



## Postdoctoral Opportunities at the National Institutes of Health



### Thyroid Hormone Action in vivo: Mechanisms and Regulation of Adult Stem Cell Development

*Xenopus* metamorphosis is being investigated as a model system for postembryonic development. This process is absolutely dependent on thyroid hormone (T3). This laboratory has been taking a multi-faceted approach to investigate the function of T3 receptors (TRs) in vivo. Current research includes investigating the developmental mechanism of TR action by using transgenic tadpoles and studying the roles of TR-interacting cofactors that modify histone in vivo. Another major focus is on how T3 regulates adult stem cell formation in the remodeling intestine.

Heimeier, R.A., Hsia, V. S.-C., and **Shi, Y.-B.** (2008) Participation of BAF57 and BRG1-Containing Chromatin Remodeling Complexes in Thyroid Hormone-Dependent Gene Activation during Vertebrate Development. *Mol. Endocrinol.* 22(5), 1065-77.

Matsuda, H., Paul, B. D., Choi, C. Y., Hasebe, T., and **Shi, Y.-B.** (2009) Novel functions of protein arginine methyltransferase 1 in thyroid hormone receptor-mediated transcription and in the regulation of metamorphic rate in *Xenopus laevis*. *Mol. Cell. Biol.* 29, 745-757.

**Shi, Y.-B.** (2009) Dual functions of thyroid hormone receptors in vertebrate development: the roles of histone-modifying cofactor complexes (The 2008 Van Meter Award Prize Lecture and Review). *Thyroid.* 19, 987-999.

Ishizuya-Oka, A., Hasebe, T., Buchholz, D. R., Kajita, M., Fu, L., and **Shi, Y.-B.** (2009) The origin of the adult intestinal stem cells induced by thyroid hormone in *Xenopus laevis*. *The FASEB J.* 23(8), 2568-75

Das, B., Heimeier, R.A., Buchholz, D.R., and **Shi, Y.-B.** (2009) Identification of direct thyroid hormone response genes reveals the earliest gene regulation programs during frog metamorphosis. *J. Biol. Chem.* 284, 34167-34178

Heimeier, R.A., Das, B., Buchholz, D.R., Fiorentino, M., and **Shi, Y.-B.** (2010) Studies on *Xenopus laevis* intestine reveal biological pathways underlying vertebrate gut adaptation from embryo to adult. *Genome Biology* 11:R55, 1-20

Matsuda, H., and **Shi, Y.-B.** (2010) An essential and evolutionarily conserved role of protein arginine methyltransferase 1 for adult intestinal stem cells during postembryonic development. *Stem Cells* 28, 2073-2083

Hasebe, T., Buchholz, D.R., **Shi, Y.-B.**, and Ishizuya-Oka, A. (2010) Epithelial-connective tissue interactions induced by thyroid hormone receptor are essential for adult stem cell development in the *Xenopus laevis* intestine. *Stem Cells* in press

The positions are open to all candidates with less than 4 yr postdoc experience.

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