The next generation: Will Mair

Postdoctoral fellows are the lifeblood of Salk's research laboratories, bringing talent, fresh perspective and creative thinking to the bench. But they are also laboring apprentices acquiring the experience and credentials they need to launch independent research careers and establish cutting-edge laboratories of their own.

WILL MAIR JOINED THEIR RANKS FIVE YEARS ago when he became a member of **Andrew Dillin**'s team after earning his doctoral degree at University College, London. He has just capped his successful postdoctoral career with a landmark paper (for more details see "Hungering for Longevity," page 24), making him a sought-after candidate for assistant professorships at universities and research institutes worldwide.

"This project was a great example of being in the right place at the right time," he says. "I was lucky in that there were so many labs close by that were experts in related areas. I could draw upon their knowledge for my own work, which would have never happened if I hadn't come to the Salk Institute. Here the science just seeps into you; you can't help it."

Mair may credit Salk's unique environment for his success, but his own collaborative approach to

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science (he is listed as a co-author on papers from three other Salk laboratories), a very clear idea of the question he was trying to answer and the persistence of a long-distance runner made him a perfect fit.

"During my doctoral thesis, I worked on dietary restriction in fruit flies and found that restricting amino acids was enough to get the full life-prolonging effect. But I really had no idea what was going on," he explains. "I specifically came to the Salk trying to get at the mechanics of the process."

He chose the lab of Howard Hughes Medical Institute investigator Dillin, an associate professor in the Molecular and Cell Biology Laboratory (MCBL), who studies aging using the roundworm *Caenorhabditis elegans* as a model system and who had discovered the first gene that is essential for the increased longevity seen in mice and other animals kept on low-calorie diets.

But the project was off to a rocky start. "In the beginning we just didn't have the proper tools," he remembers. What he did have, though, were many opportunities to discuss the project with **Reuben Shaw**, an assistant professor in MCBL and an expert on AMPK, a protein that serves as a metabolic master switch.

"Reuben had just joined the Salk Institute and was still in the process of getting his lab up and running, so he had the time to have lengthy scientific discussions with me," he says. "It quickly became clear to me that AMPK was the way to go."

Yet progress was still slow. CRTC1, the protein that he had picked as his reporter for AMPK activity, just didn't do what he expected it to do. With the determination of a scientist who knows that he is on the right track, Mair kept going back to it. Eventually, he decided to change gears and use worms' lifespan as the readout. All of a sudden everything started to make sense. "I realized that CRTC1 itself was important for longevity. What was supposed to be merely a marker became the linchpin of the whole paper," he says.

At the moment, Mair is in the process of applying to research institutions worldwide so he can continue his research in his own laboratory. "I am not interested in how long a worm lives. I want to know how we can take this pathway and use it to treat a whole range of aging-associated pathologies to get new therapies for human patients," he says.