

Curriculum vitae	Ronald L. Schnaar	
	John Jacob Abel Professor of Pharmacology Department of Pharmacology and Molecular Sciences Johns Hopkins University School of Medicine 725 N Wolfe Street Baltimore, MD 21205 USA Phone: +1 410 955 8392; Fax: +1 410 955 3023 email: schnaar@jhu.edu web: http://www.hopkinsmedicine.org/schnaar	
Current Positions	Professor, Department of Pharmacology and Molecular Sciences Professor, Department of Neuroscience	
Education		
	1968-1972	Bachelor of Science University of Michigan, Cellular Biology
	1972-1976	Ph.D. Johns Hopkins University, Department of Biology, "Immobilized Carbohydrates as Cell Surface Analogs"
Appointments		
	2020-present	Professorship John Jacob Abel Professor of Pharmacology, Department of Pharmacology and Molecular Sciences, Johns Hopkins University School of Medicine, Baltimore, MD
	1990-present	Professor Department of Pharmacology and Molecular Sciences and Department of Neuroscience, Johns Hopkins University School of Medicine, Baltimore, MD
	1984-1990	Associate Professor Department of Pharmacology and Molecular Sciences and Department of Neuroscience, Johns Hopkins University School of Medicine, Baltimore, MD
	1980-1984	Assistant Professor Department of Pharmacology and Molecular Sciences and Department of Neuroscience, Johns Hopkins University School of Medicine, Baltimore, MD
	1978-1979	Postdoctoral Fellow of the Muscular Dystrophy Association, Laboratory of Biochemical Genetics, NHLBI, NIH, Bethesda, MD Preceptor: Dr. Marshall Nirenberg.
	1977	Postdoctoral Department of Biology and the McCollum-Pratt Institute, Johns Hopkins University, Baltimore, MD Preceptor: Dr. Saul Roseman.
	1972-1976	Predoctoral Department of Biology, Johns Hopkins University, Baltimore, Maryland. Preceptors: Dr. Saul Roseman and Dr. Y.C. Lee.
	1969-1972	Predoctoral Undergraduate Fellow, NIH Cardiovascular Training Program, Department of Physiology, The University of Michigan, Ann Arbor, Michigan. Preceptor: Dr. Harvey Sparks.

**Visiting
Professorships**

- 2016-2017** University Josip Juraj Strossmayer, Osijek, Croatia
2017 University of Natural Resources and Life Sciences, Vienna, Austria

Awards

- 2014** Karl Meyer Award, Society for Glycobiology
2005-2012 Javits Neuroscience Investigator Award (NINDS, NIH, DHHS)
1988 Johns Hopkins School of Medicine Graduate Student Teaching Award
1984-1989 American Cancer Society Faculty Research Award
1981-1984 American Cancer Society Junior Faculty Research Award
1978-1979 Muscular Dystrophy Association Postdoctoral Fellowship
1972 Baccalaureate Degree – Highest Honors

Advisory

- 2013-2017** Board of Directors, Federation of American Societies for Experimental Biology (FASEB)
2012-2016 Editorial Board, *FASEB Journal*
2011-2017 Steering Committee, NHLBI Programs of Excellence in Glycosciences (Chair, 2014-2015)
2011-present Consulting Editor, *Glycobiology*
2005-2011 Advisory Board, Institute for Biological Sciences, National Research Council Canada
2005 President, Society for Glycobiology
2003-present International Scientific Advisory Board, Croatian Institute for Brain Research
2002-2012 Steering Committee, Consortium for Functional Glycomics, NIGMS, NIH
2001-2010 Editor-in-chief, *Glycobiology*
2001-2003 Scientific Advisory Board, Glycominds Ltd., Maccabim, Israel
1999-2006 Director, Pharmacology Graduate Program, Johns Hopkins University School of Medicine
1999-2004 Treasurer and Board Member, Society for Glycobiology
1997-2002 Editorial Board, *Journal of Biological Chemistry*
1990-1994 Member, Physiological Chemistry Study Section, CSR, NIH (Chair 1992-1994)
1989-1994 Scientific Advisory Board, Glycomed, Inc., Alameda, CA

Publications

1. **Schnaar RL**, Sparks HV. Response of large and small coronary arteries to nitroglycerin, NaNO₂, and adenosine. *Am J Physiol.* 223: 223-228, 1972.
2. **Schnaar RL**, Muzyczka N, Bessman MJ. Utilization of aminopurine deoxynucleoside triphosphate by mutator, antimutator and wild-type DNA polymerases of bacteriophage T4. *Genetics.* 73 (Supl.): 137-140, 1973.
3. Bessman MJ, Muzyczka N, Goodman MF, **Schnaar RL**. Studies on the biochemical basis of spontaneous mutation. II. The incorporation of a base and its analogue into DNA by wild-type, mutator and antimutator DNA polymerases. *J Mol Biol.* 88: 409-421, 1974.
4. **Schnaar RL**, Lee YC. Polyacrylamide gels copolymerized with active esters. A new medium for affinity systems. *Biochemistry.* 14: 1535-1541, 1975.
5. Seidel CL, **Schnaar RL**, Sparks HV. Coronary artery cyclic AMP content during adrenergic receptor stimulation. *Am J Physiol.* 229: 265-269, 1975.
6. **Schnaar RL**, Sparks TF, Roseman S. Cyanogen bromide activation of polysaccharides. Effects of reaction conditions on cationic charge and ligand content. *Anal Biochem.* 79: 513-525, 1977.
7. **Schnaar RL**, Weigel PH, Kuhlenschmidt MS, Lee YC, Roseman S. Adhesion of chicken hepatocytes to polyacrylamide gels derivatized with N-acetylglucosamine. *J Biol Chem.* 253: 7940-7951, 1978.
8. Weigel PH, **Schnaar RL**, Kuhlenschmidt MS, Schmill E, Lee RT, Lee YC, Roseman S. Adhesion of hepatocytes to immobilized sugars. A threshold phenomenon. *J Biol Chem.* 254: 10830-10838, 1979.
9. **Schnaar RL**, Schaffner AE. Separation of cell types from embryonic chicken and rat spinal cord: characterization of motoneuron-enriched fractions. *J Neurosci.* 1: 204-217, 1981.
10. Guarnaccia SP, Kuhlenschmidt MS, Slife CW, **Schnaar RL**. Hepatocyte adhesion to immobilized carbohydrates. II. Cellular modification of the carbohydrate surface. *J Biol Chem.* 257: 14293-14299, 1982.
11. Guarnaccia SP, **Schnaar RL**. Hepatocyte adhesion to immobilized carbohydrates. I. Sugar recognition is followed by energy-dependent strengthening. *J Biol Chem.* 257: 14288-14292, 1982.
12. **Schnaar RL**, Weigel PH, Roseman S, Lee YC. Preparation of polyacrylamide gels containing active esters. *Methods Enzymol.* 83: 306-310, 1982.
13. Weigel PH, **Schnaar RL**, Roseman S, Lee YC. Preparation of polyacrylamide gels containing copolymerized omega-acrylamidoalkyl glycosides. *Methods Enzymol.* 83: 294-299, 1982.
14. Blackburn CC, **Schnaar RL**. Carbohydrate-specific cell adhesion is mediated by immobilized glycolipids. *J Biol Chem.* 258: 1180-1188, 1983.
15. Dahms NM, **Schnaar RL**. Ganglioside composition is regulated during differentiation in the neuroblastoma X glioma hybrid cell line NG108-15. *J Neurosci.* 3: 806-817, 1983.
16. Guarnaccia SP, Shaper JH, **Schnaar RL**. Tunicamycin inhibits ganglioside biosynthesis in neuronal cells. *Proc Natl Acad Sci U S A.* 80: 1551-1555, 1983.
17. Pless DD, Lee YC, Roseman S, **Schnaar RL**. Specific cell adhesion to immobilized glycoproteins demonstrated using new reagents for protein and glycoprotein immobilization. *J Biol Chem.* 258: 2340-2349, 1983.
18. Schaffner AE, **Schnaar RL**. The isolation and purification of neurons from the vertebrate central nervous system. In: *Current methods in cellular neurobiology, Volume IV: Model systems*, edited by Barker JL, McKelvy JF. New York: John Wiley & Sons, p. 131-85, 1983.

19. **Schnaar RL**. Cellular recognition: Immobilized synthetic and natural glycoconjugates elicit specific cell adhesion and post-adhesion responses. In: *Affinity Chromatography and Biological Recognition*, edited by Chaiken IM, Wilchek M, Parikh I. New York: Academic Press, 1983, p. 43-53.
20. Largent BL, Walton KM, Hoppe CA, Lee YC, **Schnaar RL**. Carbohydrate-specific adhesion of alveolar macrophages to mannose-derivatized surfaces. *J Biol Chem*. 259: 1764-1769, 1984.
21. Malouf AT, Coyle JT, **Schnaar RL**. Agonists and cations regulate the glutamic acid receptors on intact neuroblastoma hybrid cells. *J Biol Chem*. 259: 12763-12768, 1984.
22. Malouf AT, **Schnaar RL**, Coyle JT. Characterization of a glutamic acid neurotransmitter binding site on neuroblastoma hybrid cells. *J Biol Chem*. 259: 12756-12762, 1984.
23. **Schnaar RL**. Immobilized glycoconjugates for cell recognition studies. *Anal Biochem*. 143: 1-13, 1984.
24. Brandley BK, **Schnaar RL**. Phosphorylation of extracellular carbohydrates by intact cells: Chicken hepatocytes specifically adhere to and phosphorylate immobilized N-acetylglucosamine. *J Biol Chem*. 260: 12474-12483, 1985.
25. Sandberg K, **Schnaar RL**, McKinney M, Hanin I, Fisher A, Coyle JT. AF64A: an active site directed irreversible inhibitor of choline acetyltransferase. *J Neurochem*. 44: 439-445, 1985.
26. Sandberg K, **Schnaar RL**, Coyle JT. Method for the quantitation and characterization of the cholinergic neurotoxin, monoethylcholine mustard aziridinium ion (AF64A). *J Neurosci Methods*. 14: 143-148, 1985.
27. **Schnaar RL**. The membrane is the message - Deciphering the code on the surfaces of cells. *Sciences-New York*. 25: 34-40, 1985.
28. **Schnaar RL**, Langer BG, Brandley BK. Reversible covalent immobilization of ligands and proteins on polyacrylamide gels. *Anal Biochem*. 151: 268-281, 1985.
29. Blackburn CC, Swank-Hill P, **Schnaar RL**. Gangliosides support neural retina cell adhesion. *J Biol Chem*. 261: 2873-2881, 1986.
30. Brandley BK, **Schnaar RL**. Review: Cell-surface carbohydrates in cell recognition and response. *J Leukoc Biol*. 40: 97-111, 1986.
31. Staub GC, Walton KM, **Schnaar RL**, Nichols T, Baichwal R, Sandberg K, Rogers TB. Characterization of the binding and internalization of tetanus toxin by a neuroblastoma hybrid cell line. *J Neurosci*. 6: 1443-1451, 1986.
32. Walton KM, **Schnaar RL**. Ganglioside glycosyltransferase assay using ion-exchange chromatography. *Anal Biochem*. 152: 154-159, 1986.
33. Brandley BK, Ross TS, **Schnaar RL**. Multiple carbohydrate receptors on lymphocytes revealed by adhesion to immobilized polysaccharides. *J Cell Biol*. 105: 991-997, 1987.
34. Brandley BK, Weisz OA, **Schnaar RL**. Cell attachment and long-term growth on derivatizable polyacrylamide surfaces. *J Biol Chem*. 262: 6431-6437, 1987.
35. Flick JA, **Schnaar RL**, Perman JA. Thin-layer chromatographic determination of urinary excretion of lactulose, simplified and applied to cystic fibrosis patients. *Clin Chem*. 33: 1211-1212, 1987.
36. Murphy TH, Malouf AT, Sastre A, **Schnaar RL**, Coyle JT. Calcium dependent glutamate cytotoxicity in a neuronal cell line. *Brain Res*. 22: 325-332, 1987.
37. Swank-Hill P, Needham LK, **Schnaar RL**. Carbohydrate-specific cell adhesion directly to glycosphingolipids separated on thin-layer chromatography plates. *Anal Biochem*. 163: 27-35, 1987.

38. Brandley BK, **Schnaar RL**. Covalent attachment of an Arg-Gly-Asp sequence peptide to derivatizable polyacrylamide surfaces: Support of fibroblast adhesion and long-term growth. *Anal Biochem.* 172: 270-278, 1988.
39. Murphy TH, **Schnaar RL**, Coyle JT, Sastre A. Glutamate cytotoxicity in a neuronal cell line is blocked by membrane depolarization. *Brain Res.* 460: 155-160, 1988.
40. Walton KM, Sandberg K, Rogers TB, **Schnaar RL**. Complex ganglioside expression and tetanus toxin binding by PC12 pheochromocytoma cells. *J Biol Chem.* 263: 2055-2063, 1988.
41. Yasuda Y, Tiemeyer M, Blackburn CC, **Schnaar RL**. Neuronal recognition of gangliosides: Evidence for a brain ganglioside receptor. In: *New Trends in Ganglioside Research: Neurochemical and Neuroregenerative Aspects*, edited by Ledeen RW, Hogan EL, Tettamanti G, Yates A. New York: Springer Verlag, p. 229-43, 1988.
42. Brandley BK, **Schnaar RL**. Tumor cell haptotaxis on covalently immobilized linear and exponential gradients of a cell adhesion peptide. *Dev Biol.* 135: 74-86, 1989.
43. Miyamoto M, Murphy TH, **Schnaar RL**, Coyle JT. Antioxidants protect against glutamate-induced cytotoxicity in a neuronal cell line. *J Pharmacol Exp Ther.* 250: 1132-1140, 1989.
44. Murphy TH, Miyamoto M, Sastre A, **Schnaar RL**, Coyle JT. Glutamate toxicity in a neuronal cell line involves inhibition of cystine transport leading to oxidative stress. *Neuron.* 2: 1547-1558, 1989.
45. **Schnaar RL**, Brandley BK, Needham LK, Swank-Hill P, Blackburn CC. Adhesion of eukaryotic cells to immobilized carbohydrates. *Methods Enzymol.* 179: 542-558, 1989.
46. Tiemeyer M, Yasuda Y, **Schnaar RL**. Ganglioside-specific binding protein on rat brain membranes. *J Biol Chem.* 264: 1671-1681, 1989.
47. Walton KM, **Schnaar RL**. Coordinate regulation of ganglioside glycosyltransferases in differentiating NG108-15 neuroblastoma x glioma cells. *J Neurochem.* 52: 1537-1544, 1989.
48. Brandley BK, Shaper JH, **Schnaar RL**. Tumor cell haptotaxis on immobilized N-acetylglucosamine gradients. *Dev Biol.* 140: 161-171, 1990.
49. Murphy TH, **Schnaar RL**, Coyle JT. Immature cortical neurons are uniquely sensitive to glutamate toxicity by inhibition of cystine uptake. *FASEB J.* 4: 1624-1633, 1990.
50. Needham LK, **Schnaar RL**. Adhesion of primary Schwann cells to HNK-1 reactive glycolipids. *Ann N Y Acad Sci.* 605: 416-419, 1990.
51. Tiemeyer M, Swank-Hill P, **Schnaar RL**. A membrane receptor for gangliosides is associated with central nervous system myelin. *J Biol Chem.* 265: 11990-11999, 1990.
52. Tiemeyer M, **Schnaar RL**. Receptors for gangliosides on rat brain membranes: Specificity, regional and subcellular distribution. In: *Trophic Factors and the Nervous System*, edited by Horrocks LA, Neff NH, Yates AJ, Hadjiconstantinou M. New York: Raven Press, p. 119-33, 1990.
53. Weisz OA, **Schnaar RL**. Hepatocytes mediate coenzyme A transfer to specific carbohydrate-derivatized surfaces. *Biochem Biophys Res Commun.* 167: 67-73, 1990.
54. Willoughby RE, Yolken RH, **Schnaar RL**. Rotaviruses specifically bind to the neutral glycosphingolipid asialo-GM1. *J Virol.* 64: 4830-4835, 1990.
55. Needham LK, **Schnaar RL**. Adhesion of primary Schwann cells to HNK-1 reactive glycosphingolipids: Cellular specificity. *Ann N Y Acad Sci.* 633: 553-555, 1991.
56. **Schnaar RL**. Glycosphingolipids in cell surface recognition. *Glycobiology.* 1: 477-485, 1991.
57. Weisz OA, **Schnaar RL**. Hepatocyte adhesion to carbohydrate-derivatized surfaces. II. Regulation of cytoskeletal organization and cell morphology. *J Cell Biol.* 115: 495-504, 1991.

58. Weisz OA, **Schnaar RL**. Hepatocyte adhesion to carbohydrate-derivatized surfaces: I. Surface topography of the rat hepatic lectin. *J Cell Biol.* 115: 485-493, 1991.
59. **Schnaar RL**. Receptors for gangliosides and related glycosphingolipids. *Trends Glycosci Glycotechnol.* 4: 90-98, 1992.
60. **Schnaar RL**. Complex carbohydrates in drug development. *Adv Pharmacol.* 23: 35-84, 1992.
61. Needham LK, **Schnaar RL**. The HNK-1 reactive sulfoglucuronyl glycolipids are ligands for L-selectin and P-selectin, but not E-selectin. *Proc Natl Acad Sci U S A.* 90: 1359-1363, 1993.
62. Needham LK, **Schnaar RL**. Carbohydrate recognition in the peripheral nervous system: A calcium-dependent membrane binding site for HNK-1 reactive glycolipids potentially involved in Schwann cell adhesion. *J Cell Biol.* 121: 397-408, 1993.
63. **Schnaar RL**, Weigel PH, Roseman S, Lee YC. Immobilization of carbohydrates on poly(acrylamide) gels: I. Poly(acrylamide) gels copolymerized with active esters. *Methods Carbohydr Chem.* 9: 181-186, 1993.
64. Weigel PH, **Schnaar RL**, Roseman S, Lee YC. Immobilization of carbohydrates on poly(acrylamide) gels: II. Copolymerization of □□-acrylamido alkyl glycosides. *Methods Carbohydr Chem.* 9: 187-193, 1993.
65. Kelm S, Pelz A, Schauer R, Filbin MT, Song T, de Bellard ME, **Schnaar RL**, Mahoney JA, Hartnell A, Bradfield P, Crocker PR. Sialoadhesin, myelin-associated glycoprotein and CD22 define a new family of sialic acid-dependent adhesion molecules of the immunoglobulin superfamily. *Curr Biol.* 4: 965-972, 1994.
66. Mahoney JA, **Schnaar RL**. Neoganglioproteins: Probes for endogenous ganglioside receptors. In: *Neoglycoconjugates: Preparation and Applications*, edited by Lee YC, Lee RT. San Diego: Academic Press, p. 445-63, 1994.
67. Mahoney JA, **Schnaar RL**. Ganglioside-based neoglycoproteins. *Methods Enzymol.* 242: 17-27, 1994.
68. **Schnaar RL**, Mahoney JA, Swank-Hill P, Tiemeyer M, Needham LK. Receptors for gangliosides and related glycosphingolipids on central and peripheral nervous system cell membranes. *Prog Brain Res.* 101: 185-197, 1994.
69. **Schnaar RL**, Needham LK. Thin-layer chromatography of glycosphingolipids. *Methods Enzymol.* 230: 371-389, 1994.
70. **Schnaar RL**. Isolation of glycosphingolipids. *Methods Enzymol.* 230: 348-370, 1994.
71. **Schnaar RL**. Immobilized glycoconjugates for cell recognition studies. In: *Neoglycoconjugates: Preparation and Application*, edited by Lee YC, Lee RT. San Diego: Academic Press, p. 425-43, 1994.
72. White TK, **Schnaar RL**. Solubilization of a membrane-associated protein from rat nervous system tissues which binds anionic glycolipids and phospholipids. *Biochim Biophys Acta.* 1196: 218-226, 1994.
73. Adler P, Wood SJ, Lee YC, Lee RT, Petri WAJr, **Schnaar RL**. High affinity binding of *Entamoeba histolytica* lectin to polyvalent N-acetylgalactosaminides. *J Biol Chem.* 270: 5164-5171, 1995.
74. Ichikawa M, **Schnaar RL**, Ichikawa Y. Application of sucrose phosphorylase reaction in one-pot enzymatic galactosylation - scavenger of phosphate and generation of glucose 1-phosphate in-situ. *Tetrahedron Letters.* 36: 8731-8732, 1995.
75. Petri WAJr, **Schnaar RL**. Purification and characterization of the galactose- and N-acetylgalactosamine-specific adhesin lectin of *Entamoeba histolytica*. *Methods Enzymol.* 253: 98-104, 1995.

76. **Schnaar RL**, Longo P, Yang LJS, Tai T. Distinctive ganglioside patterns revealed by anti-ganglioside antibody binding to differentiating CG-4 oligodendrocytes. *Glycobiology*. 6: 257-263, 1996.
77. Yang LJS, Zeller CB, Shaper NL, Kiso M, Hasegawa A, Shapiro RE, **Schnaar RL**. Gangliosides are neuronal ligands for myelin-associated glycoprotein. *Proc Natl Acad Sci U S A*. 93: 814-818, 1996.
78. Yang LJS, Zeller CB, **Schnaar RL**. Detection and isolation of lectin-transfected COS cells based on cell adhesion to immobilized glycosphingolipids. *Anal Biochem*. 236: 161-167, 1996.
79. Collins BE, Kiso M, Hasegawa A, Tropak MB, Roder JC, Crocker PR, **Schnaar RL**. Binding specificities of the sialoadhesin family of I-type lectins. Sialic acid linkage and substructure requirements for binding of myelin-associated glycoprotein, Schwann cell myelin protein, and sialoadhesin. *J Biol Chem*. 272: 16889-16895, 1997.
80. Collins BE, Yang LJS, Mukhopadhyay G, Filbin MT, Kiso M, Hasegawa A, **Schnaar RL**. Sialic acid specificity of myelin-associated glycoprotein binding. *J Biol Chem*. 272: 1248-1255, 1997.
81. Mahoney JA, **Schnaar RL**. Multivalent ganglioside and sphingosine conjugates modulate myelin protein kinases. *Biochim Biophys Acta*. 1328: 30-40, 1997.
82. Shaper NL, Meurer JA, Joziase DH, Chou TD, Smith EJ, **Schnaar RL**, Shaper JH. The chicken genome contains two functional nonallelic beta1,4-galactosyltransferase genes. Chromosomal assignment to syntenic regions tracks fate of the two gene lineages in the human genome. *J Biol Chem*. 272: 31389-31399, 1997.
83. Shapiro RE, Specht CD, Collins BE, Woods AS, Cotter RJ, **Schnaar RL**. Identification of a ganglioside recognition domain of tetanus toxin using a novel ganglioside photoaffinity ligand. *J Biol Chem*. 272: 30380-30386, 1997.
84. Shih IM, **Schnaar RL**, Gearhart JD, Kurman RJ. Distribution of cells bearing the HNK-1 epitope in the human placenta. *Placenta*. 18: 667-674, 1997.
85. Crocker PR, Clark EA, Filbin M, Gordon S, Jones Y, Kehrl JH, Kelm S, Le Douarin N, Powell L, Roder J, **Schnaar RL**, Sgroi DC, Stamenkovic K, Schauer R, Schachner M, van den Berg TK, van der Merwe PA, Watt SM, Varki A. Siglecs: a family of sialic-acid binding lectins. *Glycobiology*. 8 (2): v, 1998.
86. **Schnaar RL**, Collins BE, Wright LP, Kiso M, Tropak MB, Roder JC, Crocker PR. Myelin-associated glycoprotein binding to gangliosides. Structural specificity and functional implications. *Ann N Y Acad Sci*. 845: 92-105, 1998.
87. Wolosker H, Kline D, Bian Y, Blackshaw S, Cameron AM, Fralich TJ, **Schnaar RL**, Snyder SH. Molecularly cloned mammalian glucosamine-6-phosphate deaminase localizes to transporting epithelium and lacks oscillin activity. *FASEB J*. 12: 91-99, 1998.
88. Yi D, Lee RT, Longo P, Boger ET, Lee YC, Petri WA, Jr., **Schnaar RL**. Substructural specificity and polyvalent carbohydrate recognition by the *Entamoeba histolytica* and rat hepatic N-acetylgalactosamine/galactose lectins. *Glycobiology*. 8: 1037-1043, 1998.
89. Collins BE, Ito H, Sawada N, Ishida H, Kiso M, **Schnaar RL**. Enhanced binding of the neural siglecs, myelin-associated glycoprotein and Schwann cell myelin protein, to Chol-1 (\square -series) gangliosides and novel sulfated Chol-1 analogs. *J Biol Chem*. 274: 37637-37643, 1999.
90. Collins BE, Sheikh KA, Vyas AA, Heffer-Laue M, Fralich TJ, Liu Y, Kawai H, Ichikawa Y, Griffin JW, Proia RL, **Schnaar RL**. Sialoglycoconjugate recognition by a nervous system lectin -- Functional implications of myelin-associated glycoprotein binding to brain gangliosides. In: *Sialoglycobiology and other novel forms of glycosylation*, edited by Inoue Y, Lee YC, Troy FA. Osaka: Gakushin Publishing Co., p. 121-8, 1999.

91. Miura R, Aspberg A, Ethell IM, Hagihara K, **Schnaar RL**, Ruoslahti E, Yamaguchi Y. The proteoglycan lectin domain binds sulfated cell surface glycolipids and promotes cell adhesion. *J Biol Chem.* 274: 11431-11438, 1999.
92. Sawada N, Ishida H, Collins BE, **Schnaar RL**, Kiso M. Ganglioside GD1a analogs as high affinity ligands for myelin-associated glycoprotein. *Carbohydr Res.* 316: 1-5, 1999.
93. Sheikh KA, Sun J, Liu Y, Kawai H, Crawford TO, Proia RL, Griffin JW, **Schnaar RL**. Mice lacking complex gangliosides develop Wallerian degeneration and myelination defects. *Proc Natl Acad Sci U S A.* 96: 7532-7537, 1999.
94. Chiavegatto S, Sun J, Nelson RJ, **Schnaar RL**. A functional role for complex gangliosides: motor deficits in GM2/GD2 synthase knockout mice. *Exp Neurol.* 166: 227-234, 2000.
95. Collins BE, Fralich TJ, Itonori S, Ichikawa Y, **Schnaar RL**. Conversion of cellular sialic acid expression from N-acetyl- to N-glycolylneuraminic acid using a synthetic precursor, N-glycolylmannosamine pentaacetate: inhibition of myelin-associated glycoprotein binding to neural cells. *Glycobiology.* 10: 11-20, 2000.
96. Collins BE, Yang LJS, **Schnaar RL**. Lectin-mediated cell adhesion to immobilized glycosphingolipids. *Methods Enzymol.* 312: 438-446, 2000.
97. Lunn MP, Johnson LA, Fromholt SE, Itonori S, Huang J, Vyas AA, Hildreth JE, Griffin JW, **Schnaar RL**, Sheikh KA. High-affinity anti-ganglioside IgG antibodies raised in complex ganglioside knockout mice: reexamination of GD1a immunolocalization. *J Neurochem.* 75: 404-412, 2000.
98. **Schnaar RL**. Glycobiology of the nervous system. In: *Carbohydrates in Chemistry and Biology, Part II: Biology of Saccharides*, edited by Ernst B, Hart GW, Sinaÿ P. Weinheim, Germany: Wiley-VCH, p. 1013-27, 2000.
99. Burdick MM, Bochner BS, Collins BE, **Schnaar RL**, Konstantopoulos K. Glycolipids support E-selectin-specific strong cell tethering under flow. *Biochem Biophys Res Commun.* 284: 42-49, 2001.
100. Marques JE, Jr., Ichikawa Y, Strand M, August JT, Hart GW, **Schnaar RL**. Fucosyltransferases in *Schistosoma mansoni* development. *Glycobiology.* 11: 249-259, 2001.
101. Vyas AA, **Schnaar RL**. Brain gangliosides: Functional ligands for myelin stability and the control of nerve regeneration. *Biochimie.* 83: 677-682, 2001.
102. Vyas KA, Patel HV, Vyas AA, **Schnaar RL**. Segregation of gangliosides GM1 and GD3 on cell membranes, isolated membrane rafts, and defined supported lipid monolayers. *Biol Chem.* 382: 241-250, 2001.
103. Gong Y, Tagawa Y, Lunn MP, Laroy W, Heffer-Lauc M, Li CY, Griffin JW, **Schnaar RL**, Sheikh KA. Localization of major gangliosides in the PNS: implications for immune neuropathies. *Brain.* 125: 2491-2506, 2002.
104. Moriarity JL, Hurt KJ, Resnick AC, Storm PB, Laroy W, **Schnaar RL**, Snyder SH. UDP-glucuronate decarboxylase, a key enzyme in proteoglycan synthesis: cloning, characterization, and localization. *J Biol Chem.* 277: 16968-16975, 2002.
105. **Schnaar RL**, Fromholt SE, Gong Y, Vyas AA, Laroy W, Wayman DM, Heffer-Lauc M, Ito H, Ishida H, Kiso M, Griffin JW, Sheikh KA. Immunoglobulin G-class mouse monoclonal antibodies to major brain gangliosides. *Anal Biochem.* 302: 276-284, 2002.
106. Suhara Y, Yamaguchi Y, Collins B, **Schnaar RL**, Yanagishita M, Hildreth JE, Shimada I, Ichikawa Y. Oligomers of glycamino acid. *Bioorg Med Chem.* 10: 1999-2013, 2002.

107. Tagawa Y, Laroy W, Nimrichter L, Fromholt SE, Moser AB, Moser HW, **Schnaar RL**. Anti-ganglioside antibodies bind with enhanced affinity to gangliosides containing very long chain fatty acids. *Neurochem Res*. 27: 847-855, 2002.
108. Vyas AA, Patel HV, Fromholt SE, Heffer-Laue M, Vyas KA, Dang J, Schachner M, **Schnaar RL**. Gangliosides are functional nerve cell ligands for myelin-associated glycoprotein (MAG), an inhibitor of nerve regeneration. *Proc Natl Acad Sci U S A*. 99: 8412-8417, 2002.
109. Ito H, Ishida H, Collins BE, Fromholt SE, **Schnaar RL**, Kiso M. Systematic synthesis and MAG-binding activity of novel sulfated GM1b analogues as mimics of Chol-1 (alpha-series) gangliosides: highly active ligands for neural siglecs. *Carbohydr Res*. 338: 1621-1639, 2003.
110. **Schnaar RL**. Myelin molecules limiting nervous system plasticity. *Prog Mol Subcell Biol*. 32: 125-142, 2003.
111. Nimrichter L, Gargir A, Gortler M, Altstock RT, Shtevi A, Weisshaus O, Fire E, Dotan N, **Schnaar RL**. Intact cell adhesion to glycan microarrays. *Glycobiology*. 14: 197-203, 2004.
112. **Schnaar RL**. Glycolipid-mediated cell-cell recognition in inflammation and nerve regeneration. *Arch Biochem Biophys*. 426: 163-172, 2004.
113. Sheikh KA, Zhang G, Gong Y, **Schnaar RL**, Griffin JW. An anti-ganglioside antibody-secreting hybridoma induces neuropathy in mice. *Ann Neurol*. 56: 228-239, 2004.
114. Sun J, Shaper NL, Itonori S, Heffer-Laue M, Sheikh KA, **Schnaar RL**. Myelin-associated glycoprotein (Siglec-4) expression is progressively and selectively decreased in the brains of mice lacking complex gangliosides. *Glycobiology*. 14: 851-857, 2004.
115. Zhang G, Lopez PH, Li CY, Mehta NR, Griffin JW, **Schnaar RL**, Sheikh KA. Anti-ganglioside antibody-mediated neuronal cytotoxicity and its protection by intravenous immunoglobulin: implications for immune neuropathies. *Brain*. 127: 1085-1100, 2004.
116. Bochner BS, Alvarez RA, Mehta P, Bovin NV, Blixt O, White JR, **Schnaar RL**. Glycan array screening reveals a candidate ligand for siglec-8. *J Biol Chem*. 280: 4307-4312, 2005.
117. Heffer-Laue M, Laue G, Nimrichter L, Fromholt SE, **Schnaar RL**. Membrane redistribution of gangliosides and glycosylphosphatidylinositol-anchored proteins in brain tissue sections under conditions of lipid raft isolation. *Biochim Biophys Acta*. 1686: 200-208, 2005.
118. Pan B, Fromholt SE, Hess EJ, Crawford TO, Griffin JW, Sheikh KA, **Schnaar RL**. Myelin-associated glycoprotein and complementary axonal ligands, gangliosides, mediate axon stability in the CNS and PNS: neuropathology and behavioral deficits in single- and double-null mice. *Exp Neurol*. 195: 208-217, 2005.
119. **Schnaar RL**. Brain glycolipids: Insights from genetic modifications of biosynthetic enzymes. In: *Neuroglycobiology*, edited by Fukuda M, Rutishauser U, **Schnaar RL**, Yamaguchi Y. Oxford, UK: Oxford University Press, p. 95-113, 2005.
120. Vyas AA, Blixt O, Paulson JC, **Schnaar RL**. Potent glycan inhibitors of myelin-associated glycoprotein enhance axon outgrowth in vitro. *J Biol Chem*. 280: 16305-16310, 2005.
121. Hanley WD, Napier SL, Burdick MM, **Schnaar RL**, Sackstein R, Konstantopoulos K. Variant isoforms of CD44 are P- and L-selectin ligands on colon carcinoma cells. *FASEB J*. 20: 337-339, 2006.
122. Lopez PH, **Schnaar RL**. Determination of glycolipid-protein interaction specificity. *Methods Enzymol*. 417: 205-220, 2006.
123. Yang LJ, Lorenzini I, Vajn K, Mountney A, Schramm LP, **Schnaar RL**. Sialidase enhances spinal axon outgrowth in vivo. *Proc Natl Acad Sci U S A*. 103: 11057-11062, 2006.

124. Heffer-Lauc M, Viljetic B, Vajn K, **Schnaar RL**, Lauc G. Effects of detergents on the redistribution of gangliosides and GPI-anchored proteins in brain tissue sections. *J Histochem Cytochem.* 55: 805-812, 2007.
125. Larsson EA, Olsson U, Whitmore CD, Martins R, Tettamanti G, **Schnaar RL**, Dovichi NJ, Palcic MM, Hindsgaul O. Synthesis of reference standards to enable single cell metabolomic studies of tetramethylrhodamine-labeled ganglioside GM1. *Carbohydr Res.* 342: 482-489, 2007.
126. Mehta NR, Lopez PH, Vyas AA, **Schnaar RL**. Gangliosides and Nogo receptors independently mediate myelin-associated glycoprotein inhibition of neurite outgrowth in different nerve cells. *J Biol Chem.* 282: 27875-27886, 2007.
127. Napier SL, Healy ZR, **Schnaar RL**, Konstantopoulos K. Selectin ligand expression regulates the initial vascular interactions of colon carcinoma cells: the roles of CD44v and alternative sialofucosylated selectin ligands. *J Biol Chem.* 282: 3433-3441, 2007.
128. **Schnaar RL**. Neural functions of glycolipids. In: *Comprehensive Glycoscience. Volume 4: Cell Glycobiology and Development; Health and Disease in Glycomedicine*, edited by Kamerling JP, Boons GJ, Lee YC, Suzuki A, Taniguchi N, Voragen AGJ. Amsterdam: Elsevier Science, p. 323-37, 2007.
129. Whitmore CD, Hindsgaul O, Palcic MM, **Schnaar RL**, Dovichi NJ. Metabolic Cytometry. Glycosphingolipid Metabolism in Single Cells. *Anal Chem.* 79: 5139-5142, 2007.
130. Yokoi H, Hudson SA, Bovin NV, **Schnaar RL**, Bochner BS. Surface expression, inhibitory function and candidate ligand for Siglec-8 on human mast cells. In: *Cellular and Molecular Targets in Allergy and Clinical Immunology*, edited by Holgate S, Marone G, Ring J. Cambridge, MA: Hogrefe & Huber, 2007, p. 23-6.
131. Lopez PH, Zhang G, Bianchet MA, **Schnaar RL**, Sheikh KA. Structural requirements of anti-GD1a antibodies determine their target specificity. *Brain.* 131: 1926-1939, 2008.
132. Nimrichter L, Burdick MM, Aoki K, Laroy W, Fierro MA, Hudson SA, Von Seggern CE, Cotter RJ, Bochner BS, Tiemeyer M, Konstantopoulos K, **Schnaar RL**. E-selectin receptors on human leukocytes. *Blood.* 112: 3744-3752, 2008.
133. **Schnaar RL**, Freeze HH. A "glyconutrient sham". *Glycobiology.* 18: 652-657, 2008.
134. Tao SC, Li Y, Zhou J, Qian J, **Schnaar RL**, Zhang Y, Goldstein IJ, Zhu H, Schneck JP. Lectin microarrays identify cell-specific and functionally significant cell surface glycan markers. *Glycobiology.* 18: 761-769, 2008.
135. Thomas SN, Zhu F, **Schnaar RL**, Alves CS, Konstantopoulos K. Carcinoembryonic antigen and CD44 variant isoforms cooperate to mediate colon carcinoma cell adhesion to E- and L-selectin in shear flow. *J Biol Chem.* 283: 15647-15655, 2008.
136. Yang LJ, **Schnaar RL**. Axon regeneration inhibitors. *Neurol Res.* 30: 1047-1052, 2008.
137. **Schnaar RL**, Suzuki A, Stanley P. Glycosphingolipids. In: Varki A, Cummings RD, Esko JD, Freeze HH, Stanley P et al., editors. *Essentials of Glycobiology*, Second Edition. Cold Spring Harbor: CSH Press, pp. 129-141, 2009. PM:20301240
138. Hudson SA, Bovin NV, **Schnaar RL**, Crocker PR, Bochner BS. Eosinophil-selective binding and proapoptotic effect in vitro of a synthetic Siglec-8 ligand, polymeric 6'-sulfated sialyl Lewis x. *J Pharmacol Exp Ther.* 330: 608-612, 2009.
139. Lopez PH, **Schnaar RL**. Gangliosides in cell recognition and membrane protein regulation. *Curr Opin Struct Biol.* 19: 549-557, 2009.
140. Nguyen T, Mehta NR, Conant K, Kim K, Jones M, Calabresi PA, Melli G, Hoke A, **Schnaar RL**, Ming GL, Song H, Keswani SC, Griffin JW. Axonal protective effects of the myelin associated glycoprotein. *J Neurosci.* 29: 630-637, 2009.

141. **Schnaar RL**, Lopez PH. Myelin-associated glycoprotein and its axonal receptors. *J Neurosci Res.* 87: 3267-3276, 2009.
142. Thomas SN, **Schnaar RL**, Konstantopoulos K. Podocalyxin-like protein is an E-/L-selectin ligand on colon carcinoma cells: comparative biochemical properties of selectin ligands in host and tumor cells. *Am J Physiol Cell Physiol.* 296: C505-C513, 2009.
143. Lopez PH, Zhang G, Zhang J, Lehmann HC, Griffin JW, **Schnaar RL**, Sheikh KA. Passive transfer of IgG anti-GM1 antibodies impairs peripheral nerve repair. *J Neurosci.* 30: 9533-9541, 2010.
144. Mehta NR, Nguyen T, Bullen JW, Griffin JW, **Schnaar RL**. Myelin-associated glycoprotein (MAG) protects neurons from acute toxicity using a ganglioside-dependent mechanism. *ACS Chem Neurosci.* 1: 215-222, 2010.
145. Mountney A, Zahner MR, Lorenzini I, Oudega M, Schramm LP, **Schnaar RL**. Sialidase enhances recovery from spinal cord contusion injury. *Proc Natl Acad Sci U S A.* 107: 11561-11566, 2010.
146. **Schnaar RL**. Brain gangliosides in axon-myelin stability and axon regeneration. *FEBS Lett.* 584: 1741-1747, 2010.
147. Dada OO, Essaka DC, Hindsgaul O, Palcic MM, Prendergast J, **Schnaar RL**, Dovichi NJ. Nine orders of magnitude dynamic range: picomolar to millimolar concentration measurement in capillary electrophoresis with laser induced fluorescence detection employing cascaded avalanche photodiode photon counters. *Anal Chem.* 83: 2748-2753, 2011.
148. Guo JP, Brummet ME, Myers AC, Na HJ, Rowland E, **Schnaar RL**, Zheng T, Zhu Z, Bochner BS. Characterization of expression of glycan ligands for Siglec-F in normal mouse lungs. *Am J Respir Cell Mol Biol.* 44: 238-243, 2011.
149. Lopez PH, Ahmad AS, Mehta NR, Toner M, Rowland EA, Zhang J, Dore S, **Schnaar RL**. Myelin-associated glycoprotein protects neurons from excitotoxicity. *J Neurochem.* 116: 900-908, 2011.
150. **Schnaar RL**, Jourdain GW. Obituary: Saul Roseman, 1921-2011. *Glycobiology.* 21: 1393-1394, 2011.
151. Shirure VS, Henson KA, **Schnaar RL**, Nimrichter L, Burdick MM. Gangliosides expressed on breast cancer cells are E-selectin ligands. *Biochem Biophys Res Commun.* 406: 423-429, 2011.
152. Viljetic B, Degmecic IV, Krajina V, Bogdanovic T, Mojsovic-Cuic A, Dikic D, Vajn K, **Schnaar RL**, Heffer M. Distribution of major brain gangliosides in olfactory tract of frogs. *Coll Antropol.* 35 Suppl 1: 121-126, 2011.
153. Zhang G, Lehmann HC, Manoharan S, Hashmi M, Shim S, Ming GL, **Schnaar RL**, Lopez PH, Bogdanova N, Sheikh KA. Anti-ganglioside antibody-mediated activation of RhoA induces inhibition of neurite outgrowth. *J Neurosci.* 31: 1664-1675, 2011.
154. Benedict AL, Mountney A, Hurtado A, Bryan KE, **Schnaar RL**, Dinkova-Kostova AT, Talalay P. Neuroprotective effects of sulforaphane after contusive spinal cord injury. *J Neurotrauma.* 29: 2576-2586, 2012.
155. Essaka DC, Prendergast J, Keithley RB, Palcic MM, Hindsgaul O, **Schnaar RL**, Dovichi NJ. Metabolic cytometry: capillary electrophoresis with two-color fluorescence detection for the simultaneous study of two glycosphingolipid metabolic pathways in single primary neurons. *Anal Chem.* 84: 2799-2804, 2012.
156. Essaka DC, Prendergast J, Keithley RB, Hindsgaul O, Palcic MM, **Schnaar RL**, Dovichi NJ. Single cell ganglioside catabolism in primary cerebellar neurons and glia. *Neurochem Res.* 37: 1308-1314, 2012.

157. Mlinac K, Jovanov MN, Heffer M, Smalla KH, **Schnaar RL**, Kalanj BS. Neuroplastin expression in the hippocampus of mice lacking complex gangliosides. *J Mol Neurosci*. 48: 161-166, 2012.
158. Sturgill ER, Aoki K, Lopez PH, Colacurcio D, Vajn K, Lorenzini I, Majic S, Yang WH, Heffer M, Tiemeyer M, Marth JD, **Schnaar RL**. Biosynthesis of the major brain gangliosides GD1a and GT1b. *Glycobiology*. 22: 1289-1301, 2012.
159. Webb TJ, Li X, Giuntoli RL, Lopez PH, Heuser C, **Schnaar RL**, Tsuji M, Kurts C, Oelke M, Schneck JP. Molecular identification of GD3 as a suppressor of the innate immune response in ovarian cancer. *Cancer Res*. 72: 3744-3752, 2012.
160. Mountney A, Zahner MR, Sturgill ER, Riley CJ, Aston JW, Oudega M, Schramm LP, Hurtado A, **Schnaar RL**. Sialidase, chondroitinase ABC, and combination therapy after spinal cord contusion injury. *J Neurotrauma*. 30: 181-190, 2013.
161. Vajn K, Viljetic B, Degmecic IV, **Schnaar RL**, Heffer M. Differential distribution of major brain gangliosides in the adult mouse central nervous system. *PLoS One*. 8: e75720, 2013.
162. Kiwamoto T, Brummet ME, Wu F, Motari MG, Smith DF, **Schnaar RL**, Zhu Z, Bochner BS. Mice deficient in the St3gal3 gene product alpha2,3 sialyltransferase (ST3Gal-III) exhibit enhanced allergic eosinophilic airway inflammation. *J Allergy Clin Immunol*. 133: 240-247, 2014.
163. **Schnaar RL**, Gerardy-Schahn R, Hildebrandt H. Sialic acids in the brain: gangliosides and polysialic acid in nervous system development, stability, disease and regeneration. *Physiol Rev*. 94: 461-518, 2014. **Web of Science "highly cited paper"***.
164. **Schnaar RL**. ST3 beta-galactoside alpha-2,3-sialyltransferase 3 (ST3GAL3). In: *Handbook of Glycosyltransferases and Related Genes*, edited by Taniguchi N, Honke K, Fukuda M, Narimatsu H, Yamaguchi Y, Angata T. Tokyo: Springer, p. 657-665, 2014.
165. **Schnaar RL**. ST3 beta-galactoside alpha-2,3-sialyltransferase 4 (ST3GAL4). In: *Handbook of Glycosyltransferases and Related Genes*, edited by Taniguchi N, Honke K, Fukuda M, Narimatsu H, Yamaguchi Y, Angata T. Tokyo: Springer, p. 667-674, 2014.
166. Prendergast J, Umanah GKE, Yoo S-W, Lageröf O, Motari M, Cole RN, Haganir RL, Dawson TM, Dawson VL, **Schnaar RL**. Ganglioside regulation of AMPA receptor trafficking. *J. Neurosci*. 34:13246-13258, 2014.
167. Schnaar, R.L. Gangliosides in axon stability and regeneration. In: *Glycoscience: Biology and Medicine*, edited by Taniguchi N., Endo T., Hart G.W., Seeberger P.H., Wong C.H. Tokyo: Springer, p. 535-542, 2014.
168. Schnaar R.L. Glycans and glycan binding proteins in immune regulation: A concise introduction to glycobiology for the allergist. *J. Allergy Clin. Immunol*. 135:609-615, 2015.
169. Jia Y, Yu H, Fernandes SM, Wei Y, Gil AG, Motari MG, Vajn K, Stevens WW, Peters AT, Bochner BS, Kern RC, Schleimer RP, **Schnaar RL**. Expression of ligands for Siglec-8 and Siglec-9 in human airways and airway cells. *J. Allergy Clin. Immunol*. 135:799-810, 2015.
170. Yoo SW, Motari MG, Susuki K, Prendergast J, Mountney A, Hurtado A, **Schnaar RL**. Sialylation regulates brain structure and function. *FASEB J*. 29:3040-3053, 2015.
171. **Schnaar RL**. Animal Glycolipids. In: *eLS*. John Wiley & Sons Ltd, Chichester, 2015. <http://www.els.net> [doi: 10.1002/9780470015902.a0000706.pub3]
172. Palandri A, Salvador VR, Wojnacki J, Vivinetto A, **Schnaar RL**, Lopez PH. Myelin-associated glycoprotein modulates apoptosis of motoneurons during early postnatal development via NgR/p75(NTR) receptor-mediated activation of RhoA signaling pathways. *Cell Death Dis*. 6:e1876, 2015

173. Erikson E, Wratil PR, Frank M, Ambiel I, Pahnke K, Claveria MP, Azadi P, Izquierdo-Useros N, Martinez-Picado J, Meier C, **Schnaar RL**, Crocker PR, Reutter W, Keppler O. Mouse Siglec-1 mediates trans-infection of surface-bound murine leukemia virus in a sialic acid N-acyl side chain-dependent manner. *J. Biol. Chem.* 290:27345-27359, 2015.
 174. Watson DC, Wakarchuk WW, Gervais C, Durocher Y, Robotham A, Fernandes SM, **Schnaar RL**, Young NM, Gilbert M. Preparation of legionaminic acid analogs of sialo-glycoconjugates by means of mammalian sialyltransferases. *Glycoconjugate J.* 32:729-734, 2015.
 175. Hart GW, **Schnaar RL**, Haltiwanger RS. A quarter century of glycobiology. *Glycobiology* 25:1321-1322, 2015.
 176. Varki A, Cummings RD, Aebi M, Packer NH, Seeberger PH, Esko JD, Stanley P, Hart G, Darvill A, Kinoshita T, Prestegard JJ, **Schnaar RL**, Freeze HH, Marth JD, Bertozzi CR, Etzler ME, Frank M, Vliegenthart JFG, Lütteke L, Perez S, Bolton E, Rudd P, Paulson J, Kanehisa M, Toukach P, Aoki-Kinoshita KF, Dell A, Narimatsu H, York W, Taniguchi N, Kornfeld S. Symbol nomenclature for graphical representations of glycans. *Glycobiology* 25:1323-1324, 2015.
 177. Schleimer RP, **Schnaar RL** Bochner BS. Regulation of airway inflammation by Siglec-8 and Siglec-9 sialoglycan ligand expression. *Curr Opin Allergy Clin Immunol.* 16:24-30, 2016.
 178. Agre P, Bertozzi C, Bissell M, Campbell KP, Cummings RD, Desai UR, Estes M, Flotte T, Fogleman G, Gage F, Ginsburg D, Gordon JI, Hart G, Hascall V, Kiessling L, Kornfeld S, Lowe J, Magnani J, Mahal LK, Medzhitov R, Roberts RJ, Sackstein R, Sarkar R, Schnaar R, Schwartz N, Varki A, Walt D, Weissman I. Training the next generation of biomedical investigators in glycosciences. *J Clin Invest* 126:405-408, 2016.
 179. **Schnaar RL**. Glycobiology simplified: diverse roles of glycan recognition in inflammation. *J Leukoc Biol* 98:825-838, 2016.
 180. **Schnaar RL**. Gangliosides of the vertebrate nervous system. *J Mol Biol* 428:3325-3336, 2016.
 181. Yoo SW, Motari MG, **Schnaar RL**. Agenesis of the corpus callosum in Nogo receptor deficient mice. *J Comp Neurol* 525:291-301, 2017.
 182. Lopez PH, Aja S, Aoki K, Seldin MM, Lei X, Ronnett GV, Wong GW, **Schnaar RL**. Mice lacking sialyltransferase ST3Gal-II develop late onset obesity and insulin resistance. *Glycobiology* 27:129-139, 2017.
 183. Naito-Matsui Y, Davies LR, Takematsu H, Chou H-H, Tangvoranuntakul P, Carlin AF, Verhagen A, Heyser HJ, Yoo S-W, Choudhury B, Paton JC, Paton AW, Varki NM, **Schnaar RL**, Varki A. Physiological exploration of the long-term evolutionary selection against expression of N-glycolylneuraminic acid in the brain. *J Biol Chem* 292:2557-2570, 2017.
 184. Yu H, Gonzalez-Gil A, Wei Y, Fernandes SM, Porell RN, Vajn K, Paulson JC, Nycholat CM, **Schnaar RL**. Siglec-8 and Siglec-9 binding specificities and endogenous airway ligand distributions and properties. *Glycobiology* 27:657-668, 2017.
 185. Varki A, Cummings RD, Esko JD, Stanley P, Hart G, Aebi M, Darvill A, Kinoshita T, Packer NH, Prestegard JH, **Schnaar RL**, Seeberger PH, editors. *Essentials of Glycobiology 3rd Edition*, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 2017. (<http://www.ncbi.nlm.nih.gov/pubmed/27010055>).
-
186. Szymanski CM, **Schnaar RL**, Aebi M. Bacterial and Viral Infections. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 527-538, 2017.
 187. Esko JD, Bertozzi C, **Schnaar RL**. Chemical Tools for Inhibiting Glycosylation. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 701-712, 2017.

188. Cummings RD, **Schnaar RL**, Esko JD, Drickamer K, Taylor ME. Principles of Glycan Recognition. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 373-385, 2017.
 189. Freeze HH, Hart GW, **Schnaar RL**. Glycosylation Precursors. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 51-63, 2017.
 190. Varki A, **Schnaar RL**, Schauer R. Sialic Acids and Other Nonulosonic Acids. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 179-195, 2017.
 191. **Schnaar RL**, Kinoshita T. Glycosphingolipids. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 125-135, 2017.
 192. Varki A, **Schnaar RL**, Crocker PR. I-Type Lectins. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 453-467, 2017.
 193. Clausen H, Wandall HH, Steentoft C, Stanley P, **Schnaar RL**. Glycosylation Engineering. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 713-728, 2017.
 194. Freeze HH, Kinoshita T, **Schnaar RL**. Genetic Disorders of Glycan Degradation. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 553-568, 2017.
 195. Taylor ME, Drickamer K, **Schnaar RL**, Etzler ME, Varki A. Discovery and Classification of Glycan-Binding Proteins. In: Varki A, Cummings RD, Esko JD, et al., eds. *Essentials of Glycobiology, Third Edition*. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press; 361-372, 2017.
-
196. **Schnaar RL**, Freeze HH. A "Glyconutrient Sham" and the Jenner Glycobiology and Medicine Symposium. *Glycobiology* 27:383-384, 2017.
 197. **Schnaar RL**, Lee YC. Discoveries of the structures of sialic acid and CMP-sialic acid (1957-1960): A letter from Saul Roseman. *Glycobiology* 27:513-517, 2017.
 198. **Schnaar RL**, Lopez PH. *Gangliosides in Health and Disease [Prog Mol Biol Transl Sci vol. 156]*. Academic Press, London, 461 pp, 2018.
 199. **Schnaar RL**, Lopez PH. Preface and ganglioside nomenclature. *Prog Mol Biol Transl Sci* 156:xvii-xxi, 2018.
 200. Li TA, **Schnaar RL**. Congenital Disorders of Ganglioside Biosynthesis. *Prog Mol Biol Transl Sci* 156:63-82, 2018.
 201. Gonzalez-Gil A, Porell RN, Fernandes SM, Wei Y, Yu H, Carroll DJ, McBride R, Paulson JC, Tiemeyer M, Aoki K, Bochner BS, **Schnaar RL**. Sialylated keratan sulfate proteoglycans are Siglec-8 ligands in human airways. *Glycobiology* 28:786-801, 2018.
 202. Guimarães AJ, de Cerqueira MD, Zamith-Miranda D, Lopez PH, Rodrigues ML, Pontes B, Viana NB, DeLeon-Rodriguez CM, Rossi DCP, Casadevall A, Gomes AMO, Martinez LR, **Schnaar RL**, Nosanchuk JD, Nimrichter L. Host membrane glycosphingolipids and lipid microdomains facilitate *Histoplasma capsulatum* internalization by macrophages. *Cell Microbiol* 21:e12976. 2019.

203. Zhang Y, Zheng Y, Li J, Nie L, Hu Y, Wang F, Liu H, Fernandes SM, Zhong Q, Li X, **Schnaar RL**, Jia Y. Immunoregulatory Siglec ligands are abundant in human and mouse aorta and are up-regulated by high glucose. *Life Sci* 216:189-199, 2019.
204. **Schnaar RL**. The biology of gangliosides. *Adv Carb Chem Biochem* 76:113-148, 2019.
205. Wei Y, Chhibba KD, Zhang F, Ye X, Wang L, Zhang L, Robida PA, Moreno-Vinasco L, **Schnaar RL**, Roers A, Hartmann K, Lee CM, Demers D, Zheng T, Bochner BS, Zhu Z. Mast cell-specific expression of human Siglec-8 in conditional knock-in mice. *Int J Mol Sci* 20:19. 2019.
206. Nycholat CM, Duan S, Knuplez E, Worth C, Elich M, Yao A, O'Sullivan J, McBride R, Wei Y, Fernandes SM, Zhu Z, **Schnaar RL**, Bochner BS, Paulson JC. A sulfonamide sialoside analogue for targeting Siglec-8 and -F on immune cells. *J Am Chem Soc* 141:14032-14037. 2019.
207. Lim H, Lee J, You B, Oh JH, Mok HJ, Kim YS, Yoon BE, Kim BG, Back SK, Park JS, Kim KP, **Schnaar RL**, Lee SJ. GT1b functions as a novel endogenous agonist of toll-like receptor 2 inducing neuropathic pain. *EMBO J* 39:e102214. 2020.
208. Liu H, Zheng Y, Zhang Y, Li J, Fernandes SM, Zeng D, Li X, **Schnaar RL**, Jia Y. Immunosuppressive Siglec-E ligands on mouse aorta are up-regulated by LPS via NF-kappaB pathway. *Biomed Pharmacother* 122:109760. 2020.
209. Gonzalez-Gil A, Li TA, Porell RN, Fernandes SM, Tarbox HE, Lee HS, Aoki K, Tiemeyer M, Kim J, Schnaar RL. Isolation, identification and characterization of the human airway ligand for the eosinophil and mast cell immunoinhibitory receptor Siglec-8. *J Allergy Clin Immunol* 147:1442-1452. 2021.
210. Lee HS, Gonzalez-Gil A, Drake V, Li TA, Schnaar RL, Kim J. Induction of the endogenous sialoglycan ligand for eosinophil death receptor Siglec-8 in chronic rhinosinusitis with hyperplastic nasal polyposis. *Glycobiology* 31:1026-1036. 2021.
211. Büll C, Nason R, Sun L, Van Coillie J, Madriz Sørensen D, Moons SJ, Yang Z, Arbitman S, Fernandes SM, Furukawa S, McBride R, Nycholat CM, Adema GJ, Paulson JC, Schnaar RL, Boltje TJ, Clausen H, Narimatsu Y. Probing the binding specificities of human Siglecs by cell-based glycan arrays. *Proc Natl Acad Sci U S A*. 118:e2026102118. 2021.
212. Porter MJ, Zhang GL, Schnaar RL. Ganglioside Extraction, Purification and Profiling. *J Vis Exp* 169:e62385. 2021.
213. Gonzalez-Gil A, Schnaar RL. Siglec Ligands. *Cells* 10:1260. 2021.
214. Mlinac-Jerkovic K, Ilic K, Zjalic M, Mandić D, Debeljak Ž, Balog M, Damjanović V, Maček Hrvat N, Habek N, Kalanj-Bognar S, Schnaar RL, Heffer M. Who's in, who's out? Re-evaluation of lipid raft residents. *J Neurochem*. 158:657-672. 2021.
215. Gonzalez-Gil A, Schnaar RL. Glycobiology in Inflammation. In: *Encyclopedia of Cell Biology, 2nd Edition*, edited by Hart GW. Amsterdam: Elsevier Science, in press. 2022.
216. Walker MT, Ferrie RP, Hoji A, Schroeder-Carter LM, Cohen JD, Schnaar RL, Cook-Mills JM. β -Glucosylceramide from allergic mothers enhances offspring responsiveness to allergen. *Front Allergy*, 2:647134. 2021.
217. McKittrick TR, Ackerman ME, Anthony RM, Bennett CS, Demetriou M, Hudalla GA, Ribbeck K, Ruhl S, Woo CM, Yang L, Zost SJ, Schnaar RL, Doering TL. The Crossroads of Glycoscience, Infection, and Immunology. *Front Microbiol*, 12:731008. 2021.
218. Ilic K, Lin X, Malci A, Stojanovic M, Puljko B, Rozman M, Vukelic Z, Heffer M, Montag D, Schnaar RL, Kalanj-Bognar S, Herrera-Molina R, Mlinac-Jerkovic K. Plasma Membrane Calcium ATPase-Neuroplastin Complexes Are Selectively Stabilized in GM1-Containing Lipid Rafts. *Int J Mol Sci*, 22. 2021.

219. Vivinetto AL, Castanares C, Garcia-Keller C, Moyano AL, Falcon C, Palandri A, Rozes-Salvador V, Rojas JI, Patrucco L, Monferran C, Cancela L, Cristiano E, Schnaar RL, Lopez PHH. Myelin-associated glycoprotein activation triggers glutamate uptake by oligodendrocytes in vitro and contributes to ameliorate glutamate-mediated toxicity in vivo. *Biochim Biophys Acta Mol Basis Dis*:166324. 2021.