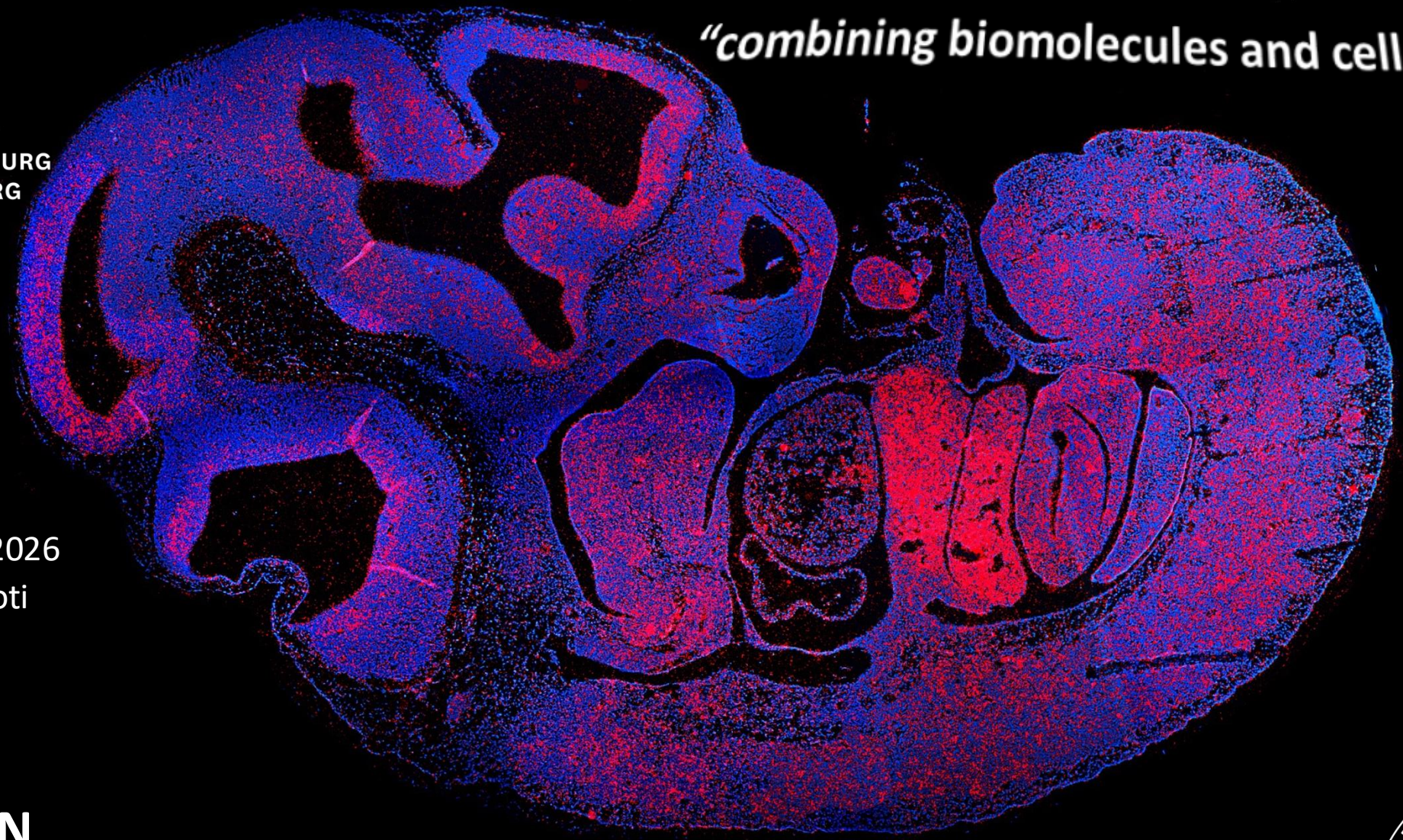
UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG



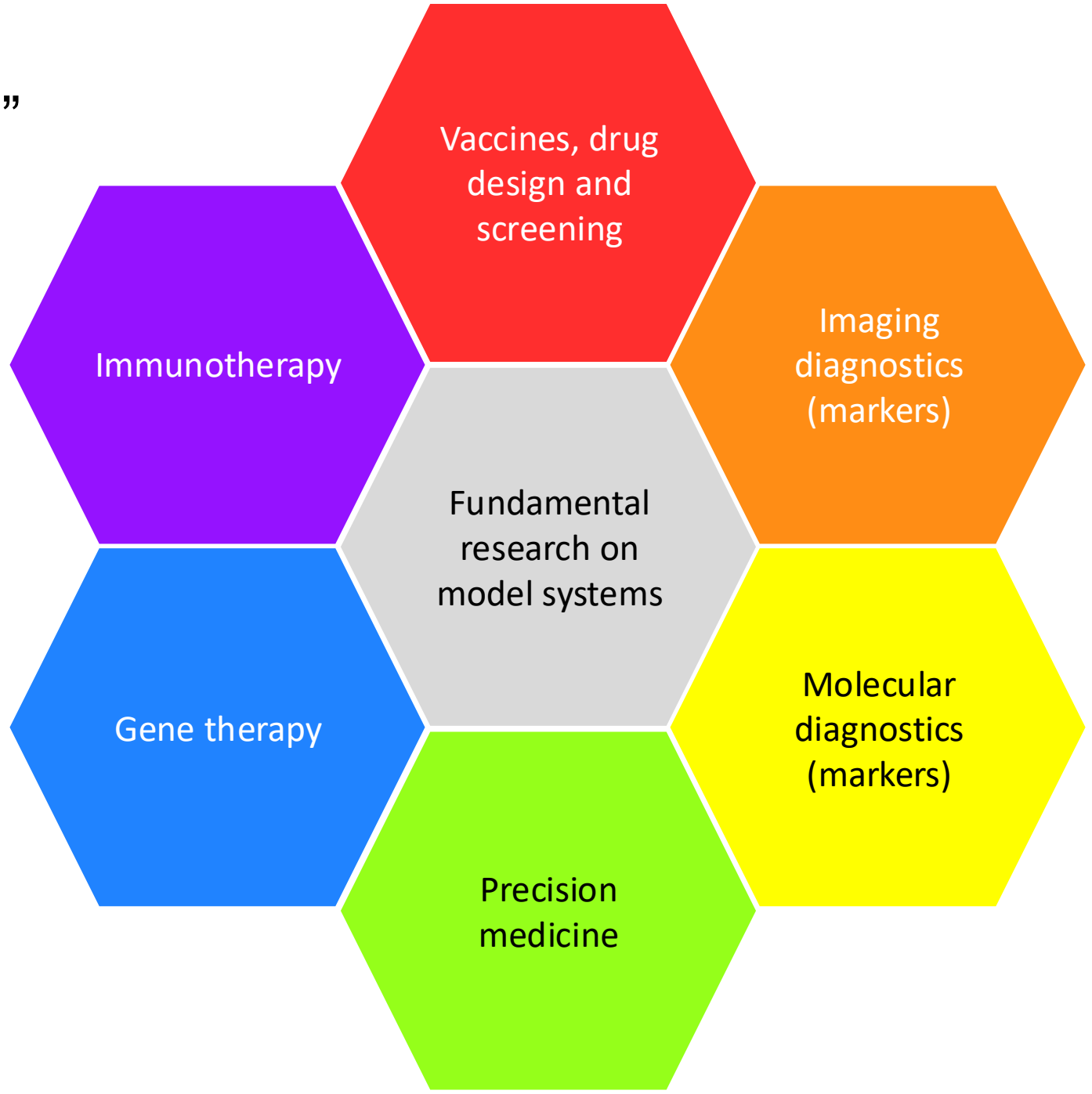
MASTERDAYS 2026

Alessandro Puoti

MASTER IN MOLECULAR LIFE AND HEALTH SCIENCES

DEPARTMENT OF BIOLOGY
UNIVERSITY OF FRIBOURG

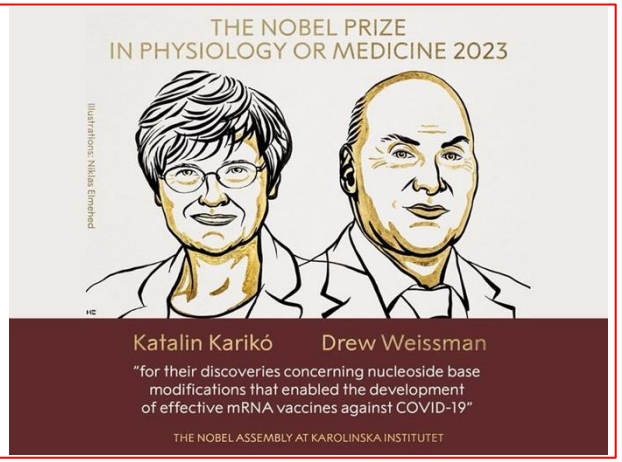
“Basic research underpins medicine”



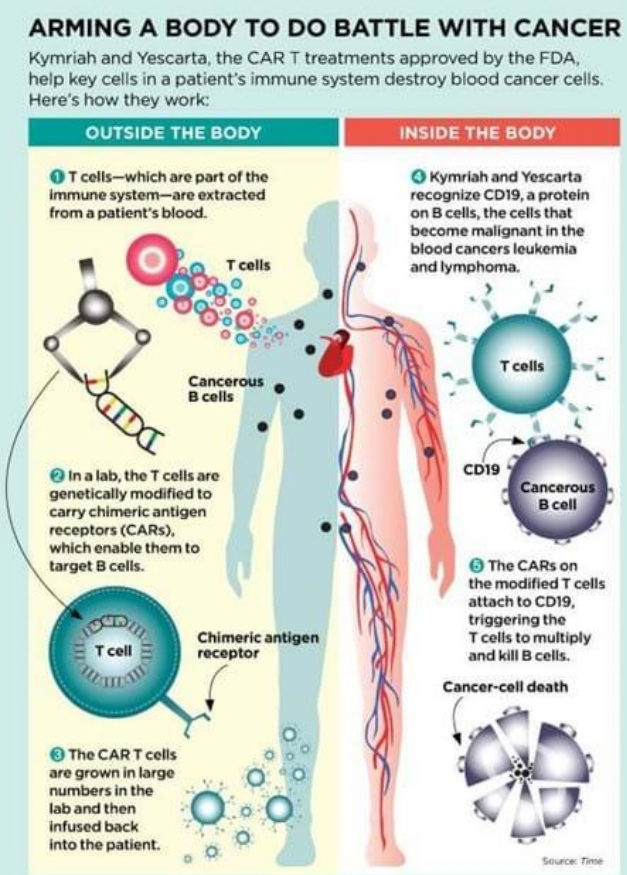
“Understanding molecular mechanisms in health and disease”

Modern Life Technologies: There is an urgent need of competent people to carry out basic and applied research, but also to evaluate the benefits and potential dangers.

November 2023



October 2018



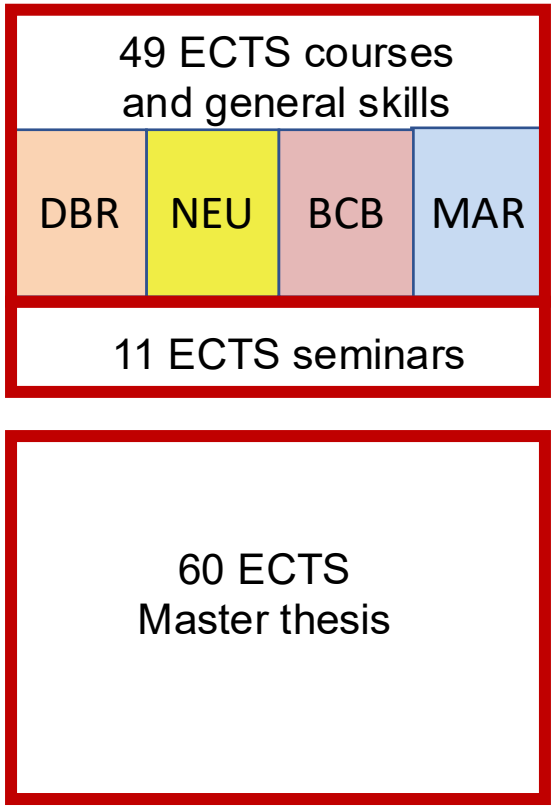
February 2019

La naissance de deux macaques relance le débat sur le clonage

Une équipe chinoise vient de cloner les tout premiers primates jamais obtenus grâce à la technique utilisée en 1996 pour la brebis Dolly. Le clonage humain n'a jamais été aussi proche. De quoi relancer un vaste débat scientifique, médical et éthique

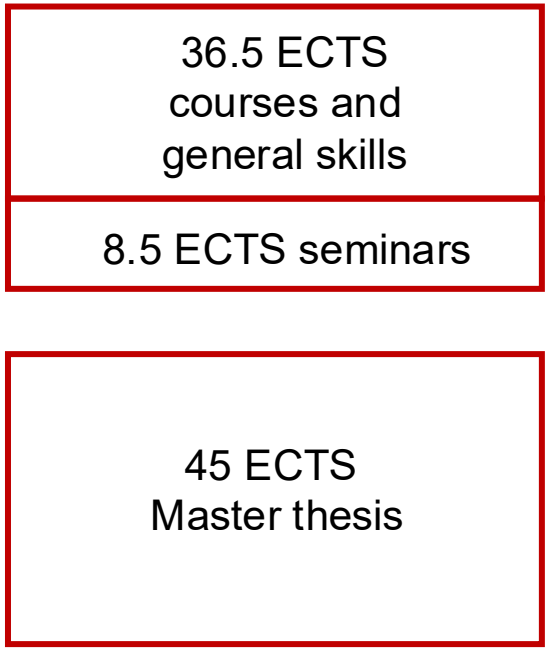
MSc in Molecular Life and Health Sciences: 5 study programs

120 ECTS
4 options



DBR : Developmental Biology and Regeneration
NEU: Neurobiology
BCB: Biochemistry and Cell Biology
MAR: Marine Biology

90 ECTS
Option Teaching

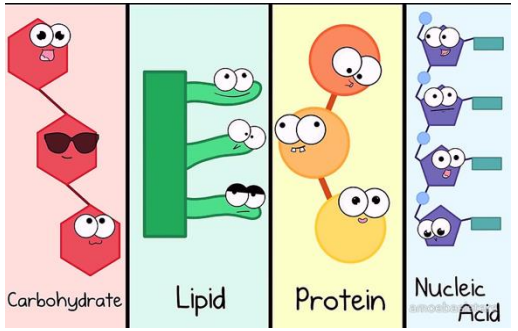


Have a look at the study plan:

https://www.unifr.ch/scimed/en/plans/master

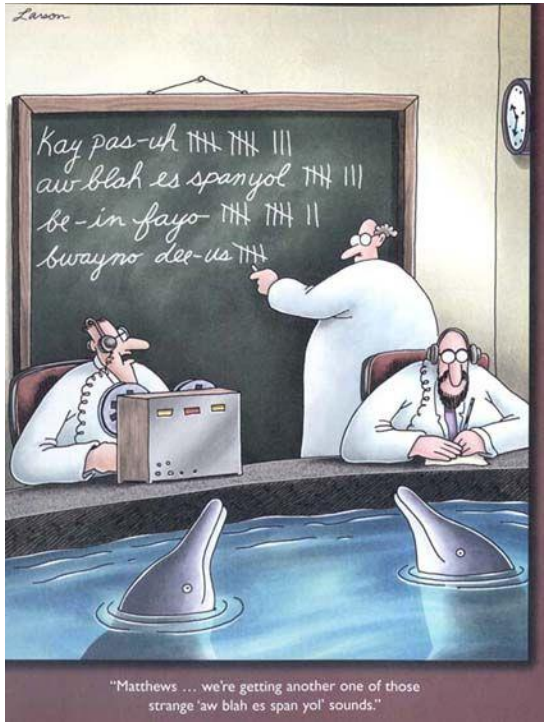
Ex-cathedra lectures (some examples)

Advanced courses to complement what you have learned during your bachelor's studies:



Biomolecules:

SBL.10011	Structure, function and diseases of lipid metabolism	(Spring, 1 ECTS)
SBL.00453	Protein homeostasis	(Fall, 1 ECTS)
SBL.00115	The RNA World	(Fall, 1.5 ECTS)



Neurobiology:

SBL.00117	Neurogenetics	(Fall, 3 ECTS)
SBL.00428	Optogenetics and photopharmacology	(Spring, 1 ECTS)

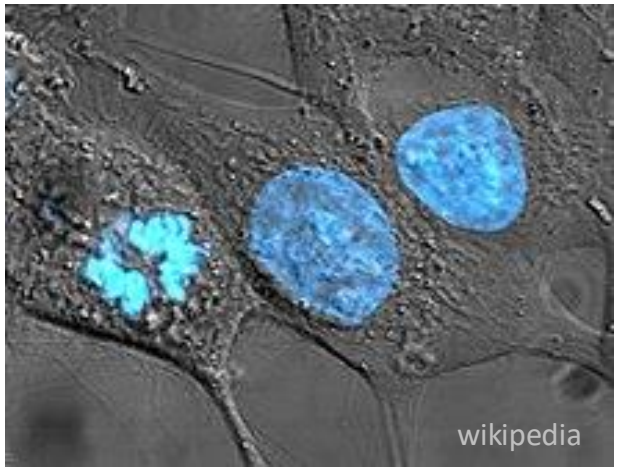
Developmental biology:

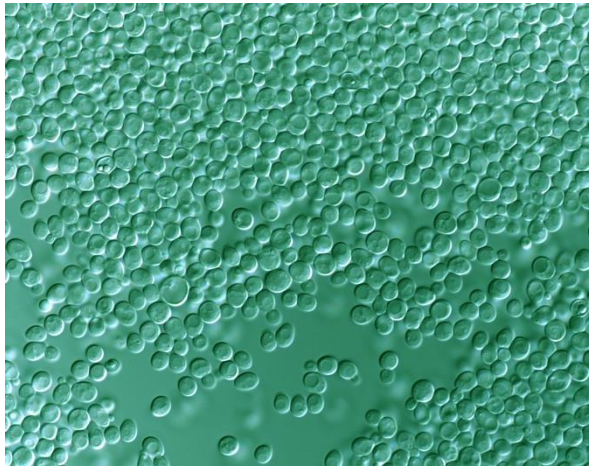
SBL.00119	Molecular genetics of model organism development	(Fall, 3 ECTS)
SBL.00429	Animal models of regeneration	(Spring, 2 ECTS)

Marine biology:

SBL.10007	Polar biology	(Spring, 1 ECTS)
SBL.10008	Omics approaches in marine sciences	(Fall, 1 ECTS)
various	Workshops at different marine biological stations	4 – 6 ECTS

Health and disease-related courses





for example:

SBL.10001	Modeling human disease in experimental genetic systems	(Spring, 2 ECTS)
SBL.10002	From bench to bedside	(Spring, 0.5 ECTS)
SBL.10014	Cancer immunology	(Spring, 1 ECTS)
SBL.00414	Cell fate and tissue regeneration	(Fall, 1 ECTS)
SBL.10003	Health-related topics in developmental biology	(Spring, 2 ECTS)
SBL.10004	Ethics in stem cell research	(Spring, 1 ECTS)

“Soft skills”

SBL.00420	Career profiling in life sciences	1 ECTS
SBL.00129	BeFri Retreat in cell and developmental biology	1 ECTS
SBL.00127/8	BeFri Colloquia in cell and developmental biology	3 ECTS
SBL.10015	Breaking into the industry	1 ECTS

If you wish:	Mentoring of BSc students	(30 CHF / hour)

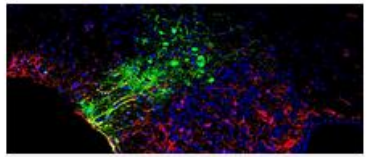
Research activities: homepages of our laboratories

UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

Department of Biology

Home | News & Events | Department | Studies | Research | Services

- Biochemistry
- Bioinformatics
- Ecology and Evolution
- Neuro and Developmental Biology
- Plant and Microbial Biology
- Genetics
- Proteomic
- Conservation Biology
- Animal Behaviour
- Regenerative Biology
- Biological control and Invasions
- Alumni Professors & Group Leaders



Urs Albrecht

Circadian Rhythms in Mammals

Pierre-Marie Allard

COMMONS (COmputational Mass spectroMetry & Open Natural products reSearch) Lab

Thomas Auer

Evolution of chemosensory-guided behaviors

Sven Bacher

Applied Ecology - biological invasions, biodiversity, and biological control

Louis-Félix Bersier

Community Ecology

Claudio De Virgilio

Nutrient Signal Transduction and Control of Quiescence in Yeast

Jörn Dengjel

Cell Recycling

Boris Egger

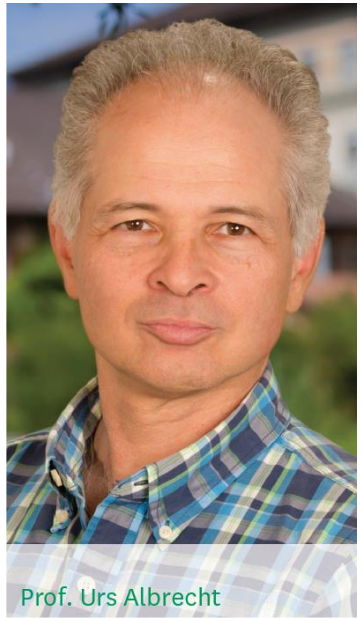
Controlling neural stem cell states

Laurent Falquet

Microbial Genomics

...

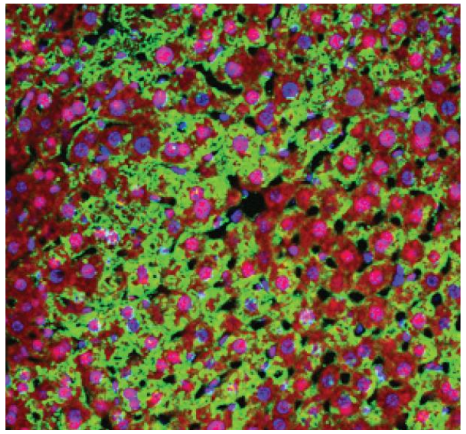
Option Biochemistry and Cell Biology

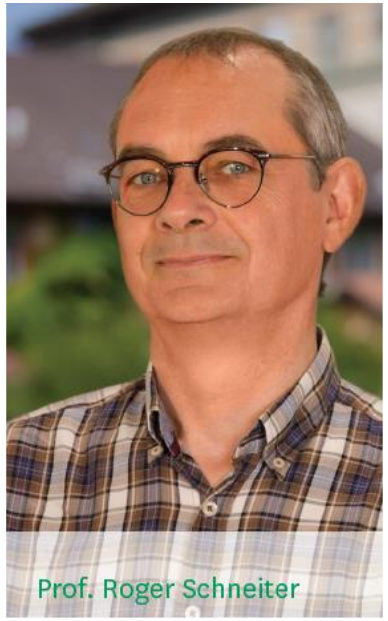


Prof. Urs Albrecht

Circadian clock and sleep

How is life influencing sleep and health

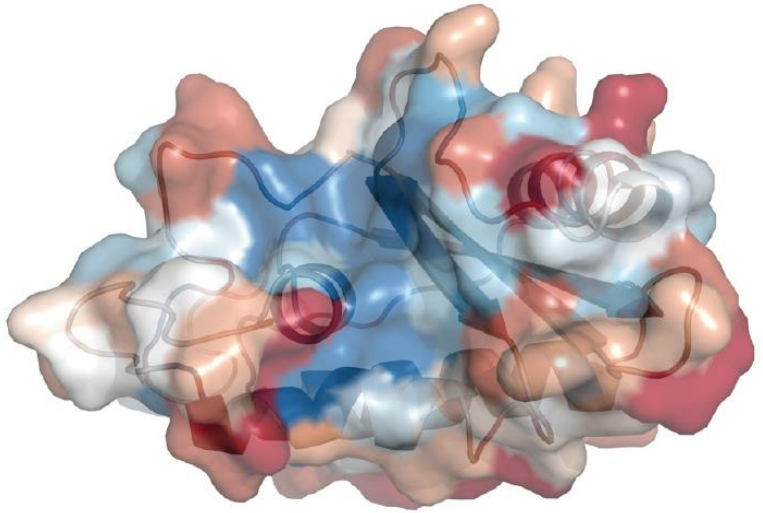




Prof. Roger Schneiter

Protect yourself - take a cap

What are CAP superfamily proteins exactly doing, apart from binding lipids ?

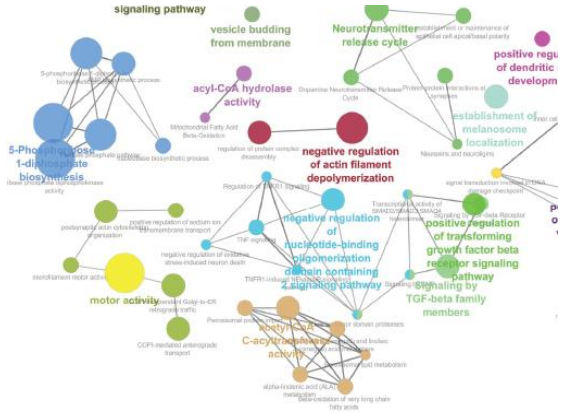


Option Biochemistry and Cell Biology

Prof. Joern Dengjel

Cellular Recycling

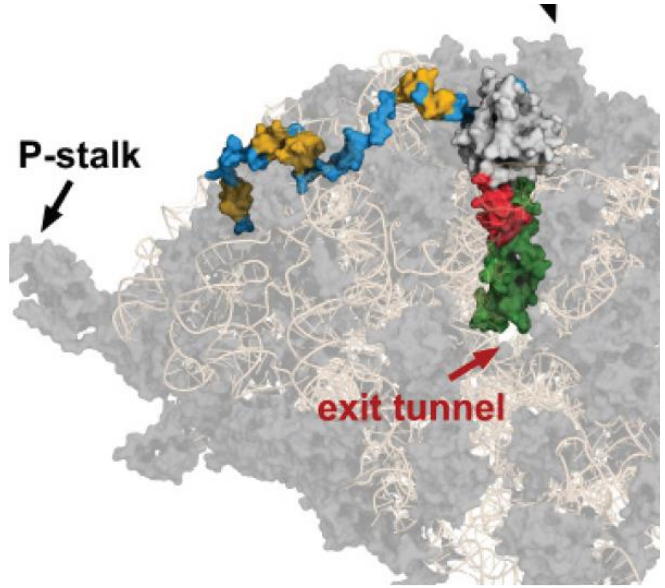
How does a cell decide what to degrade when and where?



Prof. Dieter Kressler

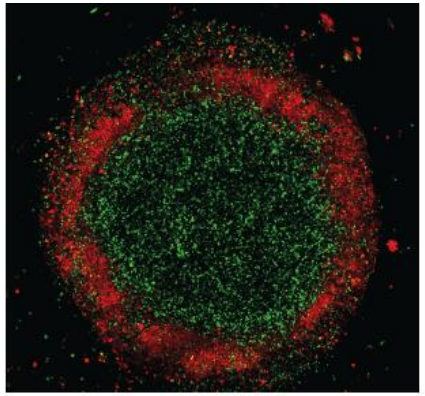
Ribosome Origami

Piecing together the puzzle of life: priming ribosomal proteins for assembly



Nutrient and Cell Proliferation

Rag-time for baker's yeast



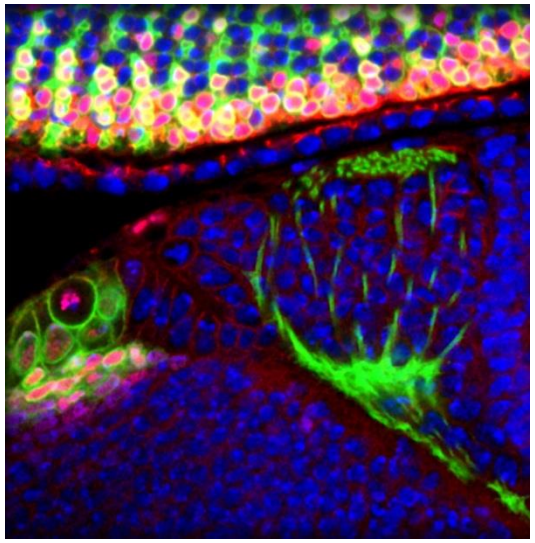
Prof. Claudio De Virgilio

Option Neurobiology

Neural stem cells and development

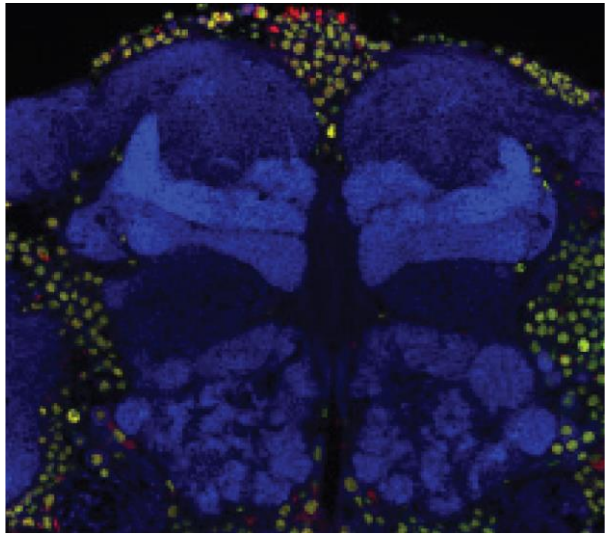
Building brains in flies

Dr Boris Egger



Neurogenetics and behaviour

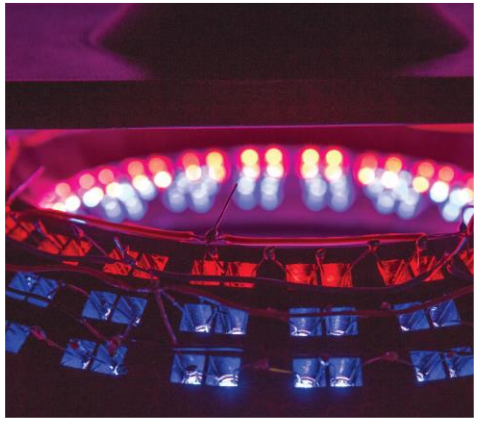
How the nervous system encodes the surrounding world



Prof. Simon Sprecher

Nociception and plasticity

A small worm teaching us how to shut off pain signal



Prof. Dominique Glauser

Evolution of chemosensory-guided behaviours

Why flies love stinky fruits

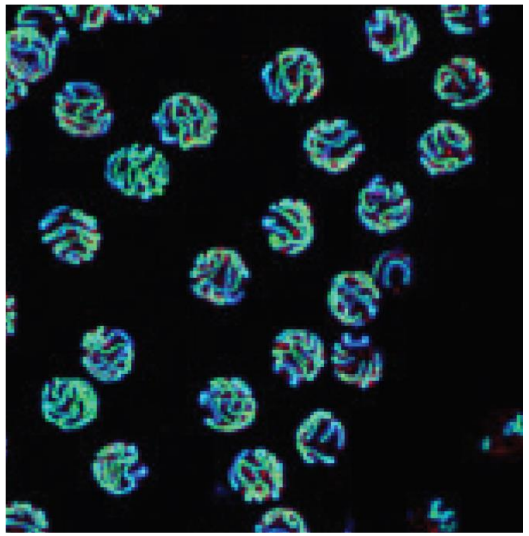
Prof. Thomas Auer

Option Developmental Biology and Regeneration

Prof. Chantal Wicky

Chromatin and development

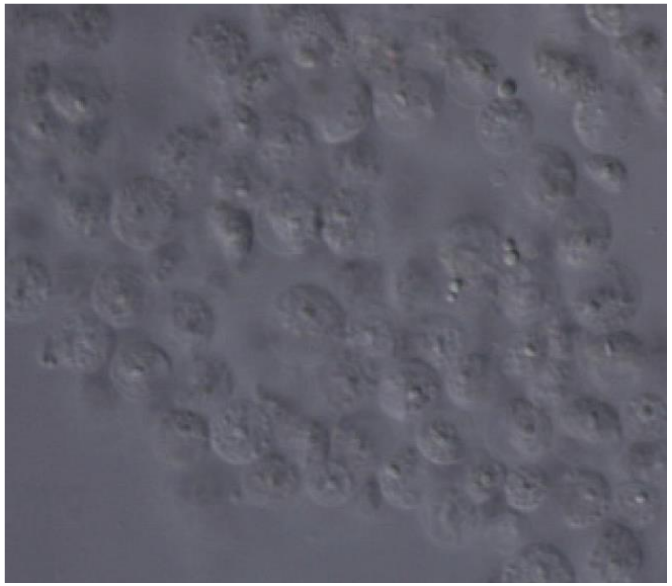
Packaging matters

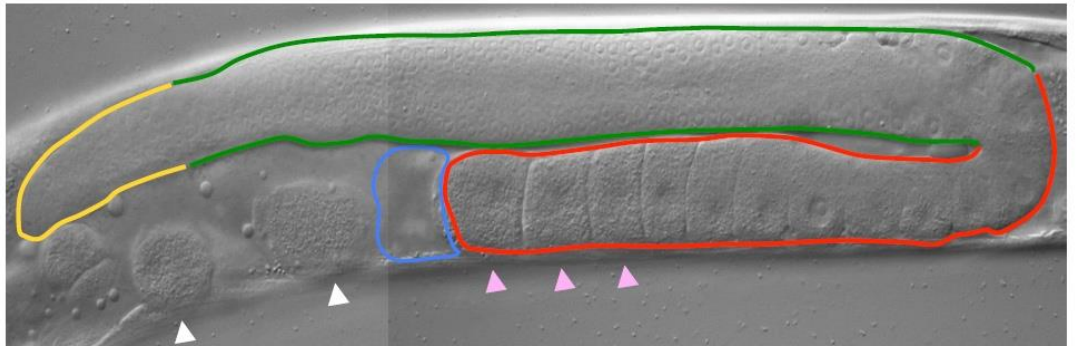


RNA Biology and Development

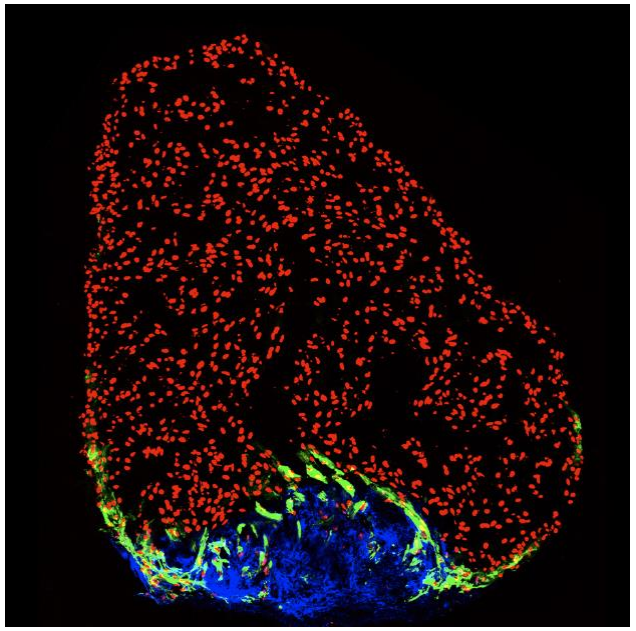
How do germ cells choose their destiny?

Prof. Alessandro Puoti





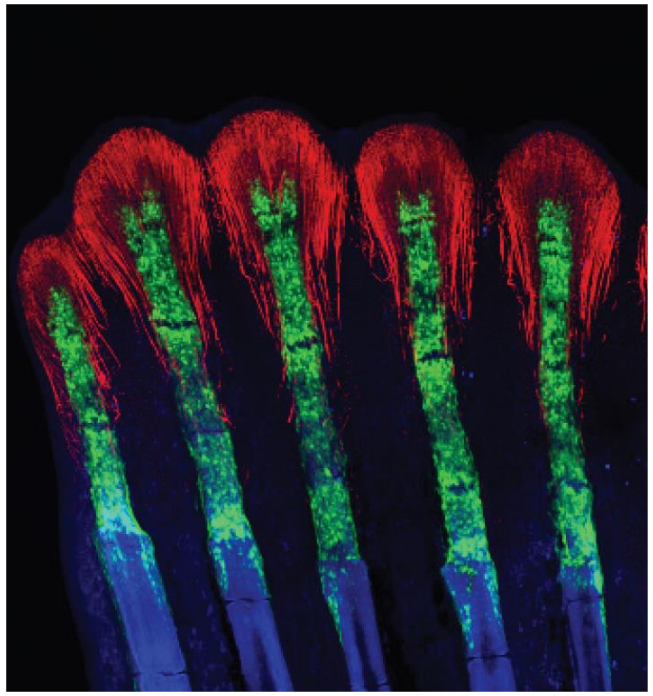
Option Developmental Biology and Regeneration



Prof. Anna Jazwinska

Organ regeneration

Zebrafish repair their broken hearts and regrow amputated appendages

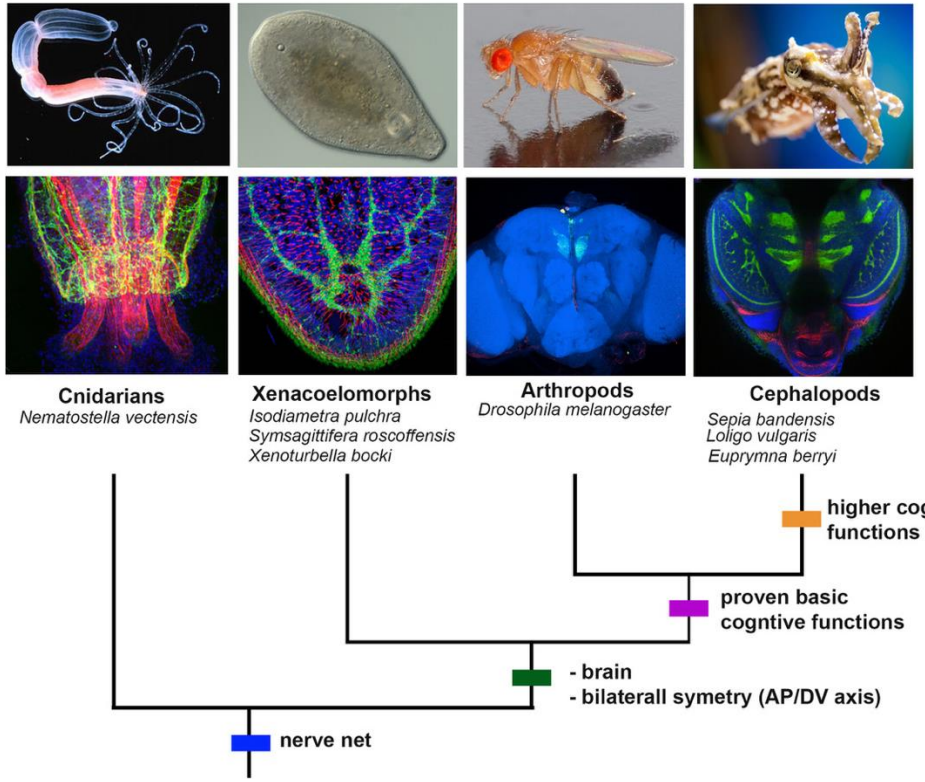


Option Marine Biology

Prof. Simon Sprecher

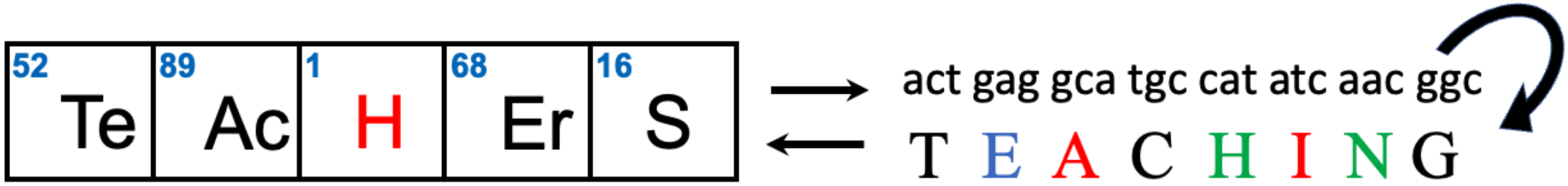
Neurogenetics and behaviour

How the nervous system encodes the surrounding world



Option Teaching

90 ECTS : 19 ECTS of mandatory courses taken from the four research options
17.5 ECTS of recommended and elective courses (both MLHS and EB Masters, BeNeFri network)
8.5 ECTS of seminars
45 ECTS Master thesis (same choice of departmental research groups as for the 120 ECTS options)



• This option grants access to the higher education for secondary level II (DEEM / LDM) with the teaching domain “Biology” (Domain 1 or Mono).

• We ask students taking this 90-ECTS option to complete their Master studies with additional 30 ECTS of their second teaching domain, but this is not mandatory.

• Students who plan to teach only biology (Mono) can take one of the 120-ECTS research options.

• The 120-ECTS options are also accessible to students with 2 teaching domains.

Why a Master at the University of Fribourg?

- **Programs fully taught in English**
- **Highly personalized supervision**
- **State-of-the-art infrastructure**
- **Wide choice of courses among our programs**
- **Our goal: make you grow!**