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## PRESS RELEASE

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### 3R Prize: organoids to fight kidney cancer

The 2025 UNIGE 3R Prize honored a study that developed personalised organoids as an alternative to animal models in kidney cancer research.

Since 2016, the University of Geneva (UNIGE) 3R Prize has recognized research that enables the “replacement,” “reduction,” or “refinement” (3R) of the use of animal models. This year, the prize was awarded to two scientists who developed a new protocol for culturing organoids—miniature, simplified versions of organs—from cancerous kidney cells taken from patients. This innovative method allows for precise testing of individual responses to kidney cancer treatments.

Each year, UNIGE honors innovative research projects that advance the life sciences while contributing to the “replacement,” “reduction,” or “refinement” (3R) of animal model use. The 3R Prize, valued at 5,000 Swiss francs, supports the continued work of the awardees. The 2025 prize was presented on June 3, during the tenth edition of the Prix 3R, at the Faculty of Medicine’s annual awards ceremony.

This year, the jury awarded the prize to Patrycja Nowak-Sliwinska, associate professor in the Pharmaceutical Sciences Section at UNIGE’s Faculty of Science, and Daniel Benamran, privat-docent at the Faculty of Medicine and urologist at HUG, for their work on kidney cancer. Their study (conducted with Jakub Gubala, Valentin Mieville, Massimo Valerio and Jean-Christophe Tille), entitled [“Generation and maintenance of kidney and kidney cancer organoids from patient-derived material for drug development and precision oncology”](#), was published in the journal *Molecular Therapy*. It details a new procedure for the generation and maintenance of kidney organoids to develop alternative, patient-specific treatments.

#### A major obstacle to overcome

A quarter of metastatic kidney cancers are resistant to first-line treatments, making alternative therapies essential. Their efficacy and toxicity are mainly evaluated using animal models. Patient-derived organoids, although promising, remain underused for this type of cancer due to the high genetic and phenotypic heterogeneity of the cells involved. As a result, the organoids obtained often lack stability and quickly lose their original tumour characteristics, or may even disintegrate entirely.

#### Closer to reality

To overcome these obstacles, the authors of the award-winning study developed an innovative method that is both reliable and inexpensive. Their approach involves isolating tumour cells from patients and then culturing them alongside different cells present in the kidney, thereby



From left to right: Enrica Bordignon (Vice-Dean - Faculty of Science), Valentin Mieville, Daniel Benamran, Patrycja Nowak-Sliwinska, Sébastien Castellort (Vice-Rector - Research and Sustainability).

High resolution pictures

recreating a more realistic tumour microenvironment. The organoids obtained are therefore representative of the patient's healthy tissue and are ideal tools for testing personalised treatments.

"Since they come directly from the patient's cells, we can now evaluate the efficacy and toxicity of proposed therapies for each person," explains Patrycja Nowak-Sliwinska. Beyond the clinical aspect, the model could be widely used for research and reduce the use of animal tissues or cells.

### **UNIGE, a driving force for responsible research**

This breakthrough impressed the members of the 3R Prize jury, composed of Martina Valentini (jury chair), Emi Nagoshi (2016 3R Prize winner), Gaby Palmer, Ivan Rodriguez, and Pascal Senn (2022 3R Prize winner). For Elsa Giobellina, Animal Welfare Officer at the University, this study highlights UNIGE's commitment to the 3Rs: "This method not only represents a step towards more personalized medicine, but also offers a simple and inexpensive alternative to animal models that is accessible to other laboratories around the world. This paves the way for wider use of human, organoid-based models in future research." This project is a showcase of fruitful inter-institutional collaboration between the Faculty of Science, the Faculty of Medicine (UNIGE) and HUG.

This commitment is also reflected in the growing number of applications submitted each year for the 3R Prize. UNIGE plays a leading role in the field of 3Rs by actively promoting funding opportunities, existing awards, and available training, both within the University and beyond. UNIGE is also a member of the Swiss 3R Competence Centre (3RCC), which works at the national level to promote the development and implementation of 3R methods.

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