

## Former postdoctoral fellows obtain NIH funding

By Aleksandra Adomas

Former NIEHS trainees Archana Dhasarathy, Ph.D., and Sergei Nechaev, Ph.D., along with collaborators from the University of North Dakota (UND), have secured a \$10.5 million NIH grant to advance their research programs. Over the next five years, the award will fund the UND Institutional Development Award (IDeA) Center of Biomedical Research Excellence (COBRE) (<http://www.med.und.edu/epigenetics/cobre.cfm>) in the Epigenomics of Development and Disease. IDeA COBREs are thematic, multidisciplinary programs that augment and strengthen an institution's biomedical research capacity.

### Grant writing skills

Dhasarathy and Nechaev left NIEHS in December 2011 to start their tenure-track careers as independent investigators at the UND School of Medicine and Health Sciences (see [story](#)). They were appointed in January 2012, and were able to finalize the writing of the grant proposal by the February 2012 deadline.

Dhasarathy found her experience with competing for an NIH Pathway to Independence Award, also known as K99, invaluable, while writing the COBRE proposal. She recalled the support and help she received from William Schrader, Ph.D., NIEHS Deputy Scientific Director, and her mentor, Paul Wade, Ph.D., head of the NIEHS Eukaryotic Transcriptional Regulation Group, while working on the K99.

"Bill [Schrader] was as disappointed as I was, when the grant wasn't funded," Dhasarathy said, "but, I was able to resubmit it with few edits, and it got great reviews."

The COBRE grant proposal that Dhasarathy and Nechaev wrote with three other junior faculty members at UND, received enthusiastic reviews and an outstanding score. However, federal budget sequestration delayed NIH funding decisions, and the grant was not approved until this past August, a year later than expected.

### Road to independence

Epigenetics/epigenomics is a fairly new research area at UND, and the COBRE grant will help the epigenetics research working group, established in 2010, create infrastructure. The funding will support generation, analysis, and management of next-generation sequencing data; acquisition of a sequencing instrument; and hiring of bioinformatic personnel. It will also create room for a few new investigators that UND hopes to bring on board in the coming years.

Dhasarathy and Nechaev's objective will be to generate results and publications that lead to their own independent funding (see [text box](#)). Dhasarathy is a chromatin expert, and will continue the line of research she initiated with Wade. She is interested in two transcription factors, Snail and Slug, and deciphering their role in cancer metastasis.

Nechaev focuses on answering the broad question of how alternative gene expression programs can be encoded in a genome that is shared by almost every cell in an organism. His hypothesis originates from his time in the NIEHS Transcriptional Responses to the Environment Group and work done with lead researcher Karen Adelman, Ph.D. Nechaev believes that the transcriptional enzyme, RNA polymerase II, plays a major role in this cell-type specific gene activation, through a phenomenon called pausing.

Nechaev loves his new life at UND, and thinks that the camaraderie among the staff will help propel the university's image as a place for good science.

"I have been pleasantly surprised by the cordial atmosphere at UND, and the interest in collaborations," Nechaev said. "Despite us being a relatively small-sized university, we have a very broad range of experts who are willing and eager to help."

During the past year and a half, Dhasarathy and Nechaev have woven themselves into the fabric of academic life at UND. In one example, Dhasarathy co-organized the first and second [UND Epigenetics and Epigenomics Symposia](#).



*"We have an exciting couple of years ahead," Dhasarathy said, as she looks forward to future work at the UND center. (Photo courtesy of Wanda Weber, UND)*



*Nechaev said of his professional ambition, "My personal goal is to answer scientific questions that I have been asking, while moving the field forward to the best of my ability." (Photo courtesy of Wanda Weber, UND)*

(<http://www.med.und.edu/epigenetics/symposium.cfm>)

She said organizing the meeting was the best way to stay abreast of cutting-edge research in human development and disease, and to promote interactions with national epigenetic experts.

(Aleksandra Adomas, Ph.D., is a research fellow in the NIEHS Laboratory of Molecular Carcinogenesis.)

### Challenges faced by new independent investigators

Dhasarathy and Nechaev agree that the first year as a tenure-track professor can be challenging, with setting up the laboratory space, starting experiments, and selecting people to work in their groups.

"The schedule of an assistant professor is full, with multiple little tasks, which may or may not have to do with science, but still need your attention," Nechaev pointed out. "It is becoming harder to dedicate time to research, but this is compensated by students in my lab that can plan and do experiments independently."

Dhasarathy agreed and said, "I've been very fortunate, so far, to work with four extremely talented undergraduates, and now the grant funding will help bring in good graduate and postdoctoral students."

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