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PRESS RELEASE

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Animal experimentation: UNIGE awards its 3R prize

UNIGE rewards a study that has made it possible to produce auditory neurons, which are essential for research on certain forms of deafness, without using laboratory mice.

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From top to bottom, the laureates Francis Rousset and Pascal Senn.

High resolution pictures

Reducing the number of animals used, refining methodologies to limit suffering, replacing the animal model as often as possible: the 3R principle, applied by research teams at the University of Geneva (UNIGE), is the basis of the ethical approach in the field of animal experimentation. This year, the UNIGE 3R prize - awarded since 2016 - rewards a study performed at the Department of clinical neurosciences of the Faculty of Medicine on the *in vitro* culture of auditory neurons. Results published in the journal *Hearing research* show that it is possible to avoid animal experimentation by harnessing a specific type of stem cell. The UNIGE 3R prize will be awarded on June 7, during the Faculty of Medicine graduation ceremony.

Since 2016, the University of Geneva (UNIGE) has awarded its annual "3R" prize - for «reduce,» «refine,» and «replace» - to recognize research aimed at limiting animal experimentation. This year, the jury awarded the work of Francis Rousset and Pascal Senn, both researchers in the Department of clinical neuroscience at the Faculty of Medicine.

The award is in recognition of their study entitled «Phoenix auditory neurons as 3R cell model for high throughput screening of neurogenic compounds»,recently published in the journal Hearing research. The prize consisting of 5000 Swiss francs to be used for further research , will be awarded on June 7.

«Francis Rousset and Pascal Senn have been working for several years on ways to restore and regenerate the auditory system when it has suffered a loss. This type of research frequently relies on animal experimentation. Their work propose an alternative to *in vivo* models by using a certain type of stem cells to generate auditory neurons», explains Daniele Roppolo, Director of animal experimentation at the UNIGE.

An effective alternative

In research laboratories, neurotrophic compounds - molecules that allow neurons to grow - are frequently used to promote the regeneration of auditory neurons, which connect the sensory cells of the inner ear to the brainstem. These neurons are relevant targets for pharmacological interventions to protect or improve hearing function in various forms of deafness. However, in absence of *in vitro* models able to recapitulate the intricate physiology of the auditory system, research in this area relies primarily on the use of animal experimentation.

The recent discovery of «phoenix» auditory neuroprogenitors (ANPG) - stem cells that can produce auditory neurons - opens the way to a significant reduction in animal experimentation in this field. Derived from mice and endowed with an unprecedented capacity for self-renewal, these ANPGs can be frozen and therefore widely distributed to other research laboratories, thus replacing animal experimentation in certain aspects of research in auditory neurosciences.

The study by Francis Rousset and Pascal Senn has led to a more in-depth characterization of «phoenix» ANPGs. The two researchers have demonstrated that, in addition to reducing the use of animal models, they offer a considerable range of advantages, including ease of culture and growth and *in vitro* modelling of the spiral ganglion, a structure that is essential for hearing.

Large number of candidates

For this 2022 edition, the UNIGE's 3R prize received eight applications. «We have carried out a real awareness campaign among researchers and we can see that this type of operation is really changing attitudes,» says Daniele Roppolo.

The jury was composed this year of four UNIGE professors: Emi Nagoshi, Jean-Luc Wolfender, Pierre Cosson and Patrycja Nowak-Sliwinska. Among the criteria taken into account were the 3R dimension of the research but also the originality of the method, the broad applicability of the results and the quality of the application.

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