolism via synthetic antisense RNAs for enhanced biosynthesis of natural products. *Metabolic Engineering*, **2015**, 29, 217-226 | 9.7 | 121 |
| 608 | Heparin: Past, Present, and Future. *Pharmaceuticals*, **2016**, 9, | 5.2 | 119 |
| 607 | Complete Biosynthesis of Anthocyanins Using Polycultures. *MBio*, **2017**, 8, | 7.8 | 117 |
| 606 | CRISPathBrick: Modular Combinatorial Assembly of Type II-A CRISPR Arrays for dCas9-Mediated Multiplex Transcriptional Repression in E. coli. *ACS Synthetic Biology*, **2015**, 4, 987-1000 | 5.7 | 117 |
| 605 | An enzymatic system for removing heparin in extracorporeal therapy. *Science*, **1982**, 217, 261-3 | 33.3 | 115 |
| 604 | Negative electron transfer dissociation of glycosaminoglycans. *Analytical Chemistry*, **2010**, 82, 3460-6 | 7.8 | 111 |
| 603 | Glycosaminoglycans in infectious disease. *Biological Reviews*, **2013**, 88, 928-43 | 13.5 | 110 |
| 602 | Chemoenzymatic synthesis of glycosaminoglycans: re-creating, re-modeling and re-designing nature's longest or most complex carbohydrate chains. *Glycobiology*, **2013**, 23, 764-77 | 5.8 | 110 |
| 601 | Determination of the pKa of glucuronic acid and the carboxy groups of heparin by 13C-nuclear-magnetic-resonance spectroscopy. *Biochemical Journal*, **1991**, 278 ( Pt 3), 689-95 | 3.8 | 109 |
| 600 | Isolation and characterization of heparan sulfate from crude porcine intestinal mucosal peptidoglycan heparin. *Carbohydrate Research*, **1995**, 276, 183-97 | 2.9 | 108 |
| 599 | Recent chemical and enzymatic approaches to the synthesis of glycosaminoglycan oligosaccharides. *Current Medicinal Chemistry*, **2003**, 10, 1993-2031 | 4.3 | 106 |
| 598 | Enzymatic redesigning of biologically active heparan sulfate. *Journal of Biological Chemistry*, **2005**, 280, 42817-25 | 5.4 | 102 |
| 597 | Engineering of routes to heparin and related polysaccharides. *Applied Microbiology and Biotechnology*, **2012**, 93, 1-16 | 5.7 | 100 |

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|---|---|---|---|
| 596 | Heparin-Protein-Wechselwirkungen. *Angewandte Chemie*, **2002**, 114, 426-450 | 3.6 | 100 |
| 595 | Study of structurally defined oligosaccharide substrates of heparin and heparan monosulfate lyases. *Carbohydrate Research*, **1989**, 190, 219-33 | 2.9 | 99 |
| 594 | Oligosaccharide mapping of low molecular weight heparins: structure and activity differences. *Journal of Medicinal Chemistry*, **1990**, 33, 1639-45 | 8.3 | 99 |
| 593 | Nanostructured glycan architecture is important in the inhibition of influenza A virus infection. *Nature Nanotechnology*, **2017**, 12, 48-54 | 28.7 | 98 |
| 592 | ePathOptimize: A Combinatorial Approach for Transcriptional Balancing of Metabolic Pathways. *Scientific Reports*, **2015**, 5, 11301 | 4.9 | 98 |
| 591 | Encapsulation of Bioactive Compound in Electrospun Fibers and Its Potential Application. *Journal of Agricultural and Food Chemistry*, **2017**, 65, 9161-9179 | 5.7 | 97 |
| 590 | Microbially produced rhamnolipid as a source of rhamnose. *Biotechnology and Bioengineering*, **1989**, 33, 365-8 | 4.9 | 95 |
| 589 | Heparin and anticoagulation. *Frontiers in Bioscience - Landmark*, **2016**, 21, 1372-92 | 2.8 | 95 |
| 588 | Electrospinning from room temperature ionic liquids for biopolymer fiber formation. *Green Chemistry*, **2010**, 12, 1883 | 10 | 94 |
| 587 | Production of chondroitin in metabolically engineered E. coli. *Metabolic Engineering*, **2015**, 27, 92-100 | 9.7 | 93 |
| 586 | Top-down approach for the direct characterization of low molecular weight heparins using LC-FT-MS. *Analytical Chemistry*, **2012**, 84, 8822-9 | 7.8 | 93 |
| 585 | E. coli K5 fermentation and the preparation of heparosan, a bioengineered heparin precursor. *Biotechnology and Bioengineering*, **2010**, 107, 964-73 | 4.9 | 93 |
| 584 | Anti-metastatic effect of a non-anticoagulant low-molecular-weight heparin versus the standard low-molecular-weight heparin, enoxaparin. *Thrombosis and Haemostasis*, **2006**, 96, 816-21 | 7 | 90 |
| 583 | Production and chemical processing of low molecular weight heparins. *Seminars in Thrombosis and Hemostasis*, **1999**, 25 Suppl 3, 5-16 | 5.3 | 90 |
| 582 | Analysis of glycosaminoglycan-derived, precolumn, 2-aminoacridone-labeled disaccharides with LC-fluorescence and LC-MS detection. *Nature Protocols*, **2014**, 9, 541-58 | 18.8 | 88 |
| 581 | Recent progress and applications in glycosaminoglycan and heparin research. *Current Opinion in Chemical Biology*, **2009**, 13, 633-40 | 9.7 | 88 |
| 580 | CRISPRi-mediated metabolic engineering of E. coli for O-methylated anthocyanin production. *Microbial Cell Factories*, **2017**, 16, 10 | 6.4 | 87 |
| 579 | Disaccharide analysis of glycosaminoglycan mixtures by ultra-high-performance liquid chromatography-mass spectrometry. *Journal of Chromatography A*, **2012**, 1225, 91-8 | 4.5 | 86 |

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| 578 | Capillary electrophoresis of complex natural polysaccharides. *Electrophoresis*, **2008**, 29, 3095-106 | 3.6 | 85 |
| 577 | Orthogonal analytical approaches to detect potential contaminants in heparin. *Proceedings of the National Academy of Sciences of the United States of America*, **2009**, 106, 16956-61 | 11.5 | 84 |
| 576 | Heparinase production by Flavobacterium heparinum. *Applied and Environmental Microbiology*, **1981**, 41, 360-5 | 4.8 | 84 |
| 575 | Capillary electrophoresis for the analysis of glycosaminoglycans and glycosaminoglycan-derived oligosaccharides. *Biomedical Chromatography*, **2002**, 16, 77-94 | 1.7 | 83 |
| 574 | Interaction of the N-terminal domain of apolipoprotein E4 with heparin. *Biochemistry*, **2001**, 40, 2826-34 | 3.2 | 83 |
| 573 | Designer DNA architecture offers precise and multivalent spatial pattern-recognition for viral sensing and inhibition. *Nature Chemistry*, **2020**, 12, 26-35 | 17.6 | 82 |
| 572 | Effective Inhibition of SARS-CoV-2 Entry by Heparin and Enoxaparin Derivatives. *Journal of Virology*, **2021**, 95, | 6.6 | 82 |
| 571 | Interaction of Zika Virus Envelope Protein with Glycosaminoglycans. *Biochemistry*, **2017**, 56, 1151-1162 | 3.2 | 81 |
| 570 | Bioengineered heparins and heparan sulfates. *Advanced Drug Delivery Reviews*, **2016**, 97, 237-49 | 18.5 | 81 |
| 569 | Proteoglycan sequence. *Molecular BioSystems*, **2012**, 8, 1613-25 | | 81 |
| 568 | Tip-Enhanced Raman Imaging of Single-Stranded DNA with Single Base Resolution. *Journal of the American Chemical Society*, **2019**, 141, 753-757 | 16.4 | 81 |
| 567 | Structural characterization of pharmaceutical heparins prepared from different animal tissues. *Journal of Pharmaceutical Sciences*, **2013**, 102, 1447-57 | 3.9 | 80 |
| 566 | Heparin mapping using heparin lyases and the generation of a novel low molecular weight heparin. *Journal of Medicinal Chemistry*, **2011**, 54, 603-10 | 8.3 | 79 |
| 565 | Quantification of heparan sulfate disaccharides using ion-pairing reversed-phase microflow high-performance liquid chromatography with electrospray ionization trap mass spectrometry. *Analytical Chemistry*, **2009**, 81, 4349-55 | 7.8 | 79 |
| 564 | Diastereocontrolled Synthesis of Carbon Glycosides of -Acetylneuraminic Acid Glycosyl Samarium(III) Intermediates. *Journal of the American Chemical Society*, **1997**, 119, 1480-1481 | 16.4 | 79 |
| 563 | Electron detachment dissociation of dermatan sulfate oligosaccharides. *Journal of the American Society for Mass Spectrometry*, **2008**, 19, 294-304 | 3.5 | 79 |
| 562 | The US regulatory and pharmacopeia response to the global heparin contamination crisis. *Nature Biotechnology*, **2016**, 34, 625-30 | 44.5 | 77 |
| 561 | Chemically modified polysaccharides: Synthesis, characterization, structure activity relationships of action. *International Journal of Biological Macromolecules*, **2019**, 132, 970-977 | 7.9 | 73 |

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| 560 | Conductive cable fibers with insulating surface prepared by coaxial electrospinning of multiwalled nanotubes and cellulose. *Biomacromolecules*, **2010**, 11, 2440-5 | 6.9 | 73 |
| 559 | Stabilizing Leaf and Branch Compost Cutinase (LCC) with Glycosylation: Mechanism and Effect on PET Hydrolysis. *Biochemistry*, **2018**, 57, 1190-1200 | 3.2 | 72 |
| 558 | Structural analysis of bikunin glycosaminoglycan. *Journal of the American Chemical Society*, **2008**, 130, 2617-25 | 16.4 | 72 |
| 557 | Extraction and characterization of RG-I enriched pectic polysaccharides from mandarin citrus peel. *Food Hydrocolloids*, **2018**, 79, 579-586 | 10.6 | 72 |
| 556 | Separation of negatively charged carbohydrates by capillary electrophoresis. *Journal of Chromatography A*, **1996**, 720, 323-35 | 4.5 | 70 |
| 555 | Structural analysis of the sulfotransferase (3-o-sulfotransferase isoform 3) involved in the biosynthesis of an entry receptor for herpes simplex virus 1. *Journal of Biological Chemistry*, **2004**, 279, 45185-93 | 5.4 | 69 |
| 554 | Thermodynamic analysis of the heparin interaction with a basic cyclic peptide using isothermal titration calorimetry. *Biochemistry*, **1998**, 37, 15231-7 | 3.2 | 69 |
| 553 | Proteoglycomics: recent progress and future challenges. *OMICS A Journal of Integrative Biology*, **2010**, 14, 389-99 | 3.8 | 68 |
| 552 | Rapid and accurate determination of the lignin content of lignocellulosic biomass by solid-state NMR. *Fuel*, **2015**, 141, 39-45 | 7.1 | 67 |
| 551 | Intravenous fluid resuscitation is associated with septic endothelial glycocalyx degradation. *Critical Care*, **2019**, 23, 259 | 10.8 | 67 |
| 550 | Oversulfated chondroitin sulfate interaction with heparin-binding proteins: new insights into adverse reactions from contaminated heparins. *Biochemical Pharmacology*, **2009**, 78, 292-300 | 6 | 67 |
| 549 | Synthetic heparin. *Current Opinion in Pharmacology*, **2012**, 12, 217-9 | 5.1 | 66 |
| 548 | Naringenin-responsive riboswitch-based fluorescent biosensor module for Escherichia coli co-cultures. *Biotechnology and Bioengineering*, **2017**, 114, 2235-2244 | 4.9 | 65 |
| 547 | Isolation of a lectin binding rhamnogalacturonan-I containing pectic polysaccharide from pumpkin. *Carbohydrate Polymers*, **2017**, 163, 330-336 | 10.3 | 64 |
| 546 | Sensitive cells: enabling tools for static and dynamic control of microbial metabolic pathways. *Current Opinion in Biotechnology*, **2015**, 36, 205-14 | 11.4 | 63 |
| 545 | Bottom-up low molecular weight heparin analysis using liquid chromatography-Fourier transform mass spectrometry for extensive characterization. *Analytical Chemistry*, **2014**, 86, 6626-32 | 7.8 | 63 |
| 544 | Analysis of pharmaceutical heparins and potential contaminants using (1)H-NMR and PAGE. *Journal of Pharmaceutical Sciences*, **2009**, 98, 4017-26 | 3.9 | 63 |
| 543 | Isolation and characterization of heparan sulfate from various murine tissues. *Glycoconjugate Journal*, **2006**, 23, 555-63 | 3 | 63 |

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| 542 | Analysis of glycosaminoglycan-derived oligosaccharides using reversed-phase ion-pairing and ion-exchange chromatography with suppressed conductivity detection. *Analytical Biochemistry*, **1989**, 181, 288-96 | 3.1 | 62 |
| 541 | Compositional analysis of heparin/heparan sulfate interacting with fibroblast growth factor.fibroblast growth factor receptor complexes. *Biochemistry*, **2009**, 48, 8379-86 | 3.2 | 61 |
| 540 | Ultra-performance ion-pairing liquid chromatography with on-line electrospray ion trap mass spectrometry for heparin disaccharide analysis. *Analytical Biochemistry*, **2011**, 415, 59-66 | 3.1 | 61 |
| 539 | Synthetic oligosaccharides can replace animal-sourced low-molecular weight heparins. *Science Translational Medicine*, **2017**, 9, | 17.5 | 60 |
| 538 | Thin-layer chromatography for the analysis of glycosaminoglycan oligosaccharides. *Analytical Biochemistry*, **2007**, 371, 118-20 | 3.1 | 60 |
| 537 | Mosquito heparan sulfate and its potential role in malaria infection and transmission. *Journal of Biological Chemistry*, **2007**, 282, 25376-84 | 5.4 | 60 |
| 536 | Molecular mechanisms of bioactive polysaccharides from Ganoderma lucidum (Lingzhi), a review. *International Journal of Biological Macromolecules*, **2020**, 150, 765-774 | 7.9 | 59 |
| 535 | Toward an artificial Golgi: redesigning the biological activities of heparan sulfate on a digital microfluidic chip. *Journal of the American Chemical Society*, **2009**, 131, 11041-8 | 16.4 | 59 |
| 534 | Analysis of Total Human Urinary Glycosaminoglycan Disaccharides by Liquid Chromatography-Tandem Mass Spectrometry. *Analytical Chemistry*, **2015**, 87, 6220-7 | 7.8 | 58 |
| 533 | Chemoenzymatic synthesis of heparan sulfate and heparin oligosaccharides and NMR analysis: paving the way to a diverse library for glycobiologists. *Chemical Science*, **2017**, 8, 7932-7940 | 9.4 | 58 |
| 532 | Preparation and structure of heparin lyase-derived heparan sulfate oligosaccharides. *Glycobiology*, **1997**, 7, 231-9 | 5.8 | 58 |
| 531 | Dermatan sulfate as a potential therapeutic agent. *General Pharmacology*, **1995**, 26, 443-51 | | 58 |
| 530 | Detection of glycosaminoglycans as a copper (II) complex in capillary electrophoresis. *Electrophoresis*, **1996**, 17, 341-6 | 3.6 | 58 |
| 529 | Rapid generation of CRISPR/dCas9-regulated, orthogonally repressible hybrid T7-lac promoters for modular, tuneable control of metabolic pathway fluxes in Escherichia coli. *Nucleic Acids Research*, **2016**, 44, 4472-85 | 20.1 | 58 |
| 528 | Heparin dodecasaccharide binding to platelet factor-4 and growth-related protein-alpha. Induction of a partially folded state and implications for heparin-induced thrombocytopenia. *Journal of Biological Chemistry*, **1999**, 274, 25317-29 | 5.4 | 57 |
| 527 | Oversulfated chondroitin sulfate: impact of a heparin impurity, associated with adverse clinical events, on low-molecular-weight heparin preparation. *Journal of Medicinal Chemistry*, **2008**, 51, 5498-501 | 8.3 | 56 |
| 526 | Structure, bioactivities and applications of the polysaccharides from Tremella fuciformis mushroom: A review. *International Journal of Biological Macromolecules*, **2019**, 121, 1005-1010 | 7.9 | 56 |
| 525 | Macromolecular properties and hypolipidemic effects of four sulfated polysaccharides from sea cucumbers. *Carbohydrate Polymers*, **2017**, 173, 330-337 | 10.3 | 55 |

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| 524 | mutations cause skeletal dysplasia, immune deficiency, and developmental delay. *Journal of Experimental Medicine*, **2017**, 214, 623-637 | 16.6 | 54 |
| 523 | Structure and bioactivity of a polysaccharide containing uronic acid from Polyporus umbellatus sclerotia. *Carbohydrate Polymers*, **2016**, 152, 222-230 | 10.3 | 54 |
| 522 | Reconsidering conventional and innovative methods for pectin extraction from fruit and vegetable waste: Targeting rhamnogalacturonan I. *Trends in Food Science and Technology*, **2019**, 94, 65-78 | 15.3 | 54 |
| 521 | Click-coated, heparinized, decellularized vascular grafts. *Acta Biomaterialia*, **2015**, 13, 177-87 | 10.8 | 54 |
| 520 | A new sulfated beta-galactan from clams with anti-HIV activity. *Carbohydrate Research*, **1999**, 321, 121-7 | 2.9 | 54 |
| 519 | Structural characterization of heparins from different commercial sources. *Analytical and Bioanalytical Chemistry*, **2011**, 401, 2793-803 | 4.4 | 53 |
| 518 | Chemoenzymatic Synthesis of Glycosaminoglycans. *Accounts of Chemical Research*, **2020**, 53, 335-346 | 24.3 | 53 |
| 517 | Circulating heparan sulfate fragments mediate septic cognitive dysfunction. *Journal of Clinical Investigation*, **2019**, 129, 1779-1784 | 15.9 | 52 |
| 516 | Co-culture cell-derived extracellular matrix loaded electrospun microfibrous scaffolds for bone tissue engineering. *Materials Science and Engineering C*, **2019**, 99, 479-490 | 8.3 | 52 |
| 515 | Control of promatrilysin (MMP7) activation and substrate-specific activity by sulfated glycosaminoglycans. *Journal of Biological Chemistry*, **2009**, 284, 27924-27932 | 5.4 | 52 |
| 514 | Homogeneous, structurally defined heparin-oligosaccharides with low anticoagulant activity inhibit the generation of the amplification pathway C3 convertase in vitro.. *Journal of Biological Chemistry*, **1988**, 263, 13090-13096 | 5.4 | 52 |
| 513 | A novel structural fucosylated chondroitin sulfate from Holothuria Mexicana and its effects on growth factors binding and anticoagulation. *Carbohydrate Polymers*, **2018**, 181, 1160-1168 | 10.3 | 51 |
| 512 | Three dimensional cellular microarray platform for human neural stem cell differentiation and toxicology. *Stem Cell Research*, **2014**, 13, 36-47 | 1.6 | 50 |
| 511 | Chemoenzymatic synthesis of uridine diphosphate-GlcNAc and uridine diphosphate-GalNAc analogs for the preparation of unnatural glycosaminoglycans. *Journal of Organic Chemistry*, **2012**, 77, 1449-56 | 4.2 | 50 |
| 510 | Heparin and related polysaccharides: synthesis using recombinant enzymes and metabolic engineering. *Applied Microbiology and Biotechnology*, **2015**, 99, 7465-79 | 5.7 | 49 |
| 509 | Tech.Sight. Capillary electrophoresis. Ultra-high resolution separation comes of age. *Science*, **2002**, 298, 1441-2 | 33.3 | 49 |
| 508 | Fast preparation of RG-I enriched ultra-low molecular weight pectin by an ultrasound accelerated Fenton process. *Scientific Reports*, **2017**, 7, 541 | 4.9 | 48 |
| 507 | Combinatorial one-pot chemoenzymatic synthesis of heparin. *Carbohydrate Polymers*, **2015**, 122, 399-407 | 10.3 | 48 |

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|---|---|---|---|
| 506 | Hyphenated techniques for the analysis of heparin and heparan sulfate. *Analytical and Bioanalytical Chemistry*, **2011**, 399, 541-57 | 4.4 | 48 |
| 505 | Human follicular fluid heparan sulfate contains abundant 3-O-sulfated chains with anticoagulant activity. *Journal of Biological Chemistry*, **2008**, 283, 28115-24 | 5.4 | 48 |
| 504 | Improved Viability and Thermal Stability of the Probiotics Encapsulated in a Novel Electrospun Fiber Mat. *Journal of Agricultural and Food Chemistry*, **2018**, 66, 10890-10897 | 5.7 | 48 |
| 503 | Glycan Determinants of Heparin-Tau Interaction. *Biophysical Journal*, **2017**, 112, 921-932 | 2.9 | 47 |
| 502 | Fluorous-assisted chemoenzymatic synthesis of heparan sulfate oligosaccharides. *Organic Letters*, **2014**, 16, 2240-3 | 6.2 | 47 |
| 501 | Characterization of aBacteroidesspecies from human intestine that degrades glycosaminoglycans. *Canadian Journal of Microbiology*, **1998**, 44, 423-429 | 3.2 | 47 |
| 500 | Kartogenin-loaded coaxial PGS/PCL aligned nanofibers for cartilage tissue engineering. *Materials Science and Engineering C*, **2020**, 107, 110291 | 8.3 | 47 |
| 499 | High structural resolution hydroxyl radical protein footprinting reveals an extended Robo1-heparin binding interface. *Journal of Biological Chemistry*, **2015**, 290, 10729-40 | 5.4 | 46 |
| 498 | Isolation of bovine corneal keratan sulfate and its growth factor and morphogen binding. *FEBS Journal*, **2013**, 280, 2285-93 | 5.7 | 46 |
| 497 | Control of the heparosan N-deacetylation leads to an improved bioengineered heparin. *Applied Microbiology and Biotechnology*, **2011**, 91, 91-9 | 5.7 | 46 |
| 496 | Isolation and recovery of acidic oligosaccharides from polyacrylamide gels by semi-dry electrotransfer. *Electrophoresis*, **1990**, 11, 23-8 | 3.6 | 45 |
| 495 | Search for the heparin antithrombin III-binding site precursor.. *Journal of Biological Chemistry*, **1992**, 267, 2380-2387 | 5.4 | 45 |
| 494 | Uniform nanoparticle coating of cellulose fibers during wet electrospinning. *Journal of Materials Chemistry A*, **2014**, 2, 15029-15034 | 13 | 44 |
| 493 | Glycosaminoglycanomics of cultured cells using a rapid and sensitive LC-MS/MS approach. *ACS Chemical Biology*, **2015**, 10, 1303-10 | 4.9 | 44 |
| 492 | Structural snapshots of heparin depolymerization by heparin lyase I. *Journal of Biological Chemistry*, **2009**, 284, 34019-27 | 5.4 | 44 |
| 491 | Turkey intestine as a commercial source of heparin? Comparative structural studies of intestinal avian and mammalian glycosaminoglycans. *Comparative Biochemistry and Physiology - B Biochemistry and Molecular Biology*, **2003**, 134, 189-97 | 2.3 | 44 |
| 490 | Interaction of heparin with annexin V. *FEBS Letters*, **1999**, 446, 327-30 | 3.8 | 44 |
| 489 | Mass Spectrometry for the Analysis of Highly Charged Sulfated Carbohydrates. *Current Analytical Chemistry*, **2005**, 1, 223-240 | 1.7 | 43 |

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|---|---|---|---|
| 488 | Directional immobilization of heparin onto beaded supports. *Analytical Biochemistry*, **1994**, 222, 59-67 | 3.1 | 43 |
| 487 | A novel route for double-layered encapsulation of probiotics with improved viability under adverse conditions. *Food Chemistry*, **2020**, 310, 125977 | 8.5 | 43 |
| 486 | Depolymerized RG-I-enriched pectin from citrus segment membranes modulates gut microbiota, increases SCFA production, and promotes the growth of Bifidobacterium spp., Lactobacillus spp. and Faecalibaculum spp. *Food and Function*, **2019**, 10, 7828-7843 | 6.1 | 43 |
| 485 | Analysis of E. coli K5 capsular polysaccharide heparosan. *Analytical and Bioanalytical Chemistry*, **2011**, 399, 737-45 | 4.4 | 42 |
| 484 | Dissecting the substrate recognition of 3-O-sulfotransferase for the biosynthesis of anticoagulant heparin. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 5265-70 | 11.5 | 42 |
| 483 | A mutant-cell library for systematic analysis of heparan sulfate structure-function relationships. *Nature Methods*, **2018**, 15, 889-899 | 21.6 | 42 |
| 482 | A structural analysis of glycosaminoglycans from lethal and nonlethal breast cancer tissues: toward a novel class of theragnostics for personalized medicine in oncology?. *OMICS A Journal of Integrative Biology*, **2012**, 16, 79-89 | 3.8 | 41 |
| 481 | Intramolecular disulfide bond between catalytic cysteines in an intein precursor. *Journal of the American Chemical Society*, **2012**, 134, 2500-3 | 16.4 | 41 |
| 480 | Preparation of synthetic wood composites using ionic liquids. *Wood Science and Technology*, **2011**, 45, 719-733 | 2.5 | 41 |
| 479 | A fucoidan from sea cucumber Pearsonothuria graeffei with well-repeated structure alleviates gut microbiota dysbiosis and metabolic syndromes in HFD-fed mice. *Food and Function*, **2018**, 9, 5371-5380 | 6.1 | 41 |
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