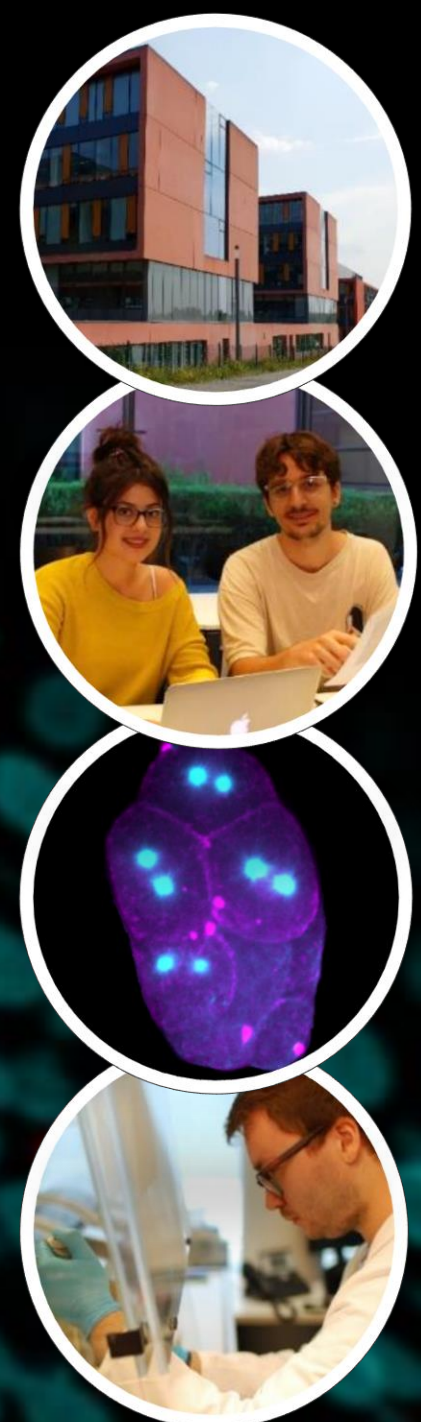


Master of Science in
Physical Biology of Cells and Cell Interactions

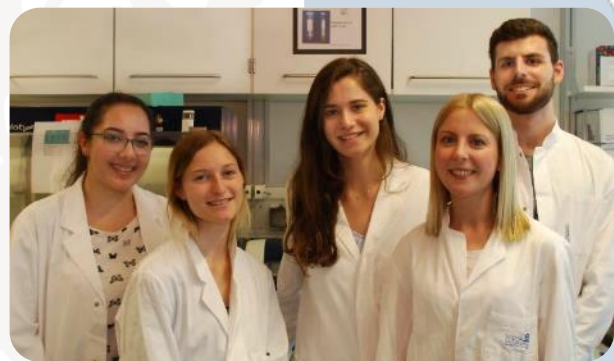
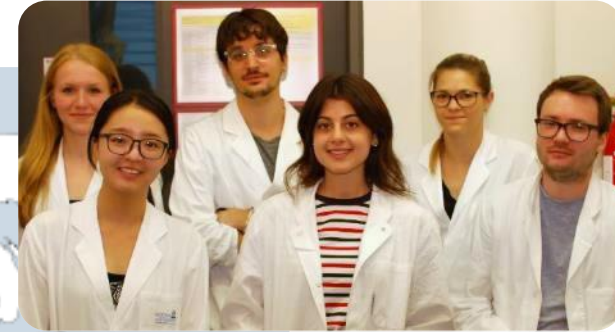
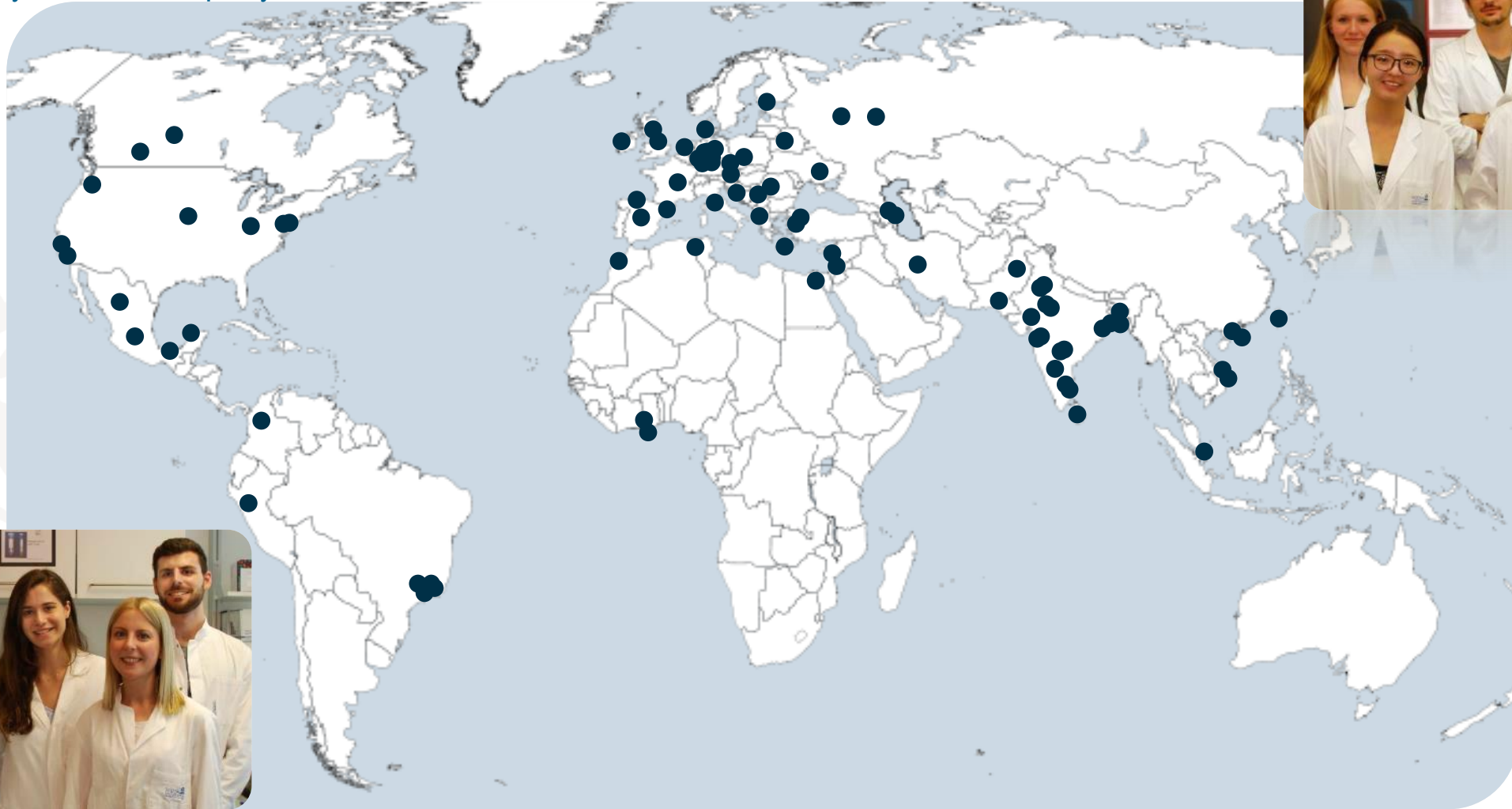
PBioC



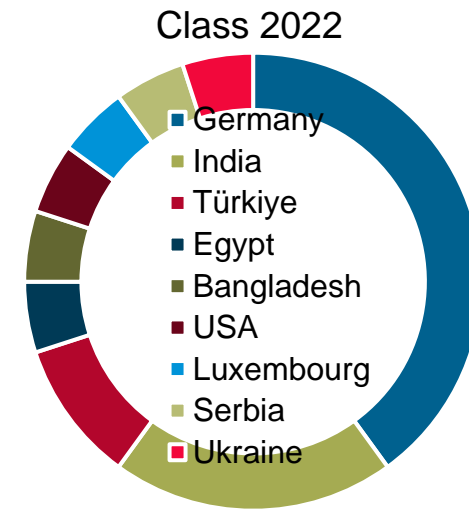
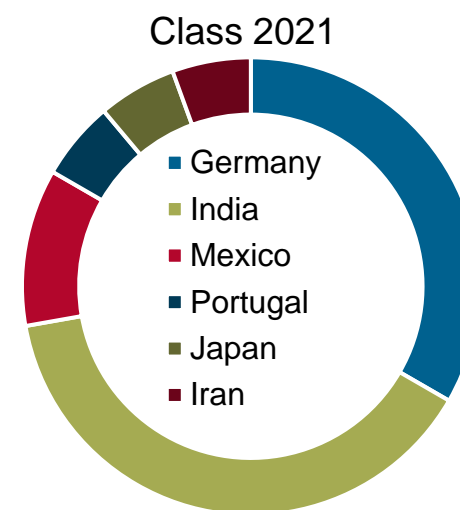
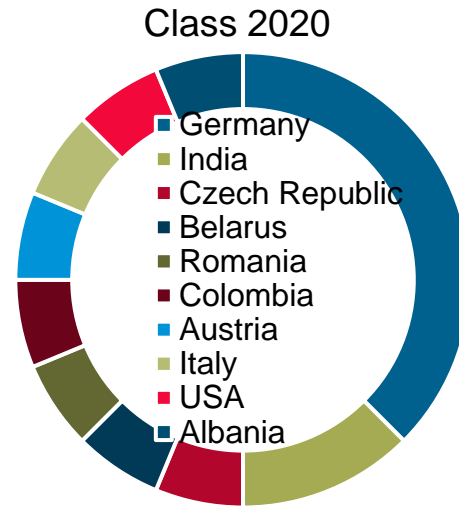
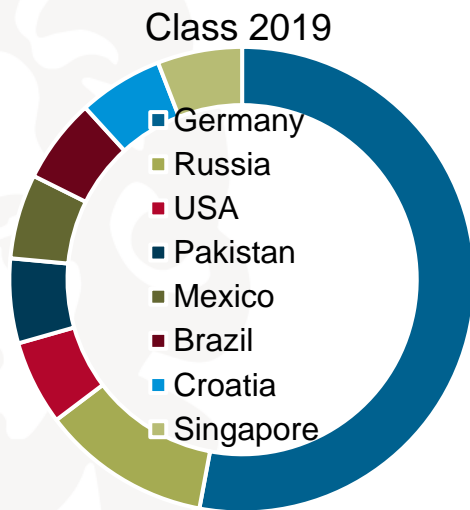
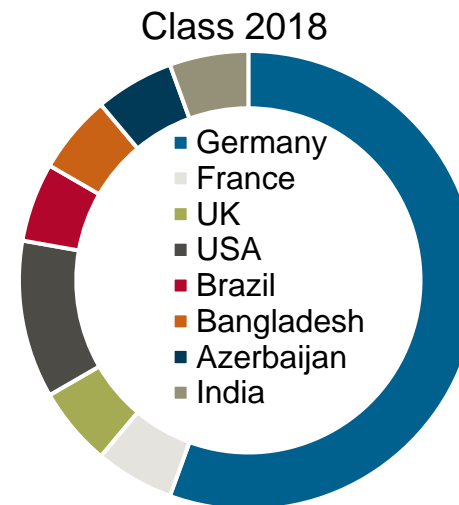
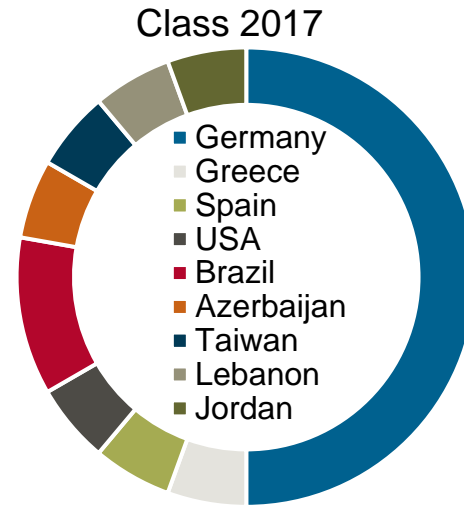
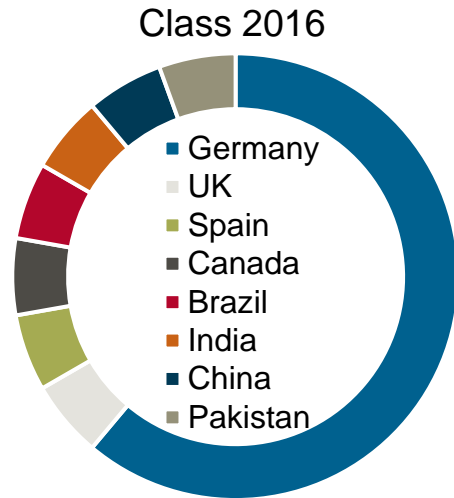
PBioC - international Master program



Only 18 students per year



PBioC - international Master program

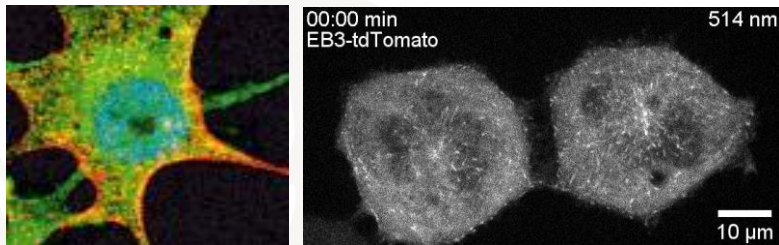


Students from Goethe-University Frankfurt: ~40%

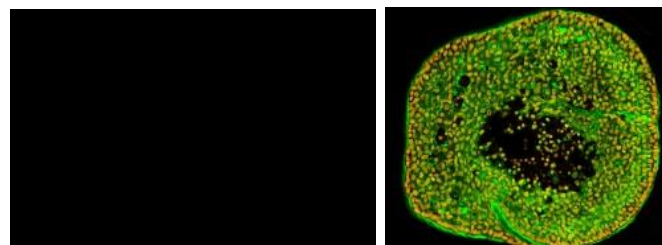
PBioC - general information

- **International** Master course (18 students)
- **English** as language of instruction
- **Research-oriented** and **interdisciplinary** education.
- The Master program consists of **six compulsory** and **three elective** modules.
- The standard **duration of study** for the Master PBioC is **four semesters** (= two years).
- **Practical experience in 3 lab rotation modules** with focus on multiple scientific fields:

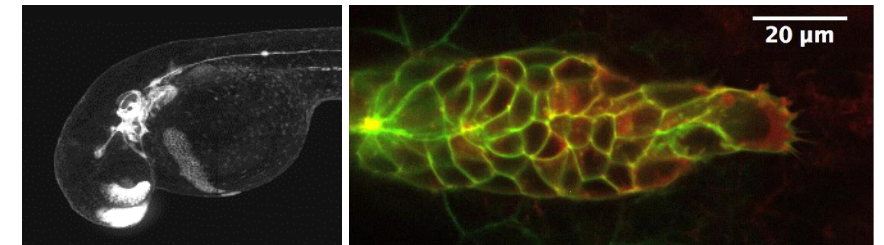
Cell Biology



Physical Biology



Developmental Biology



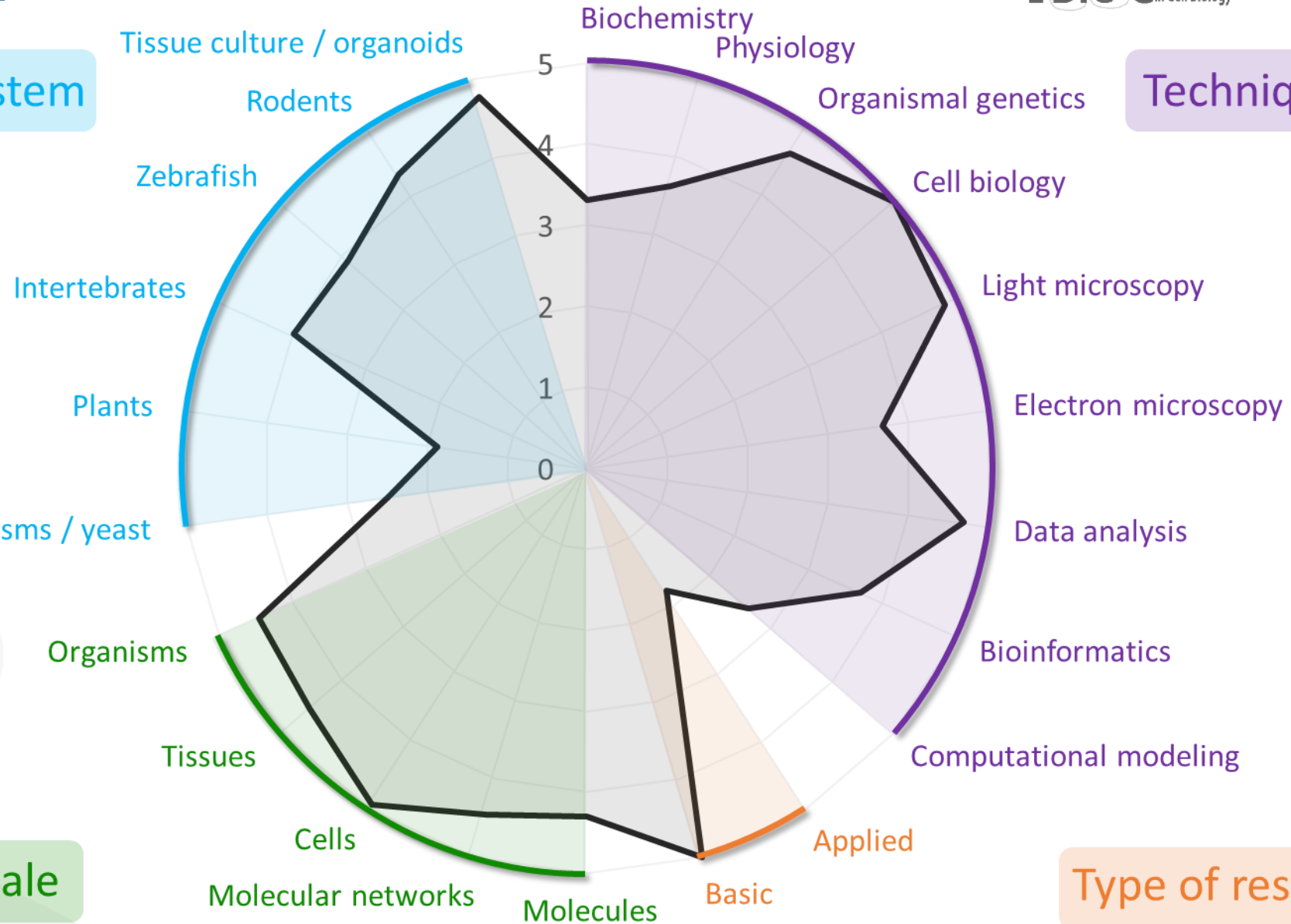
PBioC - profile

Model system

Techniques

Scale

Type of research



PBioC - study schedule *since enrollment in 2023*

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4
<p>basic methods in cell biology (M 1 14 CP)</p> <p>patent right good sci. practice FELASA B molecular cloning cell culture western blot model systems light microscopy data analysis statistics TEM/SEM bioinformatics</p>	<p>advanced cell biology II (M 3 7 CP)</p> <p>lectures, literature seminars, colloquia</p>	<p>current concepts in cell biology (M 4 5 CP)</p> <p>seminar work on the theoretical principles of research conception</p>	<p>master thesis (30 CP)</p> <p>six months working on an own research project</p>
<p>advanced cell biology I (M 2 6 CP)</p> <p>lectures, literature seminars, colloquia</p>	<p>lab rotation II (EM 2 11 CP)</p> <p>research group internship (4 – 8 weeks)</p>	<p>molecular mechanisms of disease (M 5 5 CP)</p> <p>disease mechanisms (neurodegeneration, cancer, diabetes, immunology)</p>	
<p>lab rotation I (EM 1 11 CP)</p> <p>research group internship (4 – 8 weeks)</p>	<p>lab rotation III (EM 3 11 CP)</p> <p>research group internship (4 – 8 weeks)</p>	<p>scientific project management (M 6 7 CP)</p> <p>project work on the theoretical principles of research conception, funding of research</p>	
		<p>advanced methods in cell biology (M 7 10 CP)</p> <p>essential experimental techniques intended for the master project</p>	
		<p>personal development and soft skill training (O 1 3 CP)</p> <p>presentations skills, conflict management, scientific writing, career planning etc.</p>	

Practical training

Scientific background

soft skills and personality training

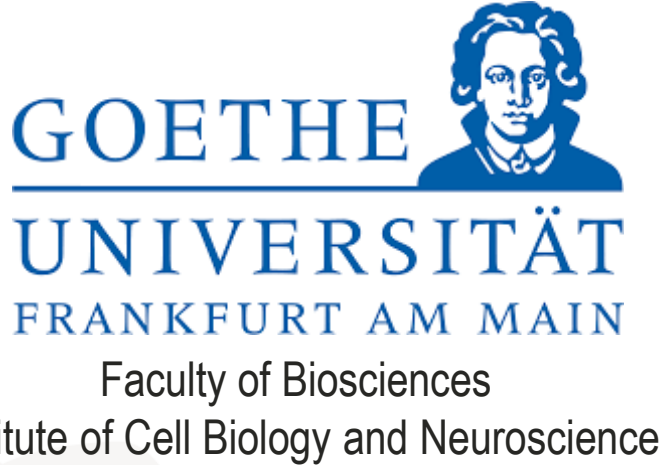
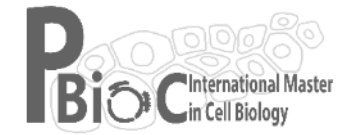
PBioC – lab rotations



- E3 Auditory function and dysfunction: behavior and physiology
- E4 Information processing in the central auditory system
- E5 Physiology and behavior
- E6 Three-dimensional cell cultures and three-dimensional microscopy
- E7 Three-dimensional developmental biology and three-dimensional microscopy
- E8 Plant cell biology
- E9 Function and evolution of metabolic pathways
- E10 Special aspects of immunology
- E11 Developmental genetics
- E12 Endothelial cells and tumor cell biology
- E13 Developmental cell biology
- E14 Cellular RNA biology
- E15 Neuronal basis of acoustic communication in mammals
- E16 Cellular, molecular and systemic neurobiology in mouse and zebrafish
- E17 Data analysis, mathematical modeling and simulation
- E18 Understanding the molecular mechanisms leading to Parkinson's disease
- E19 Cellular and molecular mechanisms in neurovascular disorders
- E20 Molecular psychiatry
- E21 Cardiovascular development
- E22 Biology of extracellular vesicles
- E23 Investigating molecular genetics of neuropsychiatry

- Gaese
- Gaese
- Grünewald
- Stelzer / Pampaloni
- Stelzer / Strobl
- Fragkostefanakis / Schleiff
- Ebersberger
- Waibler
- Stainier
- Strilic
- Lecaudey
- Müller-McNicoll
- Kössl / Hechavarria
- Acker-Palmer
- Matthäus
- Eimer
- Hefendehl
- Freudenberg
- Grote
- Momma
- Chiocchetti

PBioC - participating institutes



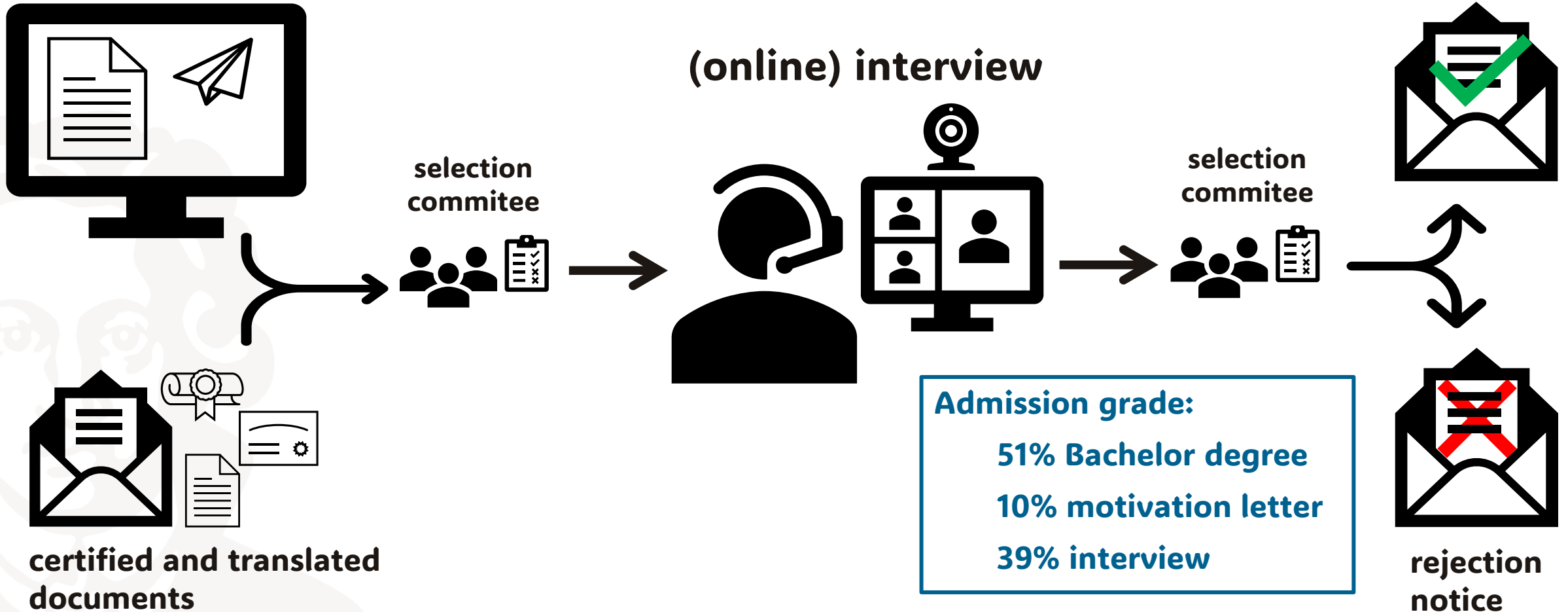
PBioC - application process

May 31th

June

Mid July

online application: 144 CP required



PBioC - application

51% Noten Bachelor in life sciences or related field
144 CP for application (online UniAssist)

10% Letter of motivation (max. 2 pages)

39% Interview

- **Proof of English language skills**

TOEFL or IELTS at least level B2

OR a thesis written in English

OR minimum one-year study or work stay abroad

*Application Deadline
May 31th 2024*

Co-financing of the faculty

The FB15 subsidizes the acquisition of English language certificates (such as TOEFL, IELTS, Cambridge Certificate) from QSL funds. Up to 80% of the examination fees can be refunded.

How does an interview look like?

Motivation

We'd like to get to know the prospective students and give them the chance to get to know us.

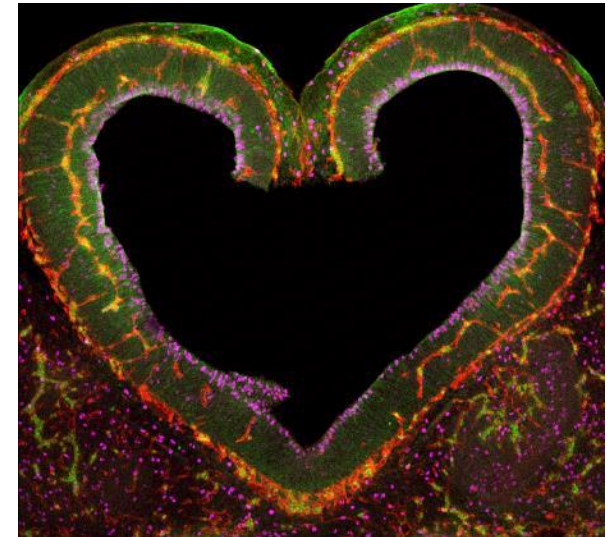
Ask questions and find out whether this program matches your interests!

Procedure

We ask for your motivation for the MSc PBioC.

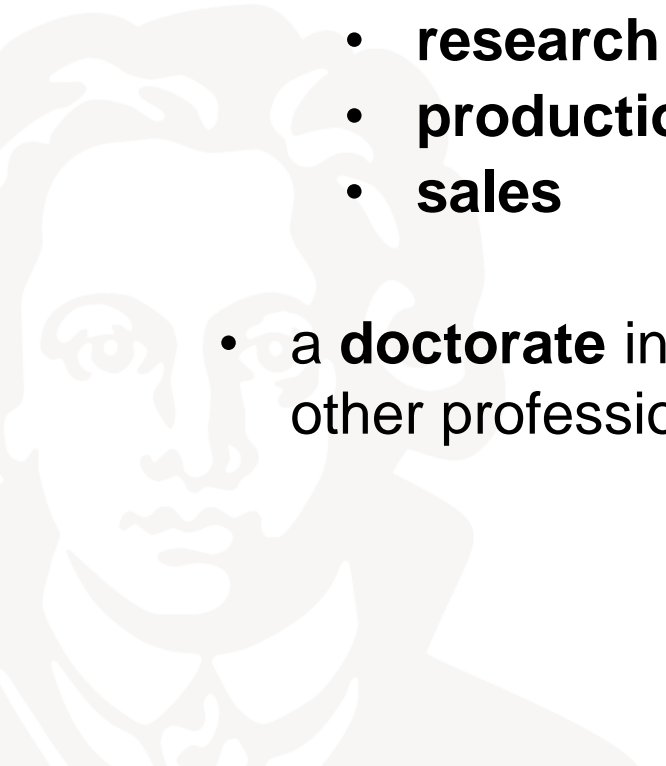
We want to know more about your academic background.

We want to know more about your knowledge in cell biology.



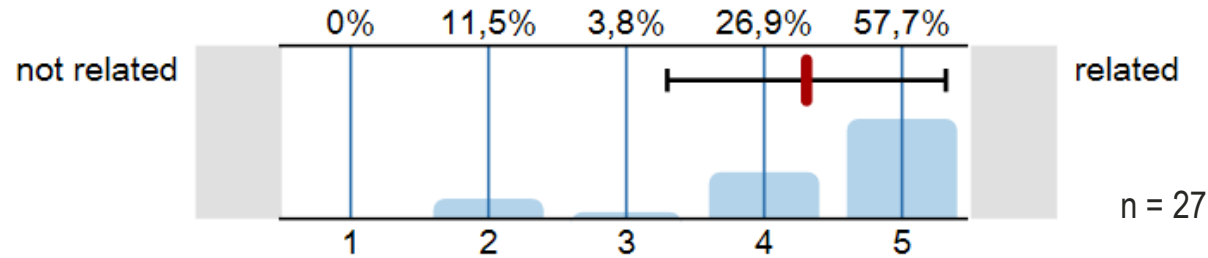
What comes after that? – Career opportunities

- **research and teaching at universities and research institutions**
- **research management**
- (self-)employment in **industry and business** (e.g. in the medical field or in the pharmaceutical industry)
 - **research and development**
 - **production**
 - **sales**
- a **doctorate** in biosciences qualifies for a scientific career as well as for many other professional fields outside of research.

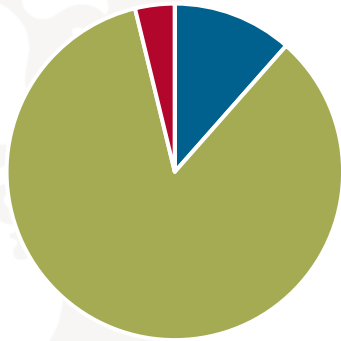


What alumni say ...

Is your current employment related to the field of your PBioC study?

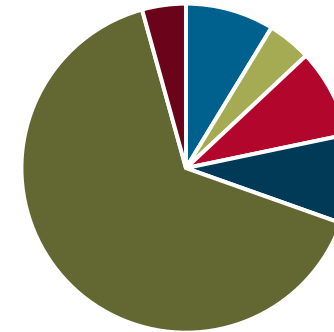


In what sector are you employed?



- For-profit organization
- Government or public institution
- NGO
- Self-employed in own business

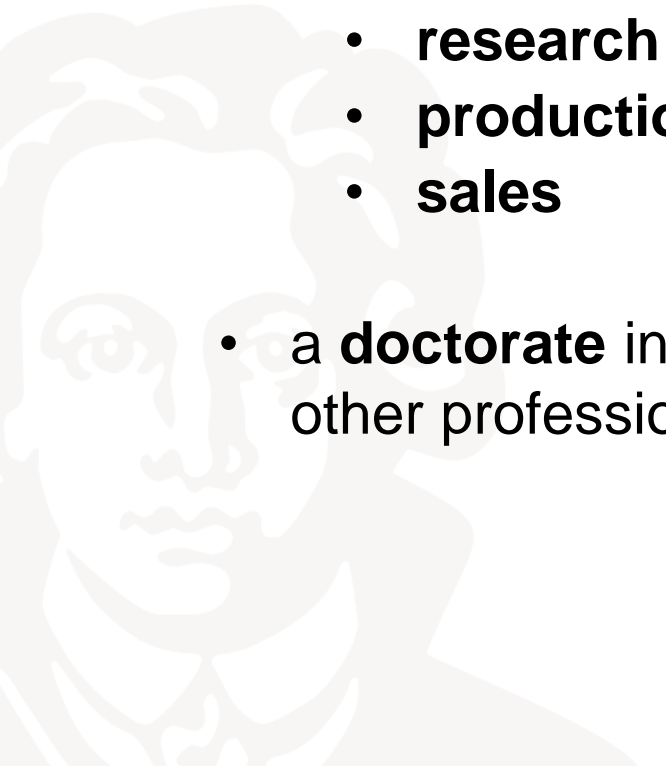
Which of the following describes your employer best?



- Biotech/Pharmaceutical
- Education: higher education
- Science
- Computer science/Technology/Information Technology
- Medicine
- Other

What comes after that? – Career opportunities

- **research and teaching at universities and research institutions**
- **research management**
- (self-)employment in **industry** and **business** (e.g. in the medical field or in the pharmaceutical industry)
 - **research and development**
 - **production**
 - **sales**
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PBioC - contact

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www.goethe.link/msc-pbioc

FAQs

- How many places are available and how many applications arrive per year?
- Should my Bachelor thesis already focus on cell/neuro/developmental biology to increase my chances for admission?
- Do I have to finish my BSc studies before I apply to the programme?
- I am afraid my English language skills are not good enough. What can I do?

PBioC – topics for the Master thesis

„The role of the ets3 transcription factor, during zebrafish heart development“
(Prof. Stainier) **heart development**

“Inflammation associated extracellular vesicles promote tumor initiation from neural stem cells”
(Dr. Momma) **cancer**

“The effects of chemotherapy in human liver organoids”
(Dr. Pampaloni) **cancer**

“The role of IL-36 gamma in Rift Valley Fever Virus-mediated live injury”
(Dr. Waibler) **immunology**

“*In vivo* analysis of Hippo signaling pathway during cell migration and organ formation in the zebrafish lateral line primordium - the role of VgU4b and VgU4l”
(Prof. Lecaudey) **organ development**

“Quantitative morphogenetic characterization of blastoderm formation in *Tribolium castaneum*”
(Prof. Stelzer) **embryo development**

**Parkinson's disease, Alzheimer's disease, Stroke, Schizophrenia,
Behaviour, Modelling, Protein-Interaction-Networks
... and many more**