



SSR New Investigator Award

(Supported by the Virendra B. Mahesh New Investigator Fund)

This award recognizes an active, regular member of the Society for outstanding research completed and published within 10 years after receiving the Ph.D. or other equivalent professional degree. In considering nominees for this award, the Awards Committee will consider the originality of the research, the significance and impact of the research in reproductive sciences or allied fields, and the degree to which the nominee's research was independent of that of a mentor. The recipient of the 2010 SSR New Investigator Award is **Ryan Cabot, Ph.D.**

The recipient of the 2010 SSR New Investigator Award is Dr. Ryan Cabot. Dr. Cabot received his B.S. in Biochemistry in 1996, and his Ph.D. in Animal Sciences in 2002, both from the University of Missouri-Columbia. He then conducted postdoctoral studies on epigenetics at Ludwig Maximilians University in Munich, Germany. In 2004, he joined the faculty of the Department of Animal Sciences at Purdue University, where he is currently an associate professor.

Dr. Cabot's research program focuses primarily on the epigenetic mechanisms that control preimplantation development in mammalian embryos. These mechanisms are critical for the control and timing of normal development. During his postdoctoral studies, Dr. Cabot examined the expression patterns of specific members of the SNF2-type superfamily of chromatin remodeling proteins in *Xenopus* embryos. His work demonstrated that these factors adopt a tissue-specific expression pattern during embryogenesis. Additional research in his laboratory at Purdue University later showed that alterations in the balance of two SNF2-type chromatin remodeling enzymes (Brahma and Brg1) compromise embryo development and perturb the expression of specific genes that regulate pluripotency and zygotic genome activation in the cleavage stage porcine embryo.

Dr. Cabot has also investigated the role of histone methylation during porcine embryogenesis. His lab has shown that dimethylation of the lysine 9 residue of histone protein H3, a key epigenetic mark that is closely associated with transcriptional repression, is present in both maternal and paternal pronuclei in fertilized porcine embryos. This is in stark contrast to what has been reported in the mouse embryo and challenges the model that explains how maternal and paternal genomes are recognized during cleavage development. Additional studies aimed to investigate the mechanism that regulates histone methylation status in the porcine embryo were funded by a grant from USDA-NRI.

Dr. Cabot is also examining the transport pathways by which intracellular proteins, including transcription factors and epigenetic modifiers, are shuttled between the nuclear and cytoplasmic compartments in the developing oocyte and cleavage stage embryo. He investigates how nuclear import processes mediated by the importin α/β heterodimer are regulated. To date, he has identified an importin α molecule that is specifically expressed in the porcine oocyte and found that various members of the importin α family are differentially expressed during porcine embryogenesis. Further studies have been designed to determine the role of this import pathway during porcine oogenesis.

and cleavage development, and the project is supported by a grant from the USDA-NIFA AFRI. Since he took up his independent faculty position at Purdue University, Dr. Cabot has published 10 research articles in high-impact journals, 21 research abstracts, and has been an invited speaker at national and international meetings. His research program has been funded by both intramural and extramural grants; he is an ad hoc reviewer for 15 journals and is associate editor for Molecular Reproduction and Development.

As a young faculty member, Dr. Cabot has attracted outstanding and productive students and postdocs to his laboratory. A number of his students have been recognized as award recipients for their outstanding research and presentations skills on the Purdue campus and at scientific society meetings. The success of these graduate students is a clear result of Dr. Cabot's mentoring. The reputation as an effective mentor

is apparent given the demand for his services on a great number of graduate advisory committees. Dr. Cabot's commitment to advancing the field of reproduction and to the training of future scientists extends outside the laboratory and into the classroom where he provides a challenging learning experience for Animal Sciences and Biology students. He teaches Physiology of Reproduction, a course that uses domestic livestock as the primary model systems for understanding reproduction and related biology.

In summary, Dr. Cabot is a model young scientist who embodies what we, as a society, embrace: a high standard in research, integrity and student training in reproductive biology. He is an inspiration to all who have benefited from his dedication. He is most deserving of the SSR's New Investigator Award (*Submitted by Dr. Zoltan Machaty*).