

MARY A. HYNES
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ACADEMIC AND PROFESSIONAL EXPERIENCE:

- 2012-present The Rockefeller University, Research Associate Professor
- 2005-2011 Stanford University, Department of Biological Sciences, Senior Research Scientist.
- Biology of embryonic stem cell-derived midbrain dopaminergic neurons in development and disease
 - Elucidation of axon guidance mechanisms in the dopaminergic system
- 2003-05 Stanford University, Department of Biological Sciences, Project leader.
- Identification of axon guidance molecules through gene trapping in mice
- 2001-02 Renovis, Inc., Director of Neurobiology; a Neuroscience Biotechnology company
- 2000-01 Renovis, Inc., Associate Director of Neurobiology.
- 1996-99 Genentech, Inc., Scientist, Department of Neuroscience
- 1994-96 Genentech, Inc., Senior Research Associate
- 1991-93 Genentech, Inc., Postdoctoral Research Associate
- 1987-91 Howard Hughes Medical Institute, Center for Neurobiology and Behavior, Columbia University, New York, Postdoctoral Research Associate.
- 1982-87 University of North Carolina-Chapel Hill, Ph.D., Neurobiology.
- 1981-82 Kyushu National University, Japan, Department of Physiology, Japanese Government Monbusho Research Fellow.
- Spent 18 months in Japan studying feeding circuitry; laboratory of Dr. Y. Oomura
- 1980 University of Vermont, B.A., Psychology.

HONORS:

- 1980 Phi Beta Kappa
- 1980 Honors in Psychology (University of Vermont)
- 1981-82 Japanese Government Monbusho Research Fellowship

SCIENTIFIC PEER-REVIEWED PUBLICATIONS (reverse chronological order, total 36):

1. Kocabas, A, Duarte, T., Kumar, S, Hynes, MA, (2015) Widespread Differential Expression of Coding Region and 3' UTR Sequences in Neurons and Other Tissues. **Neuron** **88**(6): 1149-1156.

2. Li, J., Duarte, T, Kocabas, A, Works, M, McConnell, SK, Hynes, MA (2014) Evidence for topographic guidance of dopaminergic axons by differential Netrin-1 expression in the striatum. **Molecular and Cellular Neuroscience** **61**, 85-96.
3. Cord*, BJ, J Li*, Works M, McConnell SK, Palmer T and Hynes MA. (2010) Characterization of axon guidance cue sensitivity of human embryonic stem cell-derived dopaminergic neurons. **Molecular and Cellular Neuroscience** **5**, 324-334. (*the first two authors contributed equally to this manuscript).
4. Friedel, R.N., Plump, A., Lu, X., Spilker, K., Jolicoeur, C., Wong, K., Venkatesh, T.R., Yaron, A., Hynes, M., Chen, B., Okada, A., McConnel, S.K., Rayburn, H. and Tessier-Lavigne, M. (2005) Gene targeting using a promoterless gene trap vector (“targeted trapping”) is an efficient method to mutate a large fraction of genes. **PNAS** **102**, 13188-13193.
5. Wang, L.-C., Shih, A, Hongo, J., Devaux, B., and Hynes, M.A. (2000) Broad Specificity of GDNF Family Receptors GFR α 1 and GFR α 2 for GDNF and NTN in Neurons and Transfected Cells. **J Neurosci Res.** **61**,1-9.
6. Hynes, M.A.*, Ye, W., Wang, K., Stone, D., Murone, M., De Sauvage, F., and Rosenthal., A*. (2000) Cell Autonomous Induction of Multiple Ventral Cell Types by the 7 Transmembrane Receptor Smoothed. **Nature Neuroscience** **3**, 41-6.
(* = first and last authors are both corresponding authors).
7. Abeliovich, A., Schmitz, Y., Farinas, I., Choi-Lundberg, D., Ho, W.H., Castillo, P.E., Shinsky, N., Verdugo, J.M.G., Armanini, M., Ryan, A., Hynes, M.A., Phillips, H., Suzer, D., and Rosenthal, A. (2000) Mice Lacking α Synuclein Display Functional Deficits in the Nigrostriatal Dopamine System. **Neuron**, **25**, 239-52.
8. Taraviras, S., Marcos-Gutierrez, C.V., Durbec, P., Jani, H., Grigoriou, M., Sukumaran, M., Wang, L.C., Hynes, M.A., Raisman, G., and Pachnis, V. (1999) Signaling by the RET receptor tyrosine kinase and its role in the development of the mammalian enteric nervous system. **Development**, **126**, 2785-97.
9. Cacalano, G., Farinas, I., Wang, L.C., Hagler, K., Forgie, A., Moore, M., Armanini, M., Phillips, H., Ryan, A.M., Reichardt, L.F., Hynes, M.A., Davies, A., Rosenthal, A. (1998) GFR α 1 is an essential receptor component for GDNF in the developing nervous system and kidney. **Neuron**, **21**, 53-62.
10. Horger BA., Nishimura MC., Armanini MP., Wang LC., Poulsen KT., Rosenblad C., Kirik D., Moffat B., Simmons L., Johnson E Jr., Milbrandt J., Rosenthal A., Bjorklund A., Vandlen RA., Hynes MA, Phillips HS. (1998) Neurturin exerts potent actions on survival and function of midbrain dopaminergic neurons. **Journal of Neuroscience**, **18**, 4929-37.
11. Ye, W-L., Shimamura, K., Rubenstein, J.R.L., Hynes, M.A.*, and Rosenthal*, A. (1998) FGF and Shh signals control dopaminergic and serotonergic cell fate in the anterior neural plate. **Cell**, **93**, 1-20.
(* = both authors are corresponding authors)

12. Milbrandt J., de Sauvage FJ., Fahrner TJ., Baloh RH., Leitner ML., Tansey MG., Lampe PA., Heuckeroth RO., Kotzbauer PT., Simburger KS., Golden JP., Davies JA., Vejsada R., Kato AC., Hynes M., Sherman D., Nishimura M., Wang LC., Vandlen R., Moffat B., Klein RD., Poulsen K., Gray C., Garces A., Johnson EM Jr. (1998) Persephin, a novel neurotrophic factor related to GDNF and neurturin. **Neuron**, 20, 245-53.
13. Xie, J., Murone, M., Luoh, S.-M., Ryan, A., Zhang, C., Gu, Q., Bonifas, J.M., Lam, C.-W., Hynes, M.A., Goddard, A., Rosenthal, A., Epstein, E.H., and deSauvage, F.J. (1998) Activating smoothed mutations in sporadic basal cell carcinoma. **Nature**, 391, 90-92.
14. Hynes, M.A., Stone, D.M., Dowd, M., Pitts-Meek, S., and Rosenthal, A. (1997) Control of Cell Pattern in the Neural Tube by the Zinc Finger Transcription Factor and Oncogene *Gli-1*. **Neuron**, 19, 15-27.
15. Stone, D.M., Hynes, M.A., Armanini, M., Swanson, T.A., Gu, Q., Johnson, R.L., Scott, M. P., Pennica, D., Goddard, A., Philips, H., Noll, M., Hooper, J.E., de Sauvage, F., and Rosenthal, A. (1996) The tumour-suppressor gene *patched* encodes a candidate receptor for Sonic hedgehog. **Nature**, 384, 129-133.
16. Hynes, M.A., Porter, J. A., Chiang, C, Chang, D., Tessier-Lavigne, M., Beachy, P.A., and Rosenthal, A. (1995b) Induction of Midbrain Dopaminergic Neurons by Sonic Hedgehog. **Neuron**, 156, 35-44.
17. Hynes, M.A., Poulsen K., Tessier-Lavigne, M., and Rosenthal, A. (1995a) Control of Neuronal Diversity by the Floor Plate: Contact-Mediated Induction of Midbrain Dopaminergic Neurons. **Cell**, 80, 95-101.
18. Poulsen, K., Armanini, M.P., Klein, R.D., Hynes, M.A., Phillips, H., and Rosenthal, A. (1995) TGF beta2 and beta 3 are Potent Survival Factors for Midbrain Dopaminergic Neurons. **Neuron**, 13 (5), 1245-52.
19. Hynes, M.A., Poulsen, K., Armanini, M., Berkemeier, L., Phillips, H., and Rosenthal, A. (1994) Neurotrophin-4/5 is a Survival Factor for Embryonic Midbrain Dopaminergic Neurons in Enriched Cultures. **Journal of Neuroscience Research**, 37, 144-154.
20. Felsenfeld., D.*, Hynes, M.A.*, Skoler, K.M., Furley A.J., and Jessell, T.M (1994) TAG-1 can Mediate Homophilic Binding, but Neurite Outgrowth on TAG-01 Requires an L1-like Molecule and B1 Integrins. **Neuron**, 12, 675-690.
21. Hynes, M. A., Gitt, M., Barondes, S., Jessell, T.M., and Buck, L.B. (1990). Selective expression of an endogenous lactose-binding lectin gene in subsets of central and peripheral neurons. **Journal of Neuroscience**, 10 (3), 1004-1013.
22. Jin, S., Hynes, M.A., and Lund, P.K. (1990) Ontogeny of glucagon messenger RNA and encoded precursor in the rat intestine. **Regulatory Peptides**, 29, 117-131.
23. Jin, S., Hynes, M.A., Simmons, J.G., Lauder, J.M., and Lund, P.K. (1990) Ontogeny of glucagon messenger RNA and encoded precursor in the rat pancreas. **Regulatory Peptides**, 29, 131-142.

24. Hynes, M.A., Brooks P.J., Van Wyk J.J., and Lund P. K. (1988) Insulin-Like Growth Factor II Messenger Ribonucleic Acids are synthesized in the Choroid Plexus of the Rat Brain. **Molecular Endocrinology**, 2, 47-54.
25. Hynes, M.A., Jin, S., Ulsen, M., Simmons, J., and Lund, P.K. (1988) Characterization, localization and regulation of extrapancreatic proglucagon mRNAs. **Biomedical Research**, 9, 147-155.
26. Priestly, J.V., Hynes, M.A., Han V.K., Rethelyi, M., Perl, E. R. and Lund, P.K. (1988) In situ hybridization using ³²P labelled oligodeoxyribonucleotides for the cellular localization of mRNA in neuronal and endocrine tissue. An analysis of procedural variables. **Histochemistry**, 89, 47-54.
27. Hynes, M. A., Van Wyk, J. J., Brooks, P.J., D'Ercole, A.J., Jansen, M. and Lund, P.K. (1987) Growth Hormone dependence of somatomedin-C/IGF-I and IGF-II mRNAs. **Molecular Endocrinology**, 1 (3), 233-242.
28. Casella S.J., Smith E.P., Van Wyk J.J., Joseph, D.R., Hynes, M.A., Hoyt E.C., Lund P.K. (1987) Isolation of rat testis cDNAs encoding an insulin-like growth factor I precursor. **DNA**, 6, 325-330.
29. Han, V.K.M., Hynes, M.A., Jin, C., Towle, A.C., Lauder, J.M. and Lund, P.K. (1986) Cellular localization of Proglucagon/Glucagon-like peptide I mRNAs in Rat Brain. **Journal of Neuroscience Research**, 16, 97-101.
30. Lund, P. K., Moats-Staats, B. M., Hynes, M. A., Simmons, J.A., Jansen, M., D'Ercole, A. J. and Van Wyk, J.J. (1986) Somatomedin-C/IGF-I and IGF-II mRNAs in rat fetal and adult tissues. **Journal of Biological Chemistry**, 261, 4539-4544..
31. Dingleline R., Hynes, M.A., King, G.L. Involvement of N-Methyl-D-Aspartate receptors in epileptiform bursting in the rat hippocampal slice. (1986) **Journal of Physiology (London)**, 380, 175-89.
32. Merchenthaler, I., Hynes, M.A., Vigh S., Schally. A.V. and Petrusz, P. (1984) Corticotropin Releasing Factor (CRF): Origin and course of afferent pathways to the median eminence of the rat hypothalamus. **Neuroendocrinology**, 39, 296-306.
33. Merchenthaler, I., Hynes, M.A., Vigh, S., Schally, A. and Petrusz, P. (1983) Immunocytochemical localization of corticotropin releasing factor (CRF) in the rat spinal cord. **Brain Research**, 275, 373-377.
34. Minami T. Oomura Y. Sugimori M. Hynes M. Direct action of mazindol on guinea-pig ventromedial hypothalamic neurons: intracellular studies in slice preparation. (1985) **Brain Research Bulletin**, 15(1):29-31.
35. Inoue M. Oomura Y. Nishino H. Aou S. Sikdar SK. Hynes M. Mizuno Y. Katabuchi T. Cholinergic role in monkey dorsolateral prefrontal cortex during bar-press feeding behavior. (1983) **Brain Research**, 278 (1-2):185-94.
36. Hynes, M.A., Gallagher, M. and Yacos, K. (1981) Systemic and intraventricular naloxone administration: Effects on food and water intake. **Behavioral and Neural Biology**, 32, 334-342.

REVIEWS (total 5):

1. Hynes, M. A. and A. Rosenthal. Embryonic Stem Cells Go Dopaminergic. **Neuron** 28,11-14, 2000.
2. Hynes, M. A. and A. Rosenthal. Organizing Centers and Secreted Factors Which Specify the Fate of Dopaminergic and Serotonergic Neurons. **Current Opinion in Neurobiology**. 9, 26-36, 1999.
3. Hynes, M.A. and Rosenthal, A. Dorsal-Ventral Patterning in the Vertebrate Nervous System. **Seminars in Neuroscience**, 1996.
4. Jessell, T.M., Hynes, M.A., and Dodd, J. Carbohydrates and carbohydrate-binding proteins in the nervous system. **Annual Review of Neuroscience**, 13, 227-255. 1990.
5. Lund, P.K., Han, V.K.M., D'Ercole, A.J, Hynes, M.A., Van Wyk, J.J. Somatomedin/insulin-like growth factor mRNAs as studied by in situ hybridization histochemistry In : O. Isaksson (ed) Growth Hormone: Basic And Clinical Aspects. **Proceedings of the Nordisk Insulin Symposium No. 1**, Elsevier Amsterdam,1988.