NIEHS fellows set record for Pathway to Independence Awards

By Staton Wade

Two more NIH Pathway to Independence Awards, or K99/R00 grants, given to NIEHS trainees, raise the number of successful applicants to six in 2014. Tracy Clement, Ph.D., and Anne Marie Jukic, Ph.D., recently learned of their awards, setting an NIEHS record for the number in a given year.

The award is a transition grant that ensures trainees the resources and mentoring needed to become successful independent researchers. After the training phase (K99), grantees who secure tenure-track positions can transition into R00 funding, to kick-start their independent careers.

Clement works in the Gamete Biology Group with Mitch Eddy, Ph.D., and Jukic is part of the Reproductive Epidemiology Group, working with Allen Wilcox, M.D., Ph.D. Both researchers study reproductive biology, and their grants were funded through the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

Clement received a 2013 Fellows Award for Research Excellence for her work on ARP. (Photo courtesy of Steve McCaw)

Addressing mechanisms of male infertility

While at NIEHS, Clement has characterized the role of an actin-related protein (ARP) in spermatid development and male fertility. ARPs are important for basic cellular processes and responses to environmental stress, because they control cellular shape, organization, and movement. Clement's K99 funding will allow her to develop new ways of identifying the mechanisms of ARP action during the development of sperm.

"One of the aspects of this project that excites me the most is the development of a tissue culture system to view actin regulation and dynamics in the testis as spermatids develop," said Clement. Spermatids are sperm precursors, and male infertility results from improper spermatid development. Nearly half of all cases of infertility are linked to the male, and nearly half of those are due to unknown causes. "This study will increase our understanding of how fertilization-competent sperm are produced," said Clement.

Clement will receive mentoring support from NIEHS Laboratory of Reproductive and Developmental Toxicology (LRDT) scientists Eddy and Humphrey Yao, Ph.D., as well as Joseph Chalovich, Ph.D., in the Department of Biochemistry and Molecular Biology at East Carolina University.

Jukic was first author on a paper on variability of pregnancy length that was selected as a paper of the month and featured in the Environmental Factor. (Photo courtesy of Steve McCaw)

Effects of vitamin D on reproduction

The Reproductive Epidemiology Group, led by Wilcox, developed epidemiological methods to study fertility and early development, for identifying environmental factors that contribute to infertility and poor reproductive outcomes in humans. Jukic has previously studied the effects of lifestyle and physical activity on fertility, and the normal variability of human reproductive factors, such as pregnancy length (see story).

With the help of NIEHS collaborators and mentors Wilcox, Donna Baird, Ph.D., and Clarice Weinberg, Ph.D., Jukic will turn to studying the effects of vitamin D on fertility and early development. "Small studies have reported detrimental effects of low vitamin D levels on reproduction, but large population-based human data are lacking," said Jukic.

Applicants credit mentors and supportive colleagues

Both Clement and Jukic credited the support of their strong mentoring teams, previous grant recipients who provided writing advice, and NIEHS administration, including Tammy Collins, Ph.D., director of the Office of Fellows' Career Development (OFCD), and Deputy Scientific Director and Training Director Bill Schrader, Ph.D.

"My co-mentors helped me polish my specific aims, wrote letters of support, and humored my ideas in a way that fosters independent thinking, as is the intent of the grant," Clement said.

For Jukic, in addition to her mentors' support and years of experience in fertility and pregnancy research, help also came from program officials in the NIEHS Division of Extramural Research and Training, who have expertise in the grant application process. "They were very helpful, even though I wasn't applying through NIEHS," said Jukic.

(Staton Wade, Ph.D., is an Intramural Research Training Award fellow in the NIEHS Chromatin and Gene Expression Group.)

What is the award and how to apply

The NIH Pathway to Independence Award, or K99/R00 grant, allows fellows to showcase their ability to secure funding and financially jump-start their independent labs. The purpose of the K99/R00 is to support a new cohort of talented NIH-funded investigators and to ease their transition from the postdoctoral phase to stable, independently funded research careers.

In the K99 phase, fellows receive one to two years of support for mentored training that focuses on learning new techniques or establishing novel experimental systems that will allow them to competitively pursue their chosen research path. After transitioning into a tenure-track faculty position, awardees receive up to three years of additional independent funding in the R00 phase.

Applications for the Pathway to Independence Award are accepted in February, June, and October of each year. Applicants can apply anytime within four years of receiving their doctoral degree. Interested fellows should refer to the latest Program Announcement *(http://grants.nih.gov/grants/guide/pa-files/PA-14-042.html)* for more information.

Many NIH entities participate in the K99/R00 program. Applicants are strongly encouraged to contact the specific institute, center, or office through which their grant will be funded, prior to submission. More information on K99/R00 funding can be found on the NIEHS website.

OFCD offers resources for grant-seeking fellows. A presentation on grantsmanship and K99/R00 grant applications will take place Oct. 22, including a panel discussion with recent recipients. Also, Schrader provides individual consultations to applicants in the months prior to grant submission.

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