

## LAB &amp; LIFE

## Hi, new PI

Your name is on the door to your new lab. Life is getting exciting and turbulent.

**I** cannot wait to run after the scientific questions that excite me the most,” says Atilgan Yilmaz, a new principal investigator (PI) at KU Leuven. He’s excited, happy and a little scared, but the warm welcome from the Department of Development and Regeneration dispels worries about this new beginning.

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He will be recruiting a technician, graduate students and postdoctoral fellows keen on studying development, regeneration and diseases of human skeletal muscle using different stem cell methodologies and high-throughput gene editing. Yilmaz teases out factors that underpin cellular plasticity and ways to capture the ‘essentialome’, which are the genes that define pluripotency and other cell states. His postdoctoral fellowship advisor Nissim Benvenisty at Hebrew University showed him how to be both a good scientist and a good mentor, which Yilmaz seeks to mirror. He also wants to foster a friendly lab atmosphere with time for healthy breaks, which can “lead to the best experimental ideas,” he says. His journey began in his beloved hometown of Istanbul where, at Boğaziçi University, he volunteered in labs. Summer stints at Georg August University in Göttingen, Germany and at UCLA led him to a PhD program at Brown University, a postdoctoral fellowship at ETH Zurich and another at Hebrew University. “I find the new developments in the single-cell technologies and organoid systems fascinating,” says Yilmaz. Lineage tracing methodologies for studying human development will certainly keep changing the way researchers look at processes related to early human life and potential regenerative therapies. In vitro 3D culture systems will keep improving. Stem cell technologies even indicate ways to save endangered species, “which I find very exciting,” he says.

Lara Urban, who has just started her research group in planetary health at Helmholtz Pioneer Campus at the German National Center for Environmental Health

near Munich, says she feels ready for her next step. She also holds a faculty position at the Technical University of Munich, where she plans to get into teaching. Urban spent most of the pandemic as an Alexander von Humboldt Foundation fellow at the University of Otago in New Zealand. She was mainly in New Zealand’s remote wilderness to safeguard two species of flightless bird: the endangered South Island takahē (*Porphyrio hochstetteri*) and the critically endangered kākāpō (*Strigops habroptilus*). While each mother foraged to feed the family, Urban gently collected saliva samples from the chicks to assess for pathogens. She extracted DNA and sampled the soil for nanopore sequencing and analysis.

Such efforts aim to save each animal and support reproduction by matching least-related individuals. Ideally, says Urban, matters with species should never get so dire. As a new PI, her focus will include safeguarding ecosystems. Beyond papers and building community resources in genomics, she hopes collaborations can also inform policy. “We as scientists, we still have to cross the gap between our actual research and what we do with it,” she says. Urban hopes portable genomic sequencing and analysis can become more widespread and applied to more uses in the field. It should also become a more inclusive technology. Says Urban, “science in the past, especially science by rich Western countries, has not been equitable.” She consulted with Māori tribe members and kept them apprised of her work, as is required for research ventures in New Zealand.

**“My dream for the next chapter would be to enable deep and sensitive proteomics,” says Mingjie Dai.**

The institute’s Helmholtz Pioneer Campus runs projects on AI, health and the environment. Urban brings in big data and AI in genomics and ecology. Hers will now be a planetary health context. Human health, ecosystems health and the health of our planet are all intertwined, she says. As an undergraduate, she began doing fieldwork and kept at it. Data mountains

piled up. “That’s when I really got into statistics,” she says. “And I always loved math and statistics at school.”

“I am very excited to start my own lab,” says Mingjie Dai, who is getting a warm welcome as a new PI in Rice University’s Department of Bioengineering. He sees himself as a biology-driven technologist and likes the department’s strong expertise in synthetic biology and molecular engineering. “My dream for the next chapter would be to enable deep and sensitive proteomics,” he says, which could, for instance, help researchers who ‘see’ their protein on a western blot but not in their mass spec data. The tools in his mind’s eye bridge nanoscale physical and engineering capabilities and are informatically integrated, but COVID-19 makes it hard to set up a lab. Labor shortages and supply chain delays lead equipment purchases and lab renovation to take longer than expected.

**“Reach out and join the adventure,” says Ola Sabet.**

Cell biologist and microscopist Ola Sabet at Children’s Hospital Zurich (KISPI) is fulfilling her long-standing dream of opening a lab in her native Cairo. She is setting up a new imaging platform in Zurich and, with a double affiliation, setting up a new lab at the non-profit, donation-supported Children’s Cancer Hospital of Egypt 57357 (CCHE 57357). Her imaging-based systems biology lab is part of the hospital’s buildup of research programs. “There is absolutely no one covering this extremely essential aspect of science in the whole region,” says Sabet. Imaging tends to be seen as an accessory, but it’s an empowering tool that offers access to a system’s spatial aspects. To those intrigued by her cross-continental, ambitious plan and who are interested in computation, imaging, molecular biology or pediatric diseases, she says “reach out and join the adventure.” □

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