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## Research Interests

Research Interest: Molecular mechanisms of hormone action in brain development, functional and structural evolution of neuropeptides, developmental plasticity and long term consequences of early life stress.

Dr. Denver's research is on the hormonal control of postembryonic development. Current focus is on three primary topics: (1) the molecular basis of hormone action in brain development, (2) the role of stress hormones in mediating developmental plasticity, and (3) the comparative biology and developmental actions of leptin. For the first topic, gene expression screening is used to identify genes that are differentially regulated by hormones in the developing central nervous system, using the frog Xenopus, rodents, and neural cell lines. Biochemical, molecular and transgenesis techniques are used to understand the functional properties of cloned gene products. For the second topic, studies of the role of central nervous stress centers in mediating environmental effects on postembryonic development have found that the stress neuropeptide, corticotropin-releasing hormone, controls amphibian metamorphosis. This research includes studying the cellular and molecular basis for signal transduction in the neuroendocrine system during spontaneous and environmentally-induced metamorphosis, and is integrated with studies on the ecology of metamorphosis. The third topic is focused on analyzing the expression and functions within the CNS of leptin throughout development of the South African clawed frog Xenopus leavis.

Dr. Denver received his Ph.D. from The University of California at Berkeley in 1989.

## Selected References

Crespi, E.J. and Denver, R.J. (2006) Leptin (ob gene) of the South African clawed frog Xenopus laevis Proceedings of the National Academy of Sciences, USA 103:10092-10097

Safi, R., Vlaeminck-Guillem, V., Duffraisse, M., Seugnet, I., Plateroti, M., Margotat, A., Duterque-Coquillaud, M., Crespi, E.J., Denver, R.J., Demeneix, B, & Laudet, V. (2006) Pedomorphosis revisited: Thyroid hormone receptors are functional in Necturus maculosus Evolution and Development 8:3, 284-292

Boorse, G.C. and Denver, R.J. (2006) Widespread tissue distribution and diverse functions of corticotropin-releasing factor and related peptides. General and Comparative Endocrinology 146:9-18

Boorse, G.C., Kholdani, C.A., Seasholtz, A.F. and Denver, R.J. (2006) Corticotropin-releasing factor is cytoprotective in Xenopus tadpole tail: Integration of ligand, receptor and binding protein in tail muscle cell survival. Endocrinology 147:1498-1507

Boorse, G.C., Crespi, E.J., Dautzenberg, F.M. and Denver, R.J. (2005) Urocortins of the South African clawed frog Xenopus laevis: Conservation of structure and function in tetrapod evolution. Endocrinology 146:4851-4860

Cayrou, C., Denver, R.J. and Puymirat, J. (2002). Suppression of BTEB in brain neuronal cultures inhibits thyroid hormone-induced neurite branching. Endocrinology 143 :2242-2249.

Valverde, R.A., Seasholtz, A.F., Cortright, D.N. and Denver, R.J. (2001). Biochemical characterization and expression analysis of the Xenopus laevis corticotropin-releasing hormone binding protein. Molecular and Cellular Endocrinology 173:29-40.

Denver, R.J., Ouellet, L., Furling, D., Kobayashi, A., Fujii-Kuriyama, Y., Puymirat, J.: Basic transcription element binding protein (BTEB) is a thyroid hormone-regulated gene in the developing central nervous system: Evidence for a role in neurite outgrowth. Journal of Biological Chemistry 274(33):23128-23134, 1999

Denver, R.J. (1997). Environmental stress as a developmental cue: Corticotropin-releasing hormone is a proximate mediator of adaptive phenotypic plasticity in amphibian metamorphosis. Hormones and Behavior 31:169-179.

Denver, R.J., Pavgi, S., Shi, Y.B.: Thyroid hormone-dependent gene expression program for Xenopus neural development. Journal of Biological Chemistry 272:8179-8188, 1997

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