Curriculum vitae

Ronald L. Schnaar
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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.**	The Johns Hopkins University Department of Biology, "Immobilized Carbohydrates as Cell Surface Analogs"
1977	**Postdoctoral I**	The Johns Hopkins University Department of Biology and the McCollum Pratt Institute, "Cell Surface Interactions with Immobilized Macromolecules"
1978-1979	**Postdoctoral II**	The National Institutes of Health "Nerve and Muscle Cell Interactions *In Vitro*"

Appointments

1990-present	**Professor**	Department of Pharmacology and Molecular Sciences and Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, Maryland.
1984-1990	**Associate Professor**	Department of Pharmacology and Molecular Sciences and Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, Maryland.
1980-1984	**Assistant Professor**	Department of Pharmacology and Molecular Sciences and Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, Maryland.
1978-1979	**Postdoctoral**	Fellow of the Muscular Dystrophy Association, Laboratory of Biochemical Genetics, NHLBI, NIH, Bethesda, Maryland. Preceptor: Dr. Marshall Nirenberg.
1977	**Postdoctoral**	Department of Biology and the McCollum-Pratt Institute, The Johns Hopkins University, Baltimore, Maryland. Preceptor: Dr. Saul Roseman.

Appointments

1972-1976	**Predoctoral**	Department of Biology, The 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.

Awards

2011-2018	Director, Program of Excellence in Glycosciences (NHLBI, NIH, DHHS)
2005-2012	Javits Neuroscience Investigator Award (NINDS, NIH, DHHS)
1988	The 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

2001-2010	Editor-in-chief, *Glycobiology*
2002-present	Steering Committee, Consortium for Functional Glycomics, NIGMS, NIH
2005-present	Advisory Board, Institute for Biological Sciences, National Research Council (Canada)
1999-2006	Director, Pharmacology Graduate Program, The Johns Hopkins University School of Medicine
2005	President, Society for Glycobiology
1999-2004	Treasurer and Board Member, Society for Glycobiology
2001-2003	Scientific Advisory Board, Glycominds Ltd., Maccabim, Israel
1997-2002	Editorial Board, *Journal of Biological Chemistry*
1992-1994	Chair, Physiological Chemistry Study Section, CSR, NIH
1990-1992	Member, Physiological Chemistry Study Section, CSR, NIH
1989-1994	Scientific Advisory Board, Glycomed, Inc., Alameda, CA

Publications

1. Schnaar, R.L., and Sparks, H.V. (1972) "Response of large and small coronary arteries to nitroglycerin, NaNO2, and adenosine," *Am. J. Physiol.* **223**, 223-228.
2. Schnaar, R.L., Muzyczka, N., and Bessman, M.J. (1973) "Utilization of aminopurine deoxynucleoside triphosphate by mutator, antimutator, and wild-type DNA polymerases of bacteriophage T4," *Genetics, Suppl.* **73**, 137-140.
3. Bessman, M.J., Muzyczka, N., Goodman, M.F., and Schnaar, R.L. (1974) "Studies on the biochemical basis of spontaneous mutation," *J. Mol. Biol.* **88**, 409-421.
4. Schnaar, R.L., and Lee, Y.C. (1975) "Polyacrylamide gels copolymerized with active esters. A new medium for affinity systems," *Biochemistry* **14**, 1535-1541.
5. Seidel, C.L., Schnaar, R.L., and Sparks, H.V. (1975) "Coronary artery cyclic AMP content during adrenergic receptor stimulation," *Am. J. Physiol.* **229**, 265-269.
6. Schnaar, R.L., Sparks, T.F., and Roseman, S. (1977) "Cyanogen bromide activation of polysaccharides: Effect of reaction conditions on cationic charge and ligand content," *Anal. Biochem.* **79**, 513-525.
7. Schnaar, R.L., Weigel, P.H., Kuhlenschmidt, M.S., Lee, Y.C., and Roseman, S. (1978) "Adhesion of chicken hepatocytes to polyacrylamide gels containing N-acetylglucosamine," *J. Biol. Chem.* **253**, 7940-7951.
8. Weigel, P.H., Schnaar, R.L., Kuhlenschmidt, M.S., Schmell, E., Lee, R.T., Lee, Y.C., and Roseman, S. (1979) "Adhesion of rat and chicken hepatocytes to sugars immobilized on polyacrylamide gels. A threshold phenomenon, *J. Biol. Chem.* **254**, 10830-10838.
9. Schnaar, R.L., and Schaffner, A.E. (1981) "Separation of cell types from embryonic chicken and rat spinal cord: Characterization of motoneuron-enriched fractions," *J. Neurosci.* **1**, 204-217.
10. Schnaar, R.L., Weigel, P.H., Roseman, S., and Lee, Y.C. (1982) "Preparation of polyacrylamide gels containing active esters," *Methods Enzymol.* **83**, 306-310.
11. Weigel, P.H., Schnaar, R.L., Roseman, S., and Lee, Y.C. (1982) "Preparation of polyacrylamide gels containing copolymerized acrylamidoalkyl glycosides," *Methods Enzymol.* **83**, 294-299.
12. Guarnaccia, S.P., and Schnaar, R.L. (1982) "Hepatocyte adhesion to immobilized carbohydrates. I. Sugar recognition is followed by energy-dependent strengthening," *J. Biol. Chem.* **257**, 14288-14292.
13. Guarnaccia, S.P., Kuhlenschmidt, M.S., Slife, C.W., and Schnaar, R.L. (1982) "Hepatocyte adhesion to immobilized carbohydrates. II. Cellular modification of the carbohydrate surface," *J. Biol. Chem.* **257**, 14293-14299.
14. Blackburn, C.C., and Schnaar, R.L. (1983) "Carbohydrate-specific cell adhesion is mediated by immobilized glycolipids," *J. Biol. Chem.* **258**, 1180-1188.
15. Pless, D.D., Lee, Y.C., Roseman, S., and Schnaar, R.L. (1983) "Specific cell adhesion to immobilized glycoproteins demonstrated using new reagents for protein and glycoprotein immobilization," *J. Biol. Chem.* **258**, 2340-2349.
16. Guarnaccia, S.P., Shaper, J.H., and Schnaar, R.L. (1983) "Tunicamycin inhibits ganglioside biosynthesis in neuronal cells," *Proc. Natl. Acad. Sci. U.S.A.* **80**, 1551-1555.

17. Dahms, N.M., and Schnaar, R.L. (1983) "Ganglioside composition is regulated during differentiation in the neuroblastoma x glioma hybrid cell line NG108-15," *J. Neurosci.* **3**, 806-817.
18. Schaffner, A.E. and Schnaar, R.L. (1983) "The isolation and purification of neurons from the vertebrate central nervous system," in *Current Methods in Cellular Neurobiology, Volume IV: Model Systems* (Barker, J.L. and McKelvy, J.F., eds.) pp. 131-185, John Wiley & Sons, New York.
19. Schnaar, R.L. (1983) "Cellular recognition: Immobilized synthetic and natural glycoconjugates elicit specific cell adhesion and post-adhesion responses," *Affinity Chromatography and Biological Recognition* (Chaiken, I.M., Wilchek, M., and Parikh, I., eds.) pp. 43-53, Academic Press, New York.
20. Largent, B.L., Walton, K.M., Hoppe, C.A., Lee, Y.C. and Schnaar, R.L. (1984) "Carbohydrate-specific adhesion of alveolar macrophages to mannose-derivatized surfaces," *J. Biol. Chem.* **259**, 1764-1769.
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23. Schnaar, R.L. (1984) "Review: Immobilized glycoconjugates for cell recognition studies," *Anal. Biochem.* **143**, 1-13.
24. Sandberg, K., Schnaar, R.L., McKinney, M., Hanin, I., Fisher, A., and Coyle, J.T. (1985) "AF64A: An active site directed irreversible inhibitor of choline acetyltransferase," *J. Neurochem.* **44**, 439-445.
25. Schnaar, R.L. (1985) "The membrane is the message: Deciphering the code on the surfaces of cells," *The Sciences* **25** (3), 34-40.
26. Brandley, B.K., and Schnaar, R.L. (1985) "Phosphorylation of extracellular carbohydrates by intact cells. Chicken hepatocytes specifically adhere to and phosphorylate immobilized N-acetylglucosamine," *J. Biol. Chem.* **260**, 12474-12483.
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30. Blackburn, C.C., Swank-Hill, P., and Schnaar, R.L. (1986) "Gangliosides support neural retina cell adhesion," *J. Biol. Chem.* **261**, 2873-2881.
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45. Brandley, B.K., and Schnaar, R.L. (1989) "Tumor cell haptotaxis on covalently immobilized linear and exponential gradients of a cell adhesion peptide," *Dev. Biol.* **135**, 74-86.
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49. Weisz, O.A. and Schnaar, R.L. (1990) "Hepatocytes mediate Coenzyme A transfer to specific carbohydrate-derivatized surfaces," *Biochem. Biophys. Res. Commun.* **167**, 67-73.
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52. Brandley, B.K., and Schnaar, R.L. (1990) "Tumor cell haptotaxis on immobilized N-acetylglucosamine gradients," *Dev. Biol.* **140**, 161-171.
53. Tiemeyer, M., Swank-Hill, P., and Schnaar, R.L. (1990) "A membrane receptor for gangliosides is associated with central nervous system myelin," *J. Biol. Chem.* **265**, 11990-11999.
54. Needham, L.K., and Schnaar, R.L. (1990) "Adhesion of primary Schwann cells to HNK-1 reactive glycosphingolipids," *Ann. N.Y. Acad. Sci.* **605**, 623-627.
55. Willoughby, R.E., Yolken, R.H., and Schnaar, R.L. (1990) "Rotaviruses specifically bind to the neutral glycosphingolipid asialo-G_{M1}," *J. Virol.* **64**, 4830-4835.
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58. Weisz, O.A., and Schnaar, R.L. (1991) "Hepatocyte adhesion to carbohydrate-derivatized surfaces. II. Regulation of cytoskeletal organization and cell morphology," *J. Cell Biol.* **115**, 495-504.
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61. Schnaar, R.L. (1992) "Receptors for gangliosides and related glycosphingolipids," *Trends in Glycoscience and Glycotechnology* **4**, 90-98.
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63. Weigel, P.H., Schnaar, R.L., Roseman, S., and Lee, Y.C. (1993) "Immobilization of carbohydrates on poly(acrylamide) gels: II. Copolymerization of ω-acrylamido alkyl glycosides," in *Methods in Carbohydrate Chemistry, Volume IX* (BeMiller, J.N., Whistler, R.L., and Shaw, D.H., eds.) pp. 187-193, John Wiley & Sons, New York.
64. Needham, L.K., and Schnaar, R.L. (1993) "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.

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66. Schnaar, R.L., Mahoney, J.A., Swank-Hill, P., Tiemeyer, M., and Needham, L.K. (1994) "Receptors for gangliosides and related glycosphingolipids on central and peripheral nervous system cell membranes," *Prog. Brain Res.* **101**, 185-197.
67. Schnaar, R.L. (1994) "Isolation of glycosphingolipids," *Methods Enzymol.* **230**, 348-370.
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