

DFG-Graduiertenkolleg GRK2599

Fine-Tuners of Adaptive Immune Responses

Friedrich-Alexander-Universität
Erlangen-Nürnberg



Promotion für Medizinstudenten

DFG

Deutsche
Forschungsgemeinschaft

Bewerbung:	ab 1. Oktober 2022
Frist:	15. 12. 2022
Interview:	Ende Jan. 2023
Beginn:	25. September 2022

Research Training Group 2599

FAIR – Fine-Tuners of the Adaptive Immune Response



Concept

Hans-Martin Jäck



Universitätsklinikum
Erlangen



FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

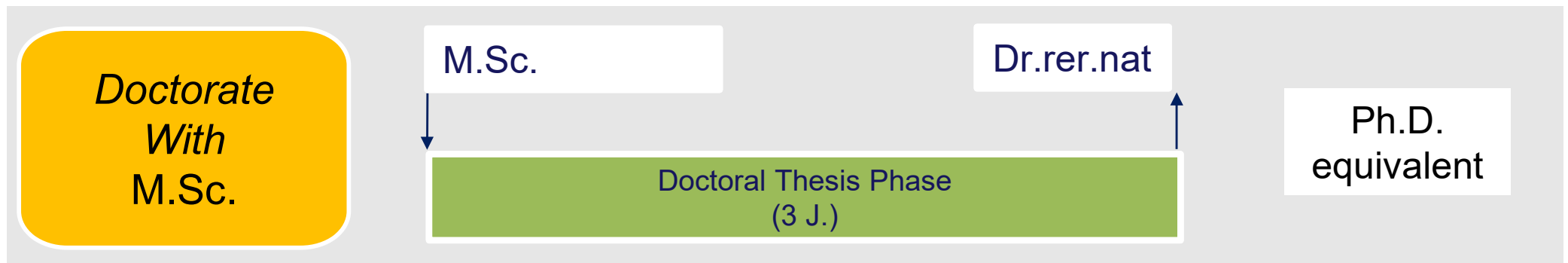


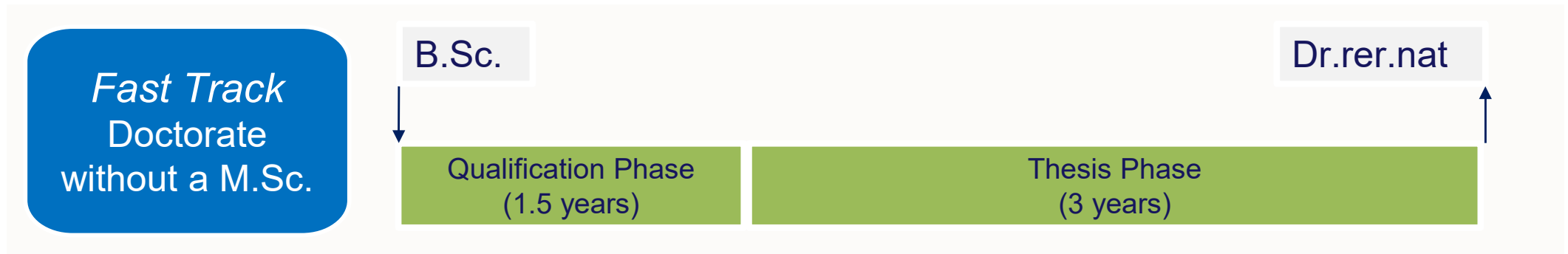
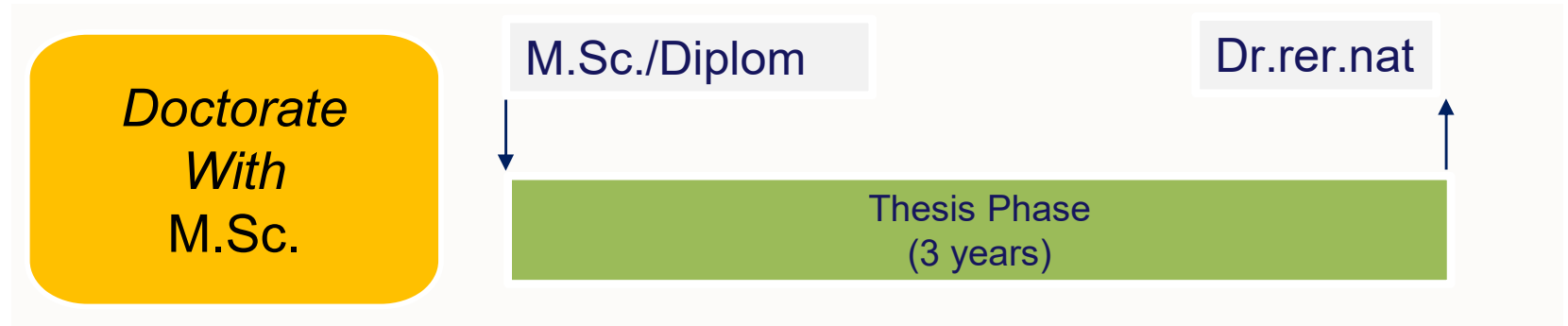
Deutsche
Forschungsgemeinschaft

Doctoral Training Program

Research Training Group = RTG
Graduiertenkolleg = GRK

- Research
- Training
- Mentoring



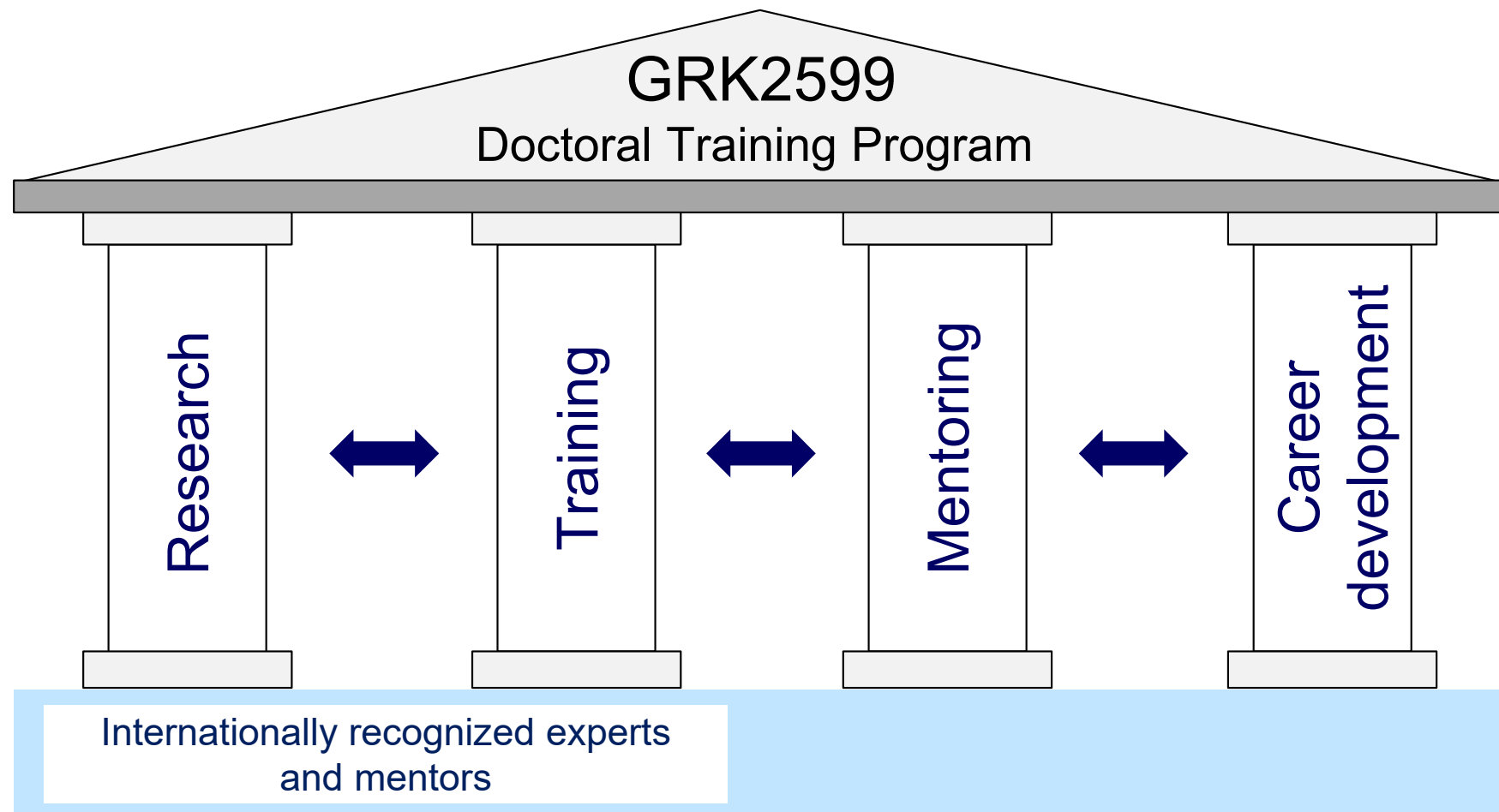


Identify new regulators
and fine-tuners of the
adaptive immune
response

Train skilled &
competitive
immunologists

Motivate graduates to
further pursue
academic research

Train physicians who
can translate laboratory
discovery into effective
treatments





3

Genetics



3

Medicine 3

Rheumatology and Immunology

1

Dermatology

2

Medicine 1

Gastroenterology, Pneumology & Endocrinology

1

Microbiology

Clinical Microbiology, Immunology & Hygiene

1

Radiation Oncology

1

Infection Biology

2

Molecular Immunology

1

Immune Modulation

1. Dudziak, Diana
2. Gaipf, Udo
3. Jäck, Hans-Martin
4. Krönke, Gerhard
5. Lang, Roland
6. Mielenz, Dirk
7. Nitschke, Lars
8. Steinkasserer, Alexander
9. Vöhringer, David
10. Winkler, Thomas
11. Wirtz, Stefan
12. Hildner, Kai
13. Bozec, Aline
14. Steffen, Ulrike
15. Lux, Anja

■ 15 Researchers

- ✓ *3 from the Depart. of Biology*
- ✓ *12 from 8 clinics and institutes at the university hospital*

■ Selection Criteria

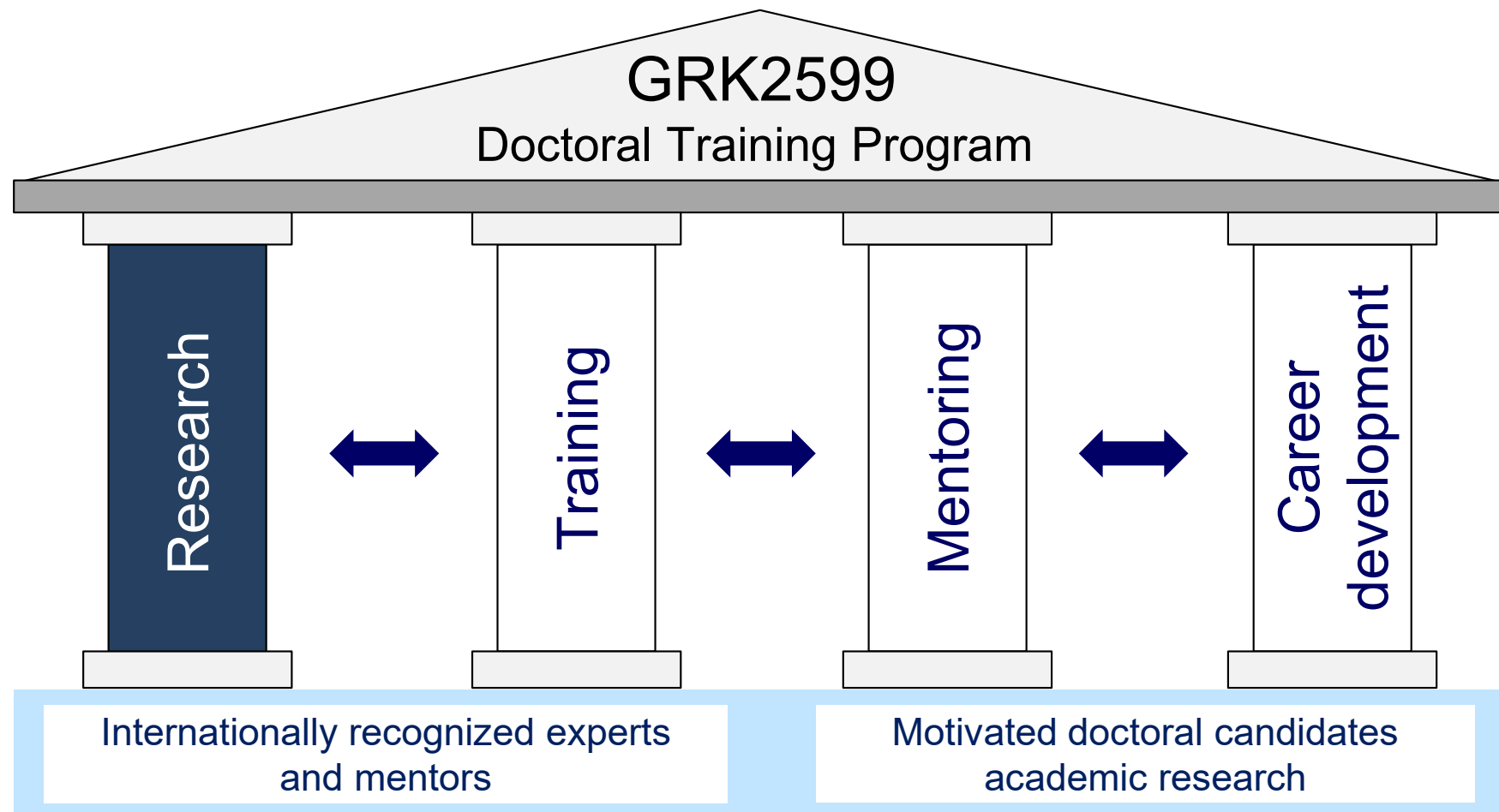
- ✓ *Fine-tuners of adaptive immunity*
- ✓ *Publications*
- ✓ *Extramural funding*
- ✓ *Teaching experience*

Identify new regulators
and fine-tuners of the
adaptive immune
response

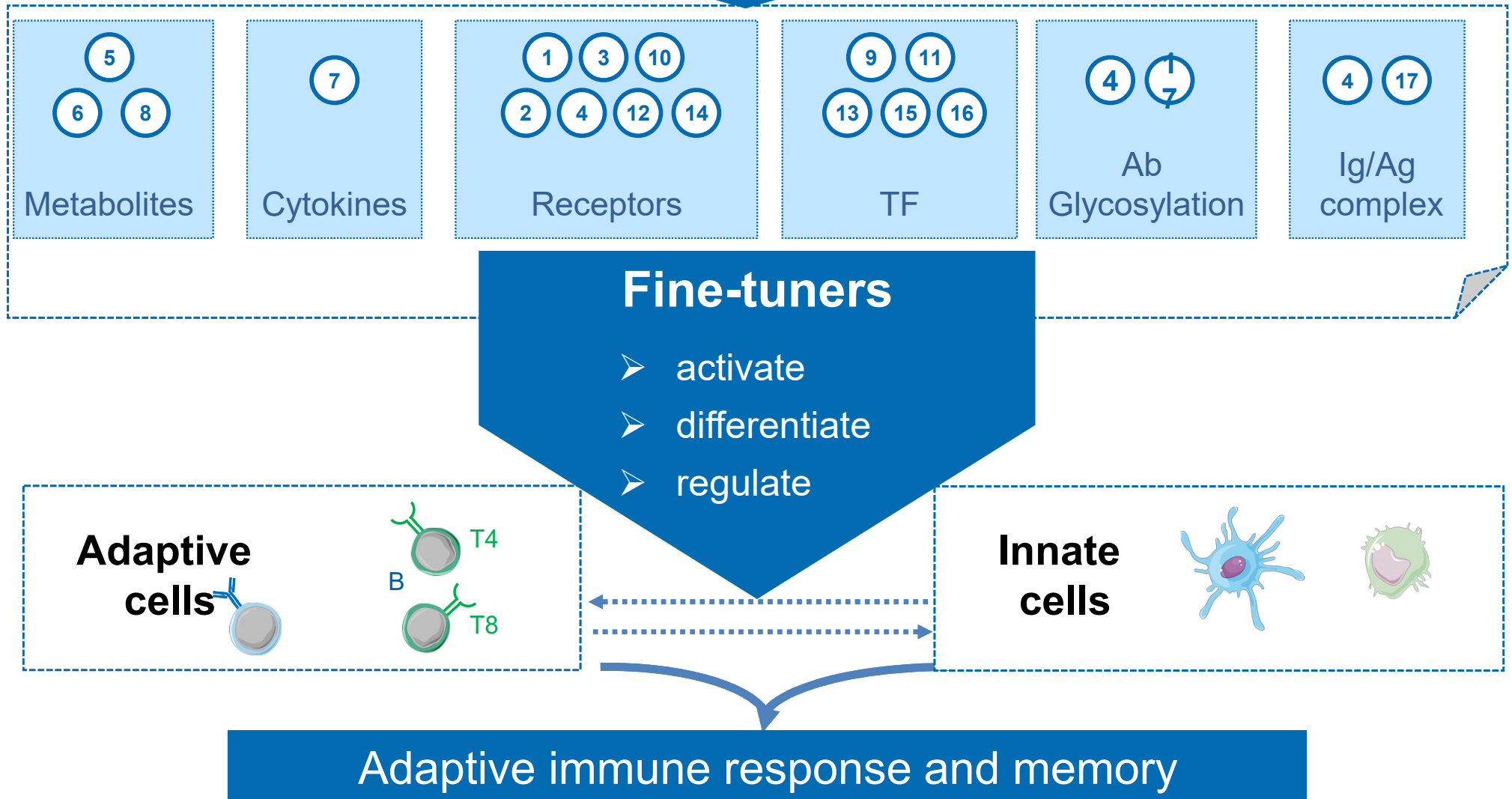
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16 hypothesis-driven thesis projects that address the role of factors

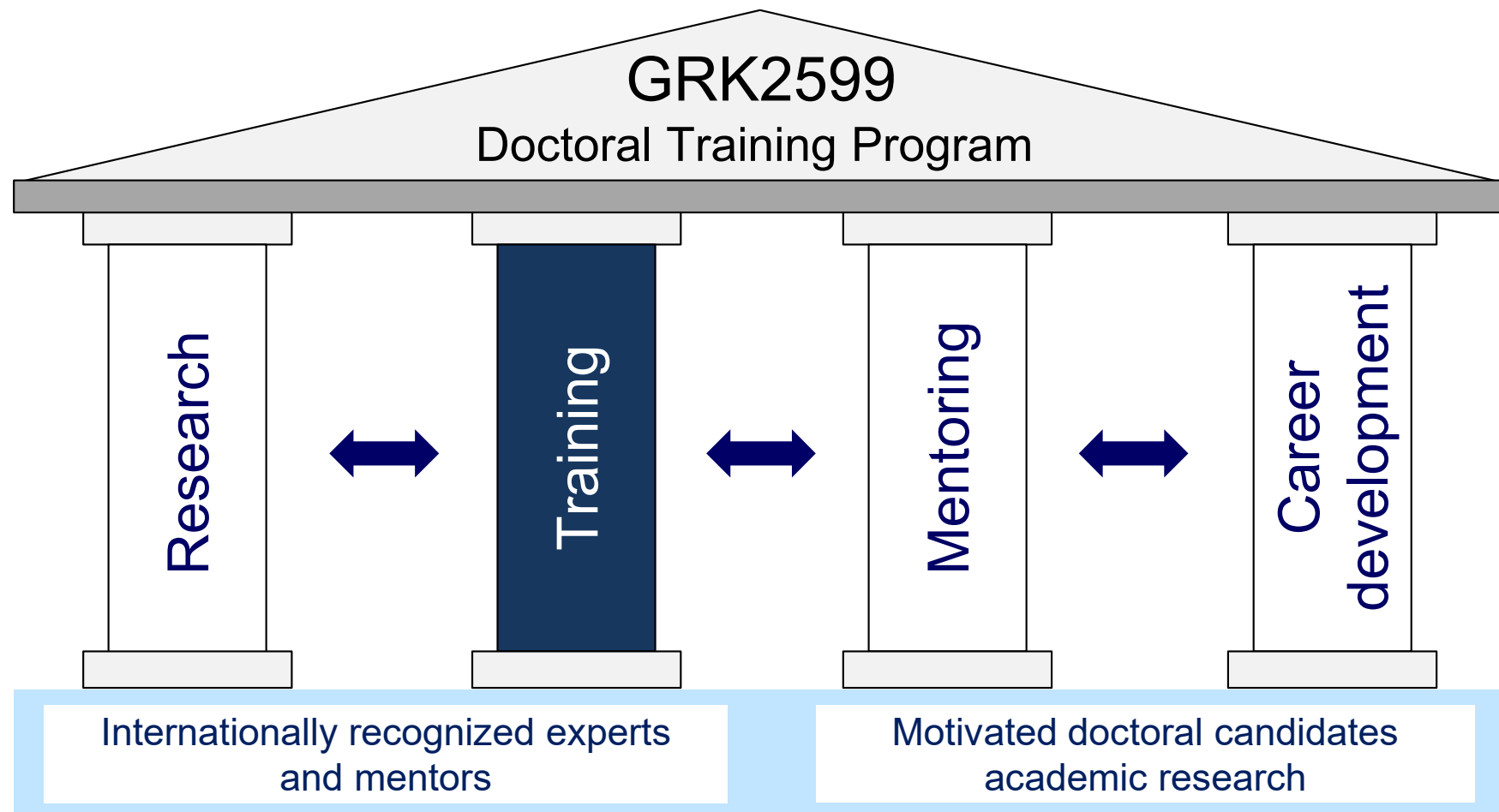


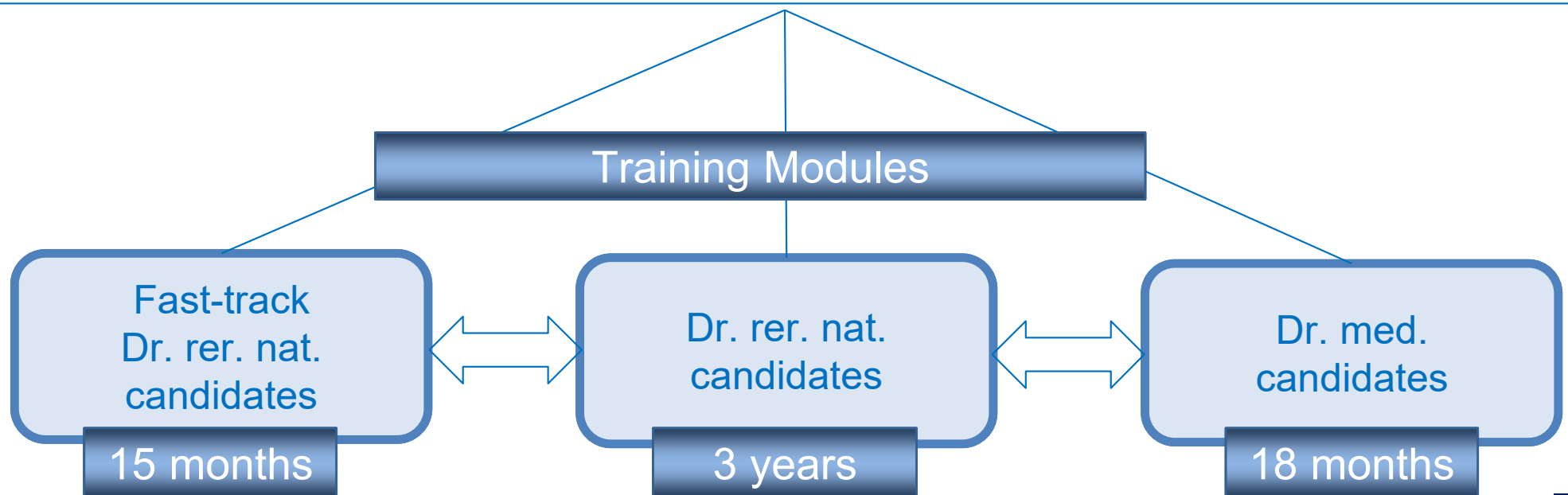
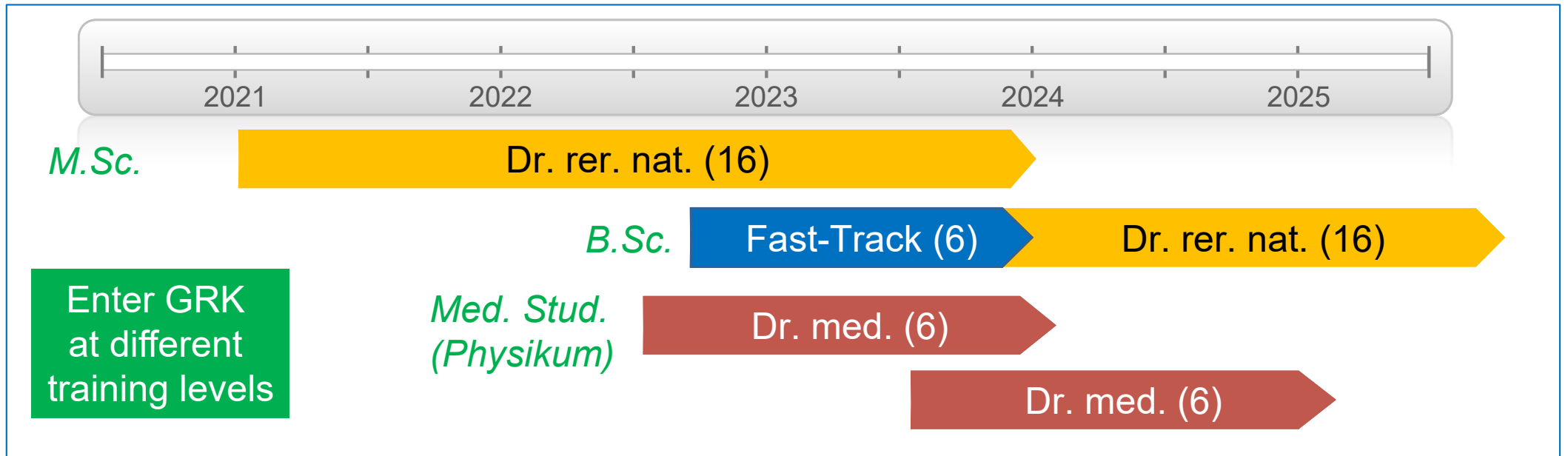
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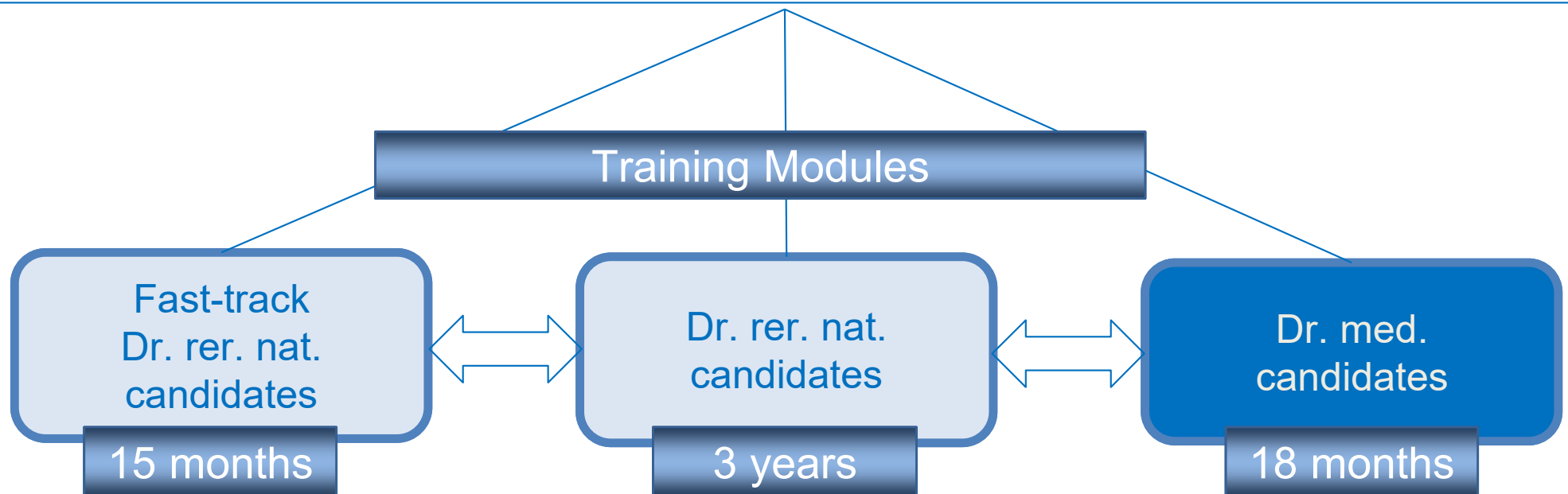
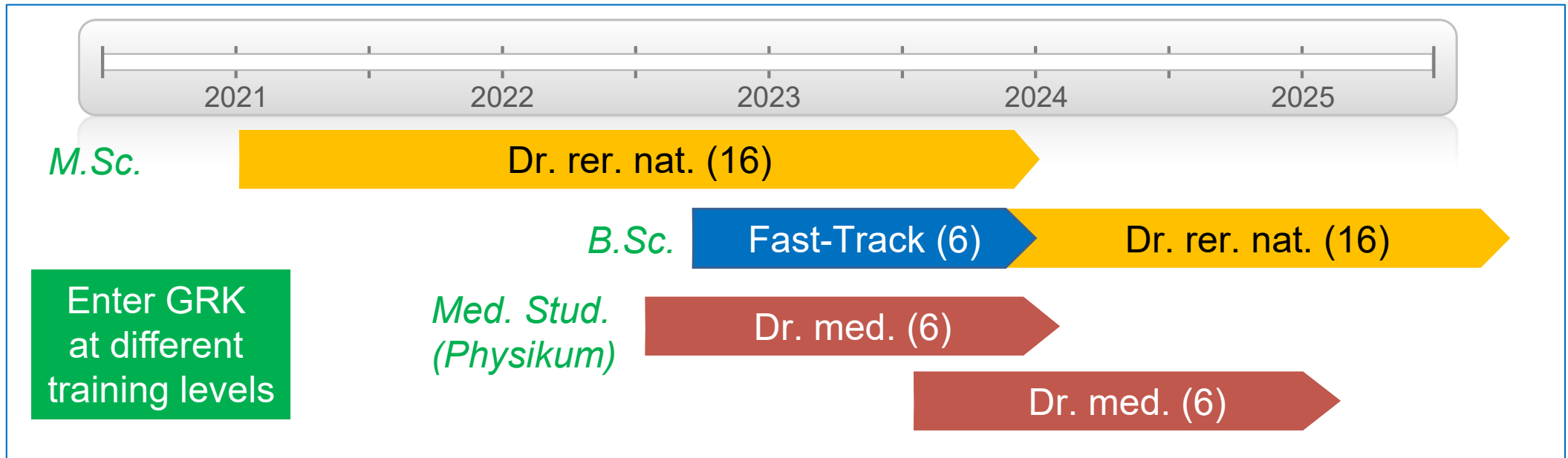
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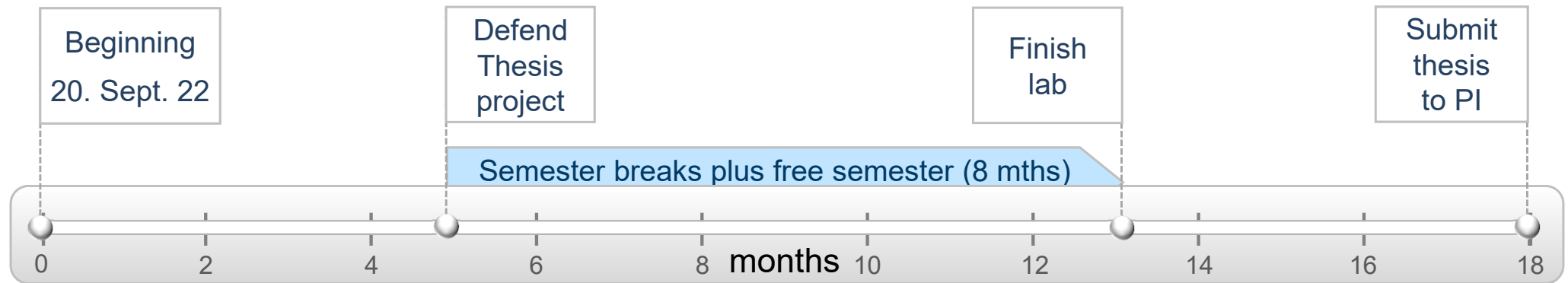
Motivate graduates to
further pursue
academic research

Produce physicians who
can translate laboratory
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Prepare (5 months)

- ☐ Lab techniques (2 wks in GRK labs during semester break)
- ☐ DGfI Autumn School
- ☐ GRK-organized seminar "How to read a manuscript and prepare a grant proposal"
- ☐ Selection of dissertation lab and preparation of proposal
- ☐ Defense of proposed thesis project

Research (8 months)

- ☐ Lab work
- ☐ GRK Jour-fixe (2hrs, weekly)
- ☐ WS - Scientific Writing (2d)
- ☐ GRK Retreat (2d)
- ☐ Int. GRK Symposium (3d)
- ☐ Paul-Ehrlich Club (every 2wks)

- ☐ GRK Network meeting (3d)
- ☐ GRK seminar
- ☐ iIMMUNE lectures

Workload (obligatory)

- 2-3 hrs/wk
- 7 days

Finish (5 months)

- ☐ Finish lab
- ☐ Write thesis
- ☐ Good Scientific Practice (1d)
- ☐ GRK Retreat (3d)
- ☐ GRK Public relation (1d)

- ☐ Bioinformatics
- ☐ Biostatistics
- ☐ GRK network
- ☐ Paul-Ehrlich-Club

☐ obligatory ☐ optional

Annual Internal GRK Retreat



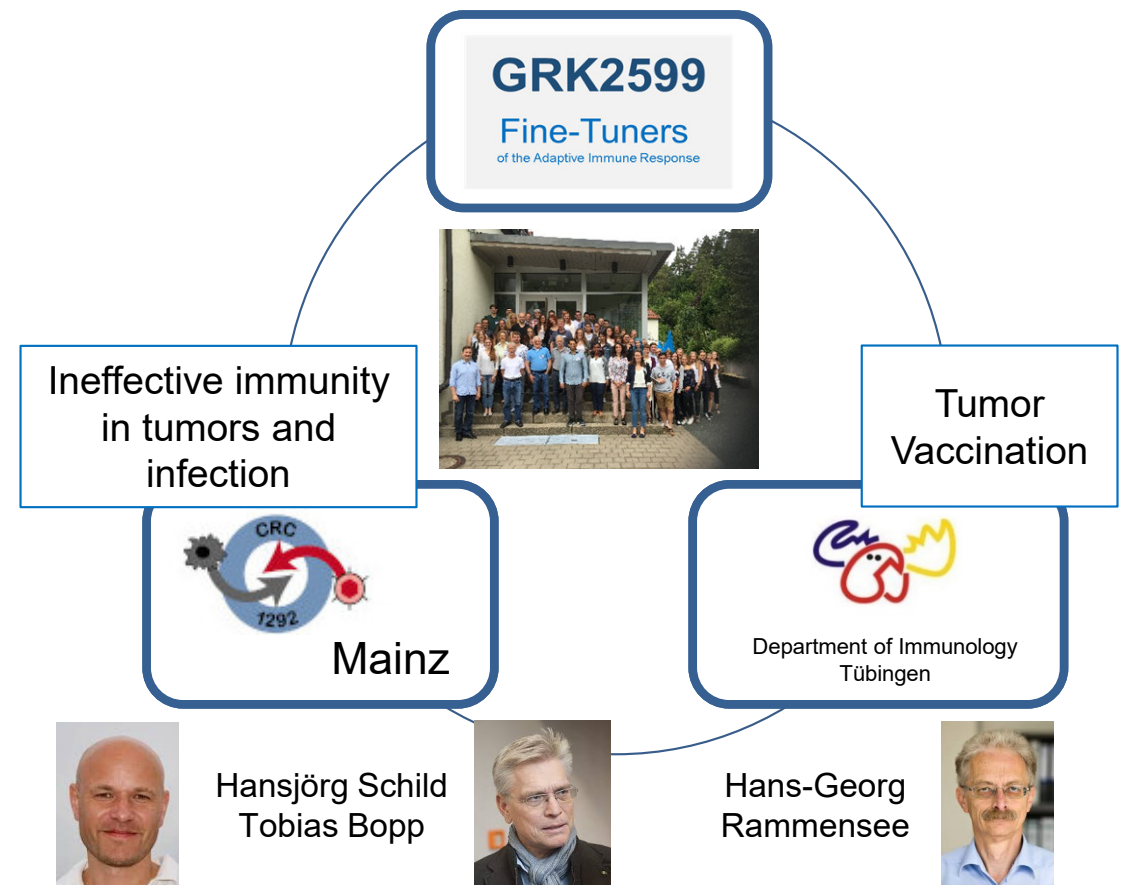
Annual RTG Network Meeting



Annual Internal GRK Retreat



Annual RTG Network Meeting



International GRK Symposium (2023)

5TH INTERNATIONAL GK SYMPOSIUM
REGULATORS OF ADAPTIVE IMMUNITY
SEPTEMBER 9-11, 2016

CONFIRMED SPEAKERS

Immunology

David Allman • Philadelphia • USA
Dennis Burton • La Jolla • USA
Michael Cancro • Philadelphia • USA
Sidonia Fagarasan • Yokohama • Japan
Martin Flajnik • Baltimore • USA
David Gray • Edinburgh • UK
Kathryn Haskins • Denver • USA
Marco Herold • Parkville • Australia
Tasuku Honjo • Kyoto • Japan
Leszek Ignatowicz • Augusta • USA
George Kassiotis • London • UK
Janet Kelso • Leipzig • Germany
Lars Klareskog • Stockholm • Sweden
Shigeo Koyasu • Tokyo • Japan
Olivier Lantz • Paris • France
Polly Matzinger • Bethesda • USA
Michel Nussenzweig • New York • USA
Giorgio Trinchieri • Bethesda • USA
Marc Schmidt-Supprian • München • Germany
Tim Sparwasser • Hannover • Germany
Dario Vignali • Pittsburgh • USA
Arthur Weiss • San Francisco • USA

Dermatology

Microbiology

Genetics

Haematology / Rheumatology

Virology

LOCATION
New Lecture Hall of Medical Faculty • Ulmenweg 18 • 91054 Erlangen

www.gk-symposium.de

Certified by the „Bayerische Landesärztekammer“ with 18 CME credits

Universitätsklinikum Erlangen | DFG | GK 1450 | IRTG 1181 | FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

CONFIRMED SPEAKERS

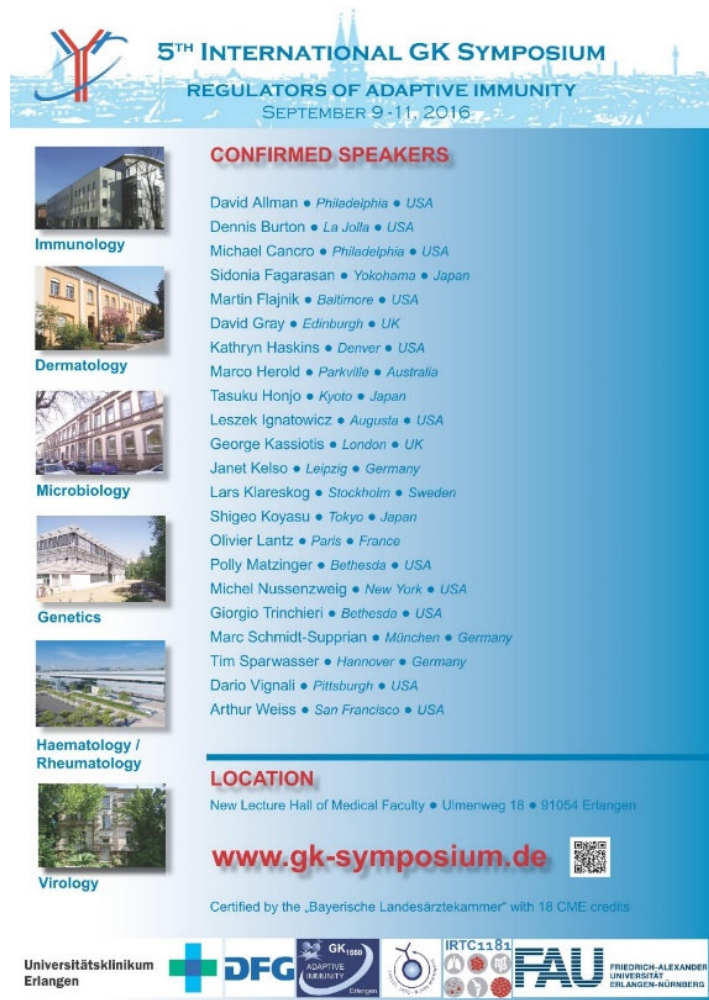
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Tim Sparwasser • Hannover • Germany
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Arthur Weiss • San Francisco • USA



2018

International GRK Symposium (2022)

GRK Mini Symposia



5TH INTERNATIONAL GK SYMPOSIUM
REGULATORS OF ADAPTIVE IMMUNITY
SEPTEMBER 9-11, 2016

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GK1660
ADAPTIVE IMMUNITY
Erlangen

Current Topics in Immunology
Focus: Neuroimmunology

Wednesday, June 11, 2014

13:00 **Hans-Martin Jäck (Speaker GK1660)**
Welcome and Overview

13:15 **Hartmut Wekerle**
Max-Planck-Institut für Neurobiologie, München
The intestinal origin of brain autoimmunity

14:15 **Luisa Klotz**
Klinik für Allgemeine Neurologie, Münster
Nuclear receptors and modulation of CNS autoimmunity

15:15 **Coffee Break**

15:45 **Alexander Flügel**
Universitätsmedizin, Neuroimmunologie, Göttingen
Visualizing checkpoints of autoaggressive T cell infiltration into the CNS

16:45 **Georg Pongratz**
Exp. Rheumatologie und Neuroendokrinimmunologie, Universitätsklinikum, Regensburg
The sympathetic nervous system modulates inflammation – focus on arthritis and B cells

17:45 **General Discussion: EAE in Mice and Alzheimer in Human?**
(Chair: Alexander Steinkasserer)

18:30 **End**

19:00 **Dinner** (for persons with reservation only)

Seminarraum EG – 0.024
Nikolaus-Fiebiger Zentrum

DGfI Autumn School

Deutsche Gesellschaft für Immunologie 

An up-to-date educational journey through the immune system for everyone including STUDENTS, POSTDOCS and GROUP LEADERS with a background in NATURAL SCIENCES or MEDICINE. The program includes lectures by internationally renowned experts, student presentations as well as interactive sessions to meet the speakers and to foster networking within our immunological community.

Application deadline: July 01, 2019
www.dgfi.org/akademie-fuer-immunologie/autumn-school

Keynote
Klaus Heeg
Joachim Schultze
Marco Prinz
Hubertus Hochrein

Organizers
Sandra Beer-Hammer
Olaf Groß
Thomas Kamradt
Birgit Sawitzki
Wolfgang Schuh

Administration
Iris Noetzelmann • Tübingen
Bettina Happel • Marburg
Agnes Giniewski • Erlangen

Faculty
Hyun-Dong Chang
Anne Dudeck
Diana Dudziak
Louis Du Pasquier
Georg Gasteiger
Ulf Grawunder
Dirk Haller
Jochen Hühn
Julia Jellusova
Ludger Klein
Roland Lang
Axel Roers
Marc Schmidt-Supprian
Claudia Traidl-Hoffmann

11th Autumn School
Current Concepts in Immunology
October 14 - 19, 2019 • Merseburg • Sachsen-Anhalt

Other Meetings

BIOLOGY of LYMPHOCYTES DGfI Research Focus Group



18th B Cell Forum

AllgäuSternHotel,
Sonthofen, Germany

12th to 14th March, 2020



47th Annual Meeting

of the German Society for Immunology

CELEBRATING 50 years
DGfI



12-15 September 2017 - ERLANGEN

Abstract Deadline: 7 May 2017



www.immunology-conference.de



KEYSTONE SYMPOSIA

Integrating Metabolism and Immunity

Organizers: Marc Y. Donath, Tom Thuren, Bruce M. Spiegelman and Diane Mathis
January 24-28, 2021 | Keystone Resort, Keystone, Colorado, USA

Immunology Autumn School

GRK2599
FAIR



DGfI
German Society
for Immunology

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www.herbstschule.de

Key Note
Klaus Heeg (Heidelberg)
Michael Sixt (Austria)
Thorsten Buch (München)
Nigel Kileen (San Francisco)

Faculty
Stefan Bauer
Hyun-Dong Chang
Diana Dudziak
Louis Du Pasquier
Niklas Engels
Ulf Grawunder
Dirk Haller
Jochen Hühn
Ludger Klein
Roland Lang
Axel Roers
Claudia Traidl-Hoffmann
Carsten Watzl

Scientific Organizers
Hans-Martin Jäck
Sandra Beer-Hammer
Olaf Groß
Thomas Kamradt
Birgit Sawitzki
Wolfgang Schuh

Administrative Organizers
Elisabeth Lang • Erlangen
Bettina Happel • Marburg
Agnes Giniewski • Erlangen

10th Autumn School

Current Concepts in Immunology

October 07 - 12, 2018 • Merseburg • Sachsen-Anhalt

10 th Autumn School Current Concepts in Immunology					PROGRAM 2018	
Time	Sunday 07. October	Monday 08. October	Tuesday 09. October	Wednesday 10. October	Thursday 11. October	Friday 12. October
09:00	Arrival & Registration (starting at 3pm)	Hans-Martin Jäck	Diana Dudziak	Wolfgang Schuh	Dirk Haller	Departure
09:30		Overview Immunity (30 min)	How dendritic cells activate T cells (30 min)	How mature B cells develop (30 min)	Microbiome and immunity (30 min)	
09:45		Stefan Bauer	Ludger Klein	Hans-Martin Jäck	Claudia Traidl-Hoffmann	
10:15		How innate immunity protects I (30 min)	How T cells develop (30 min)	How B cells produce antibodies (30 min)	Allergy (30 min)	
10:30		Break	Break	Break	Break	
10:50		Olaf Groß	Hyun-Dong Chang	Hans-Martin Jäck	Birgit Sawitzki	
11:20		How innate immunity protects II (30 min)	Effector CD4 T cells (30 min)	B cells beyond antibodies (30 min)	Metabolism of immune cells (30 min)	
11:35		Axel Roers	Jochen Hühn	Thomas Kamradt	Ulf Grawunder	
12:05		How cells recognize foreign DNA/RNA (30 min)	How T cells regulate immunity (30 min)	Autoimmune diseases (30 min)	Onco-immunology (30 min)	
12:20						
13:00		Lunch & Meet-the-speakers	Lunch & Meet-the-speakers	Lunch & Meet-the-speakers	Lunch & Meet-the-speakers	
14:15		Meet the companies (14.15 - 15.45)	Free time	Free time	Free time	
15:30		Break	How T cells kill (30 min)	Animal research Moderators: Kamradt/Beer-Hammer	How the immune system evolved (40 min)	
16:00		Roland Lang	Carsten Watzl	Flow cytometry Moderators: Schuh/Chang	TBA	
16:15		Macrophages & Granulocytes (30 min)	How innate lymphocytes help and kill (30 min)	CRISPR/Cas Moderator: Engels/Buch	Special Event	
16:45						
17:00	Welcome		Break	Break	Break	
17:30	Klaus Heeg	Nigel Kileen	Thorsten Buch	Michael Sixt		
18:15	Discovery of Cytokines (40 min)	Cellular Immunotherapy (40 min)	CRISPR/Cas and Transgenic mice (40 min)	How immune cells move (40 min)		
18:30	Dinner	Dinner & Meet-the-speakers	Dinner & Meet-the-speakers	Dinner & Meet-the-speakers	Dinner & Meet-the-speakers	
20:00	Get together	Poster Session I	Free time	Poster Session II	10 Years Autumn School	
22:00						

Immunology Autumn School

GRK2599
FAIR

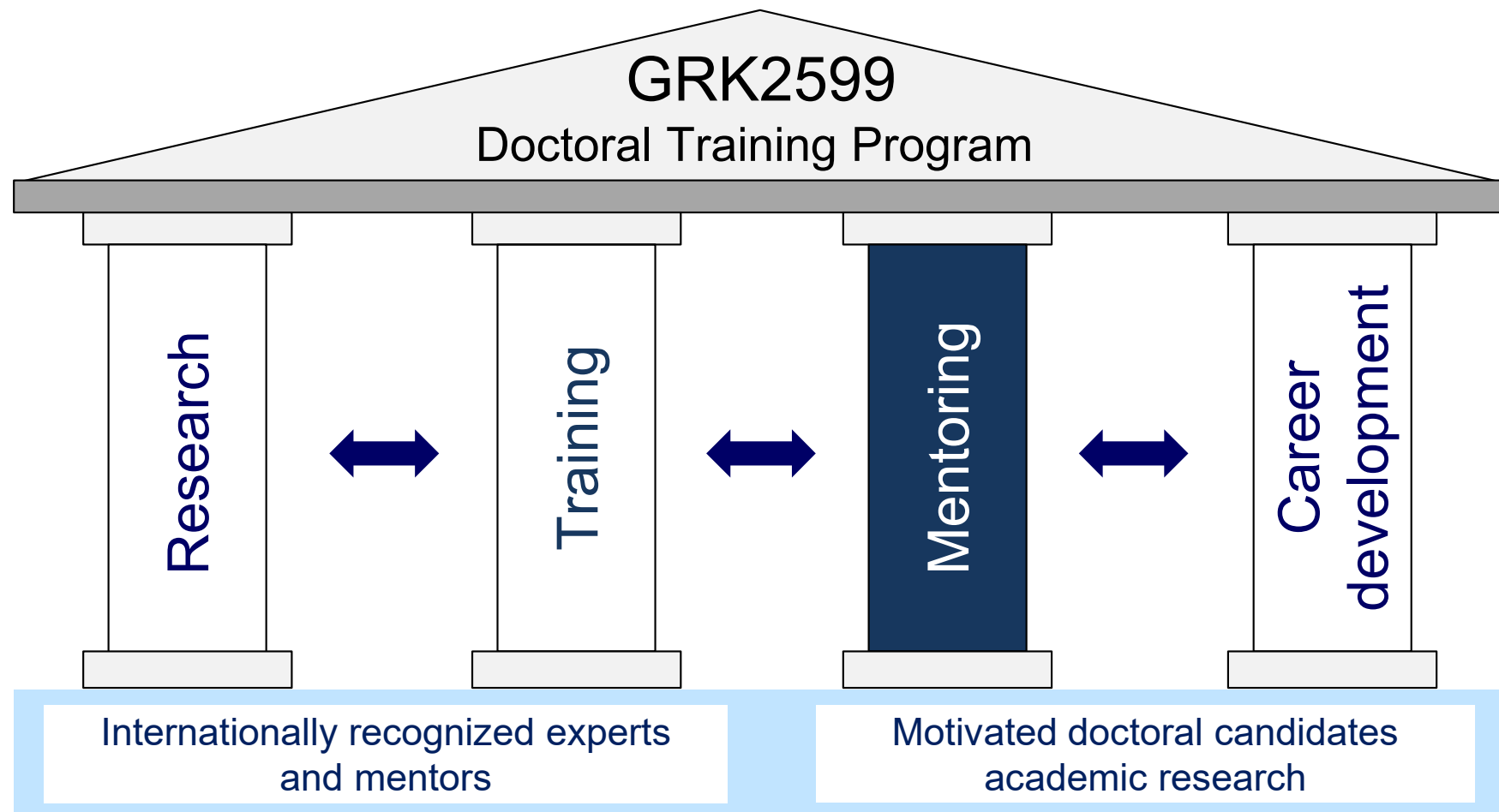
<p>Deutsche C</p> <p>An up-to-date everyone inclu with a backgro includes lect presentations to foster netw</p> <p>Key Note</p> <p>Klaus Heeg (Heide Michael Sixt (Aust Thorsten Buch (M Nigel Kileen (San F</p> <p>Faculty</p> <p>Stefan Bauer Hyun-Dong Chang Diana Dudziak Louis Du Pasquier Niklas Engels Ulf Grawunder Dirk Haller Jochen Hühn Ludger Klein Roland Lang Axel Roers Claudia Traidl-Hoff Carsten Watzl</p> <p>10th</p> <p>Current</p> <p>October 07</p>	Monday 08. October	Tuesday 09. October	Wednesday 10. October	Thursday 11. October	PROGRAM 2018		
	Hans-Martin Jäck	Diana Dudziak	Wolfgang Schuh	Dirk Haller	ay	Thursday 11. October	Friday 12. October
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	Break	Break	Break	Break		Allergy (30 min)	
	Olaf Groß	Hyun-Dong Chang	Hans-Martin Jäck	Birgit Sawitzki		Break	
	How innate immunity protects II (30 min)	Effector CD4 T cells (30 min)	B cells beyond antibodies (30 min)	Metabolism of immune cells (30 min)		Birgit Sawitzki	
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						Onco-immunology (30 min)	
						Lunch & Meet-the-speakers	
						Free time	
						Louis Du Pasquier (Bedroom 15.00)	
						How the immune system evolved (40 min)	
						TBA	
						Special Event	
						Break	
						Dinner & Meet-the-speakers	
						10 Years Autumn School	

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Qualification Phase

For Fast-Track and Dr. med. candidates

- Assigned advisors
 - *One GRK PI as mentor*
 - *GRK speaker and vice-speakers*
 - *GRK coordinator*
- Duties
 - *Advice on course selection & lab internship abroad*
 - *Any other questions*

Dissertation Phase

For all doctoral candidates

- Thesis advisory committee (TAC)
 - *3 GRK PIs suggested by candidate*
 - *1-2 times per year*
- GRK coordinator

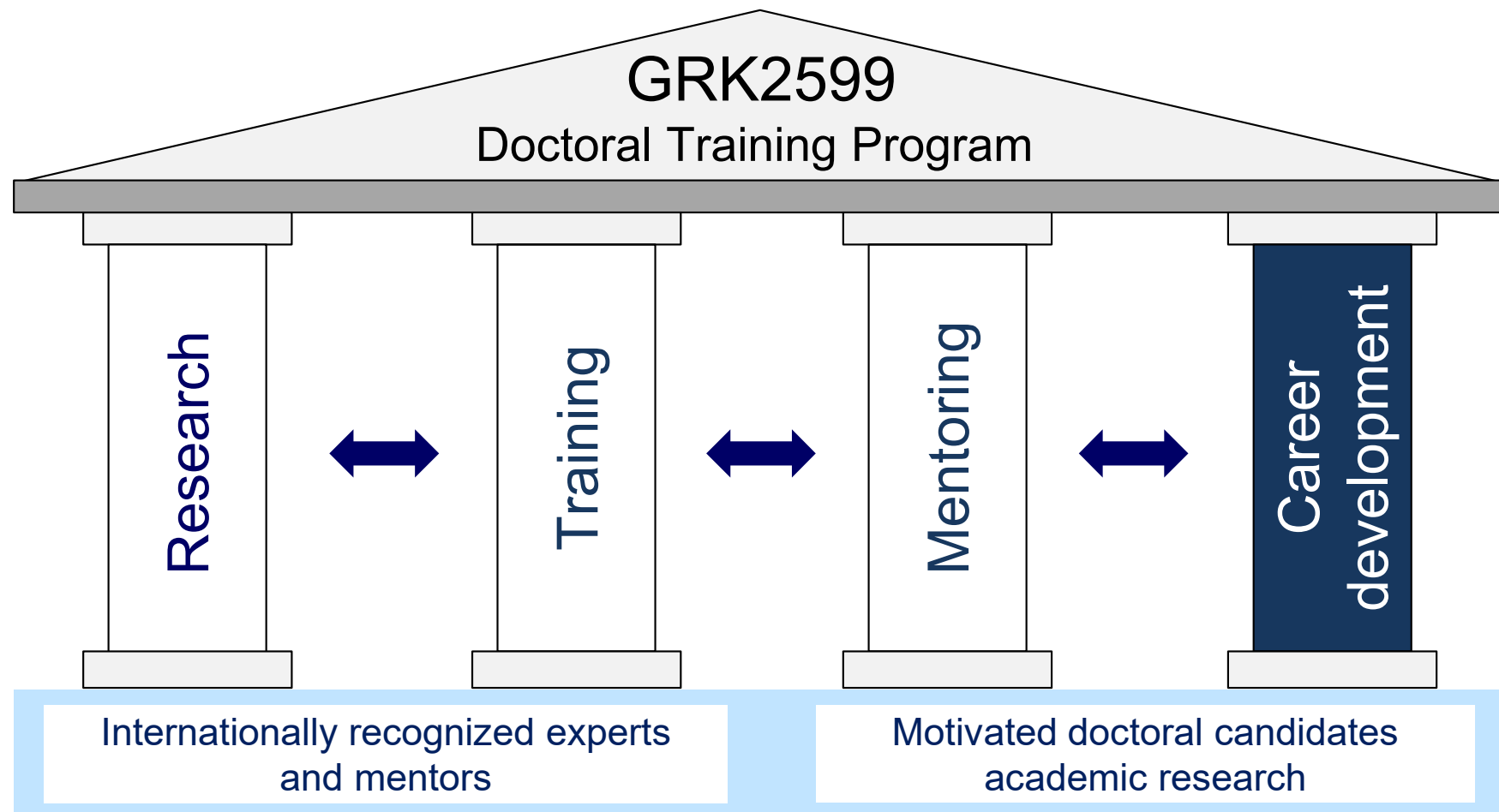
- Defense of the doctoral project (“DFG” proposal)
- Yearly Meetings with thesis advisory committee (TAC)
- Oral or poster presentations at
 - *Annual internal retreats*
 - *Annual RTG network meeting*

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- ❑ Improve **paper and grant writing** proficiencies
- ❑ Acquire **mentor expertise** through supervision of students
- ❑ Develop **management skills** by organizing GRK events
- ❑ Acquire **decision-making expertise** by membership in GRK steering committee
- ❑ Build **professional networks** through company visits, international internships, attending meetings and visiting potential post-doc labs
- ❑ **Prepare for job interviews** through career-relevant workshops

- ❑ Improve paper and grant writing proficiencies
- ❑ Acquire mentor expertise through supervision of students

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in Science and Engineering

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Graduate School GK1660
Prof. Dr. rer. nat. Hans-Martin Jäck

Contact Information
Tobit Steinmetz
Division of Molecular Immunology
University Hospital Erlangen
D-91054 Erlangen, Glückstraße 6
tobit.steinmetz@uk-erlangen.de

Project Aim and Methods

Antibodies are secreted by plasma cells (PC) that are generated in the periphery and migrate to the bone marrow to establish a long lived pool. The terminal differentiation of B lymphocytes into PC is controlled by a network of transcription factors that cross-regulate each other. RNAseq data have established a plasma cell signature and revealed many unknown genes to be up- or down-regulated in plasma cells. Elucidation of the function of these genes will help to understand the cell biology of PC that is required to support antibody production. PC differentiation and antibody secretion are tightly interlinked with ER quality control and autophagy. We seek to address the concept of cell biological remodeling of PC in relation to antibody secretion and quality control with a particular focus on a gene that is up-regulated in PC, the Tropomyosin receptor kinase (Trk) fused gene (Tlg). Tlg functions in ER/Golgi transport and organization and regulation of cell size, both of which increase during plasma cell differentiation. Our preliminary data obtained in Crisp/Cas-targeted CH12 murine lymphoma and MOPC104E plasmacytoma cells have revealed three phenotypes: Tlg knock-out (KO) 1. decreases survival, 2. increases basal autophagy and 3. sensitizes cells towards ER stress. We generated mice carrying a constitutively targeted null allele of Tlg (TlgKO) but we were not able to obtain homozygous TlgKO offspring. Yet, already Tlg heterozygous mice show decreased serum IgA and reduced PC numbers in Peyer's patches and trends towards reduced IgM and PC numbers in various organs. We hypothesize that Tlg is important for PC homeostasis in vivo by regulating ER quality control and autophagy. We want to determine how Tlg prevents apoptosis, ER stress and autophagy in targeted CH12 and MOPC104E cells. We will also generate and analyze PC generation and function in mice carrying a B cell specific deletion of Tlg by establishing and crossing Tlg^{fl} mice with mb1-Cre and CD23-Cre mice. The results of this project will increase our understanding of plasma cell biology and is therefore relevant for normal and dysregulated humoral immunity, such as in autoimmune diseases or plasmacytoma.

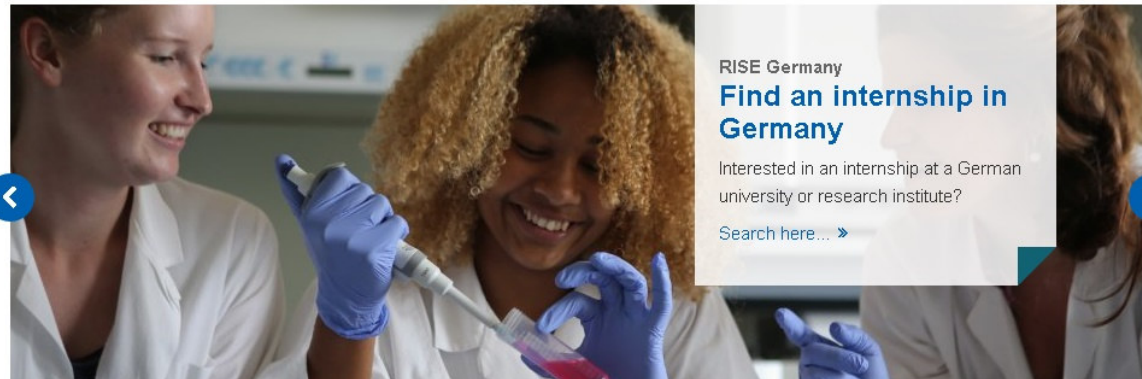
Planned tasks for RISE student

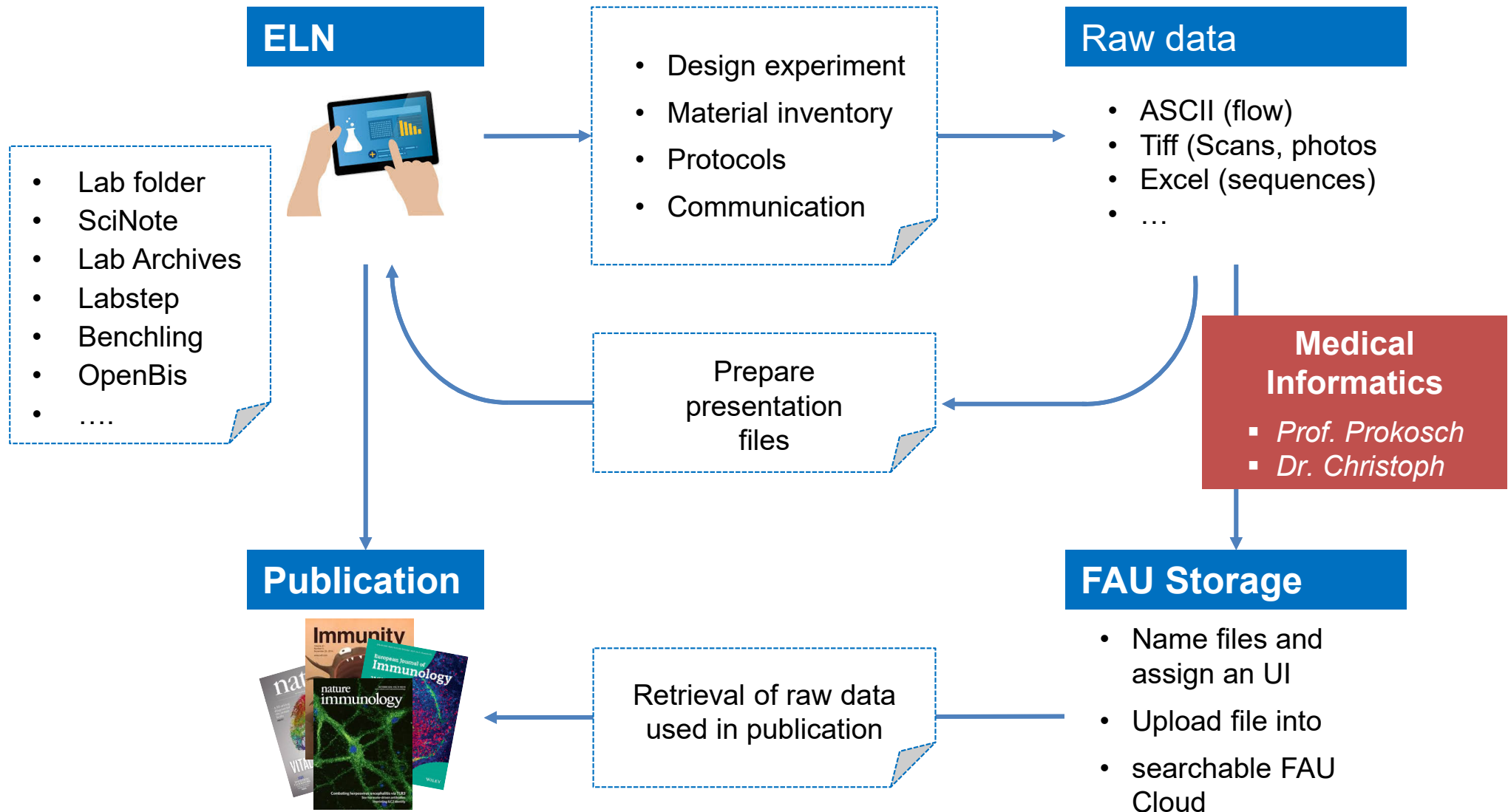
The student project will contain analysis of TFG KO cell lines in terms of ER stress, unfolded protein response and autophagy with qRT-PCR, EISpot and flow cytometry or assistant to characterize the conditional KO of TFG in vivo murine B cells either with mb1-Cre or CD23-Cre using flow cytometry, ELISA and in vitro cultures of isolated B cells.

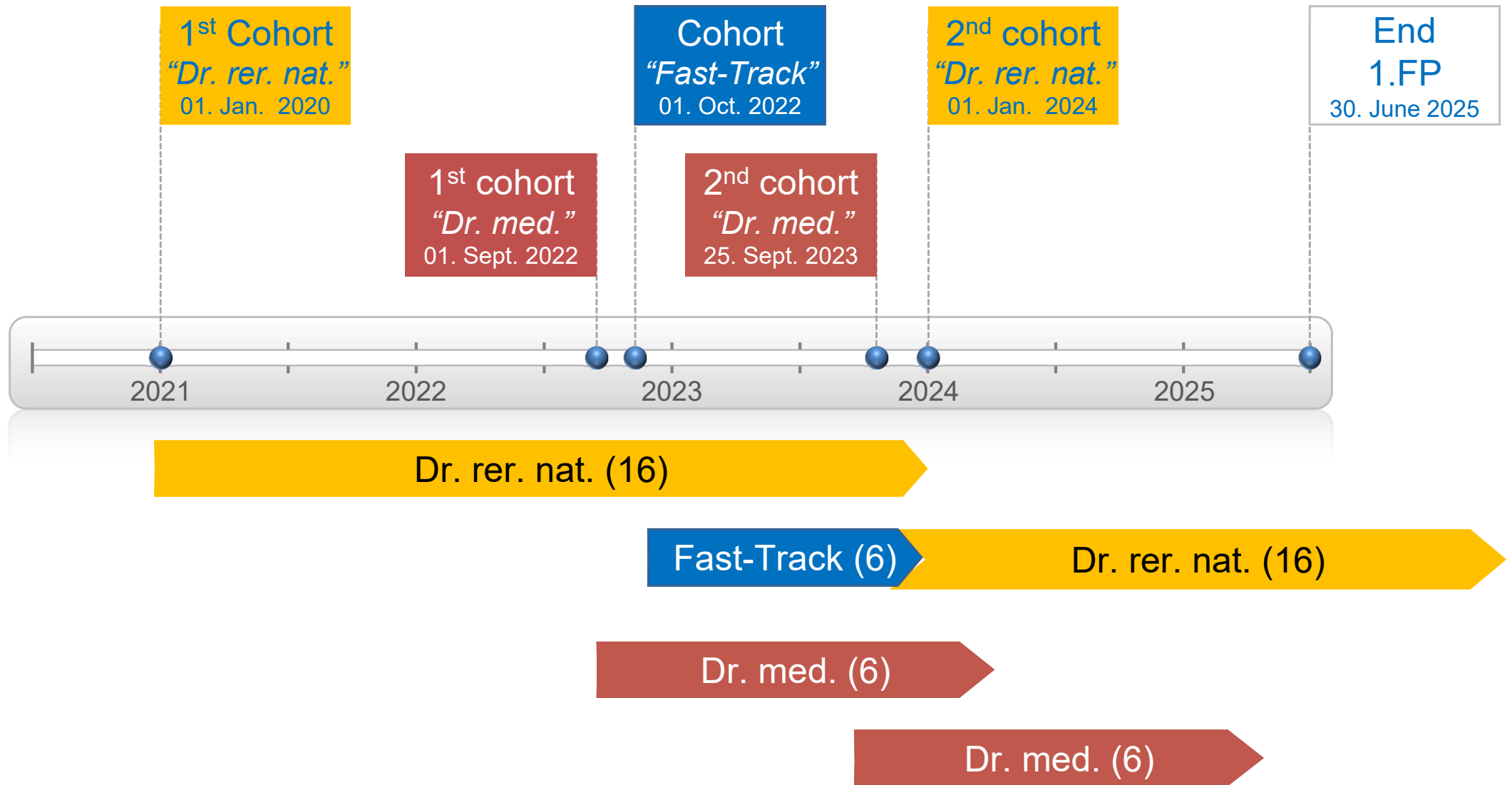
Information about the Division of Molecular Immunology

As a working group of 15-20 members around 4 group leaders under the supervision of Prof. Dr. H.M. Jäck we are interested in B lymphocyte and plasma cell development, function and homeostasis. B lymphocytes are essential for a humoral immune response and the generation of a functional memory. For our investigations we use modern techniques like "Seahorse", single cell analyses of 10x genomics or Crisp/Cas. Standard methods like flow cytometry, western blotting and PCR are common methods in our laboratory.

The research Institute is located in the medium sized town of Erlangen famous for its outstanding university clinic, in the middle of Bavaria. Nevertheless the city has a natural, rural charm and despite its size relaxation in the nature is never far away. The whole region of Franconia is famous for varies breweries and Bavarian beer.







MD candidates

Open Positions
announcements
Oct 1, 2022

Application
deadline
Dec 15, 2022

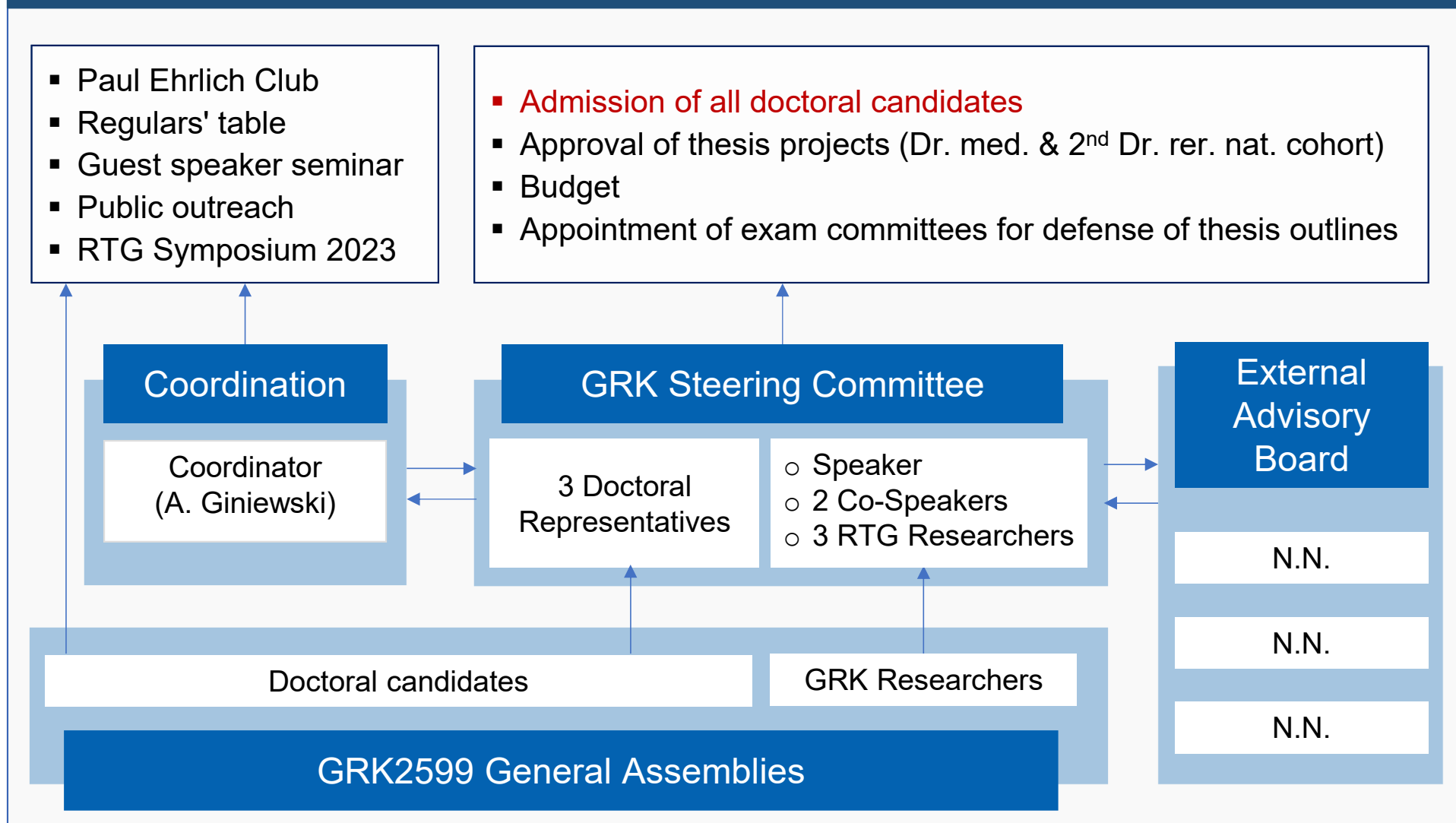
Interview
Onsite
End Jan 2023
(Sat 6- 7 pm)

Start
Sept 26, 2023

2022

2023

Organization Chart - GRK2599



MD candidates

Open Positions
announcements
Oct 1, 2022

Application
deadline
Dec 15, 2022

Interview
Onsite
End Jan 2023
(Sat 6- 7 pm)

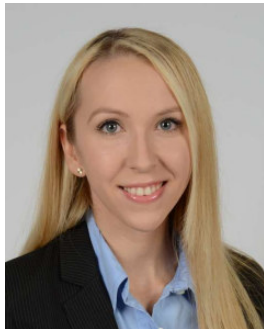
Start
Sept 26, 2023

2022

2023

Dr. Natalie Schröter

Koordinatorin



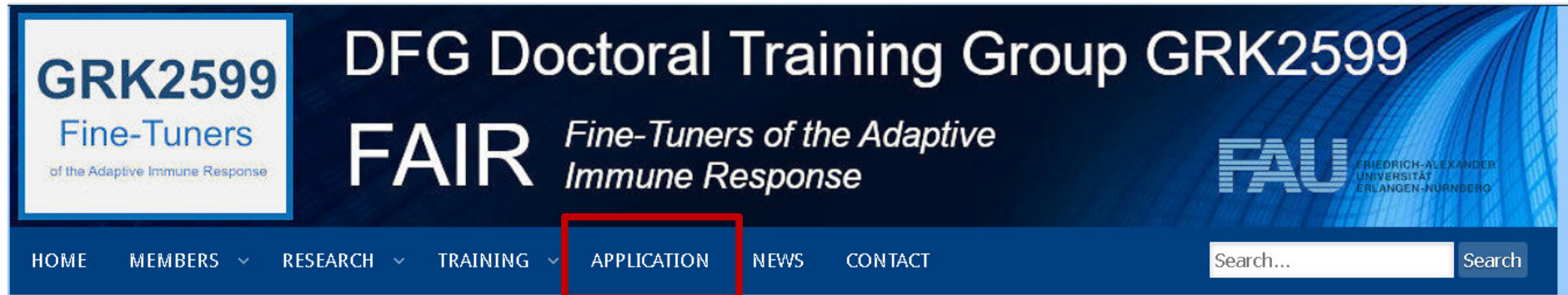
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