DFG-Graduiertenkolleg GRK2599

Fine-Tuners of Adaptive Immune Responses

Friedrich-Alexander-Universität Erlangen-Nürnberg

Promotion für Medizinstudenten

DFG Deutsche Forschungsgemeinschaft

- Antrag genehmigt
- 16 naturwissenschaftliche Doktoranden
- 6 Dr. med. Stipendien
  - *Rekrutierung: Winter 2021*
  - *Beginn: Sept 2022 (nach Physikum)*

Research Training Group 2599

FAIR – Fine-Tuners of the Adaptive Immune Response

Concept

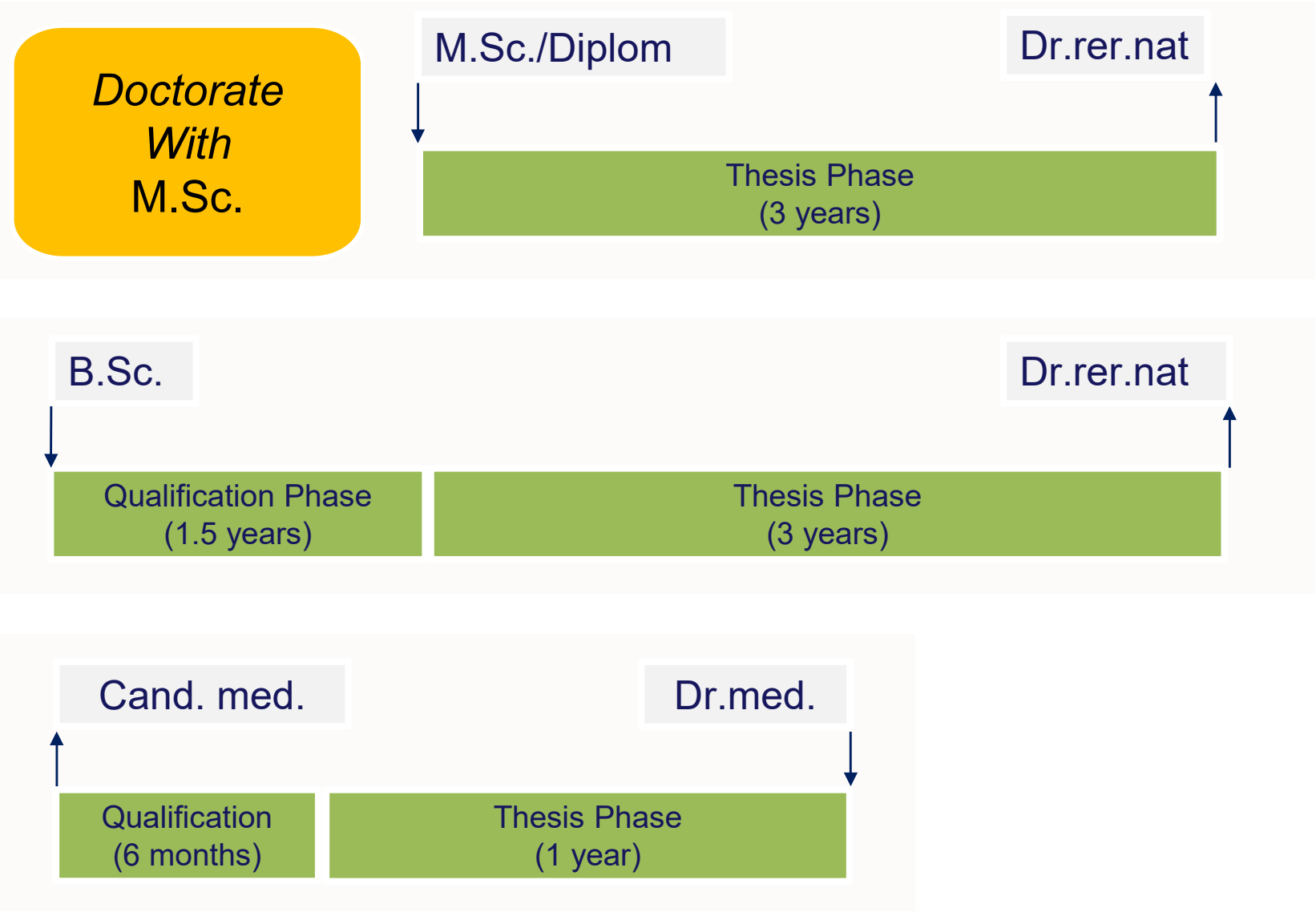
Hans-Martin Jäck

molim
molecular immunology

Universitätsklinikum Erlangen

FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

Doctoral Cohorts



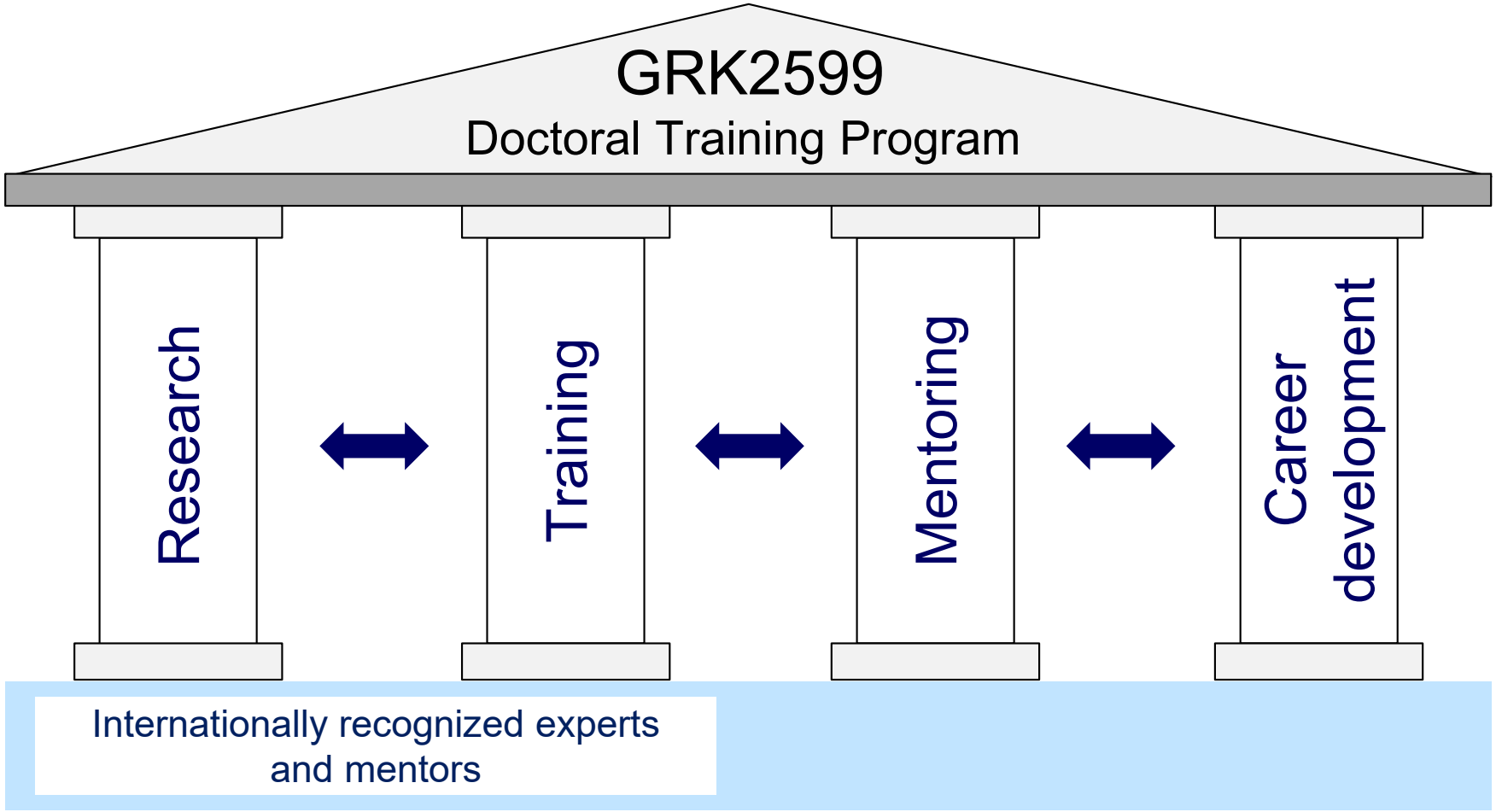
GRK2599 – *Goal*

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



GRK2599 – *Principal Investigators*

Department BIOLOGIE

FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG
FACULTY OF SCIENCES

- 3 **Genetics**

Universitätsklinikum Erlangen

FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG
MEDIZINISCHE FAKULTÄT

- 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. Gaipl, 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*

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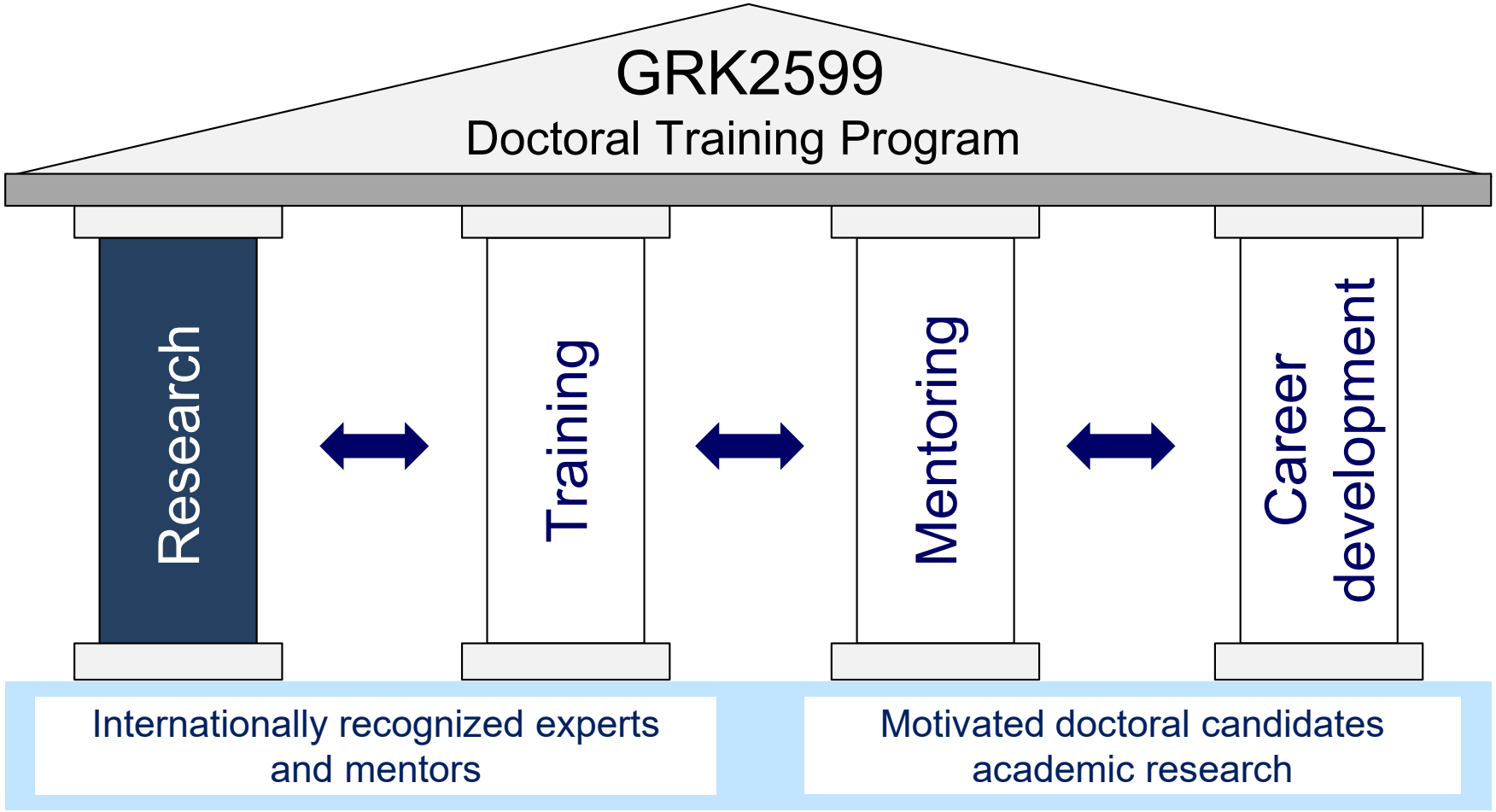


GRK2599 – *Research Goals*

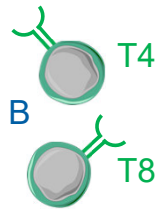
16 hypothesis-driven thesis projects that address the role of factors

- Metabolites: 5, 6, 8
- Cytokines: 7
- Receptors: 1, 2, 3, 4, 10, 12, 14
- TF: 9, 11, 13, 15, 16
- Ab Glycosylation: 4, 17
- Ig/Ag complex: 4, 17

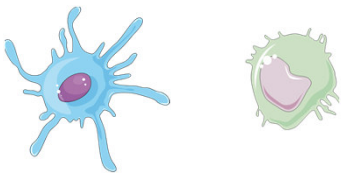
Fine-tuners

- activate
- differentiate
- regulate

Adaptive cells



Innate cells



Adaptive immune response and memory

GRK2599 – *Goal*

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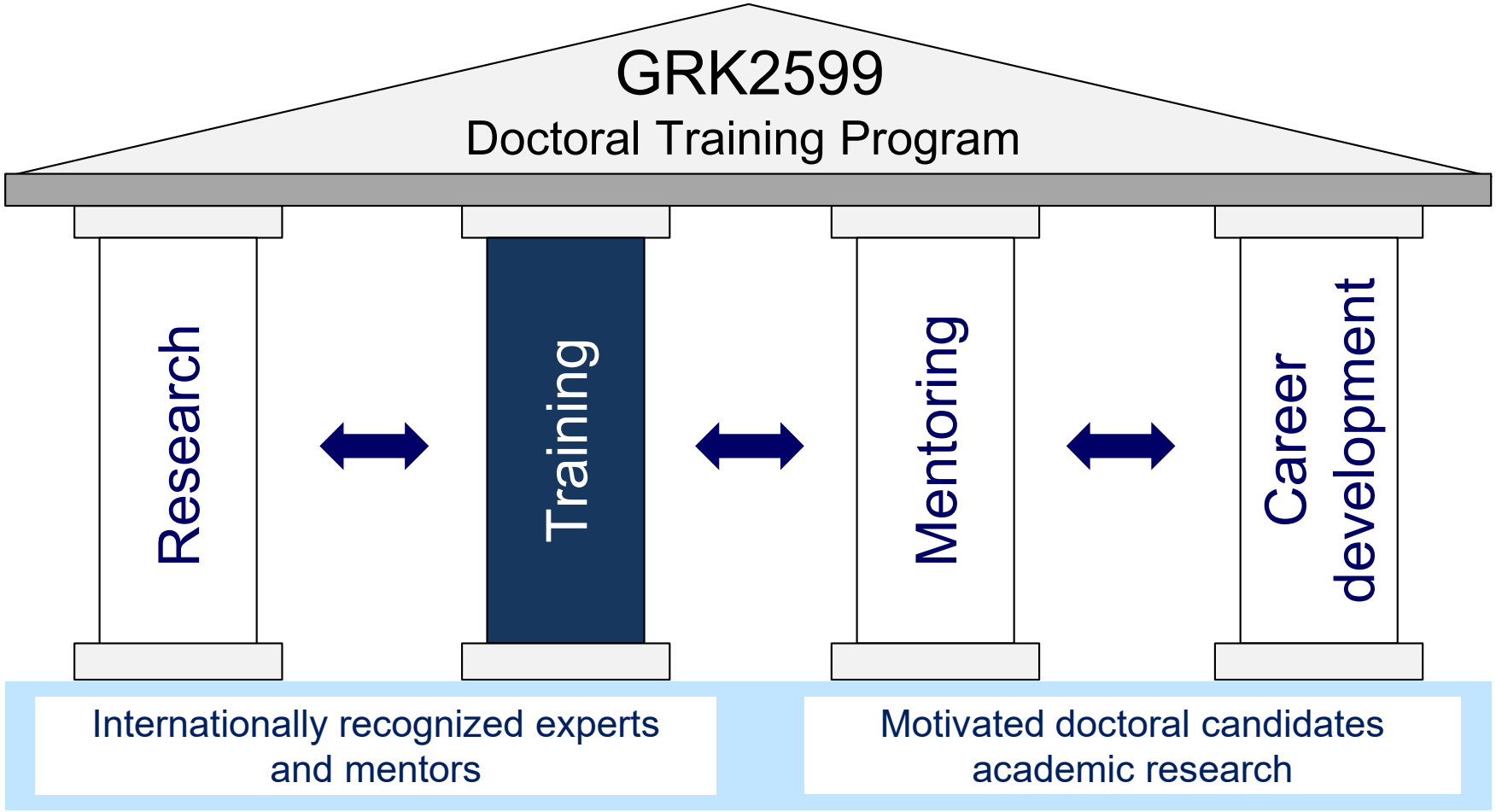
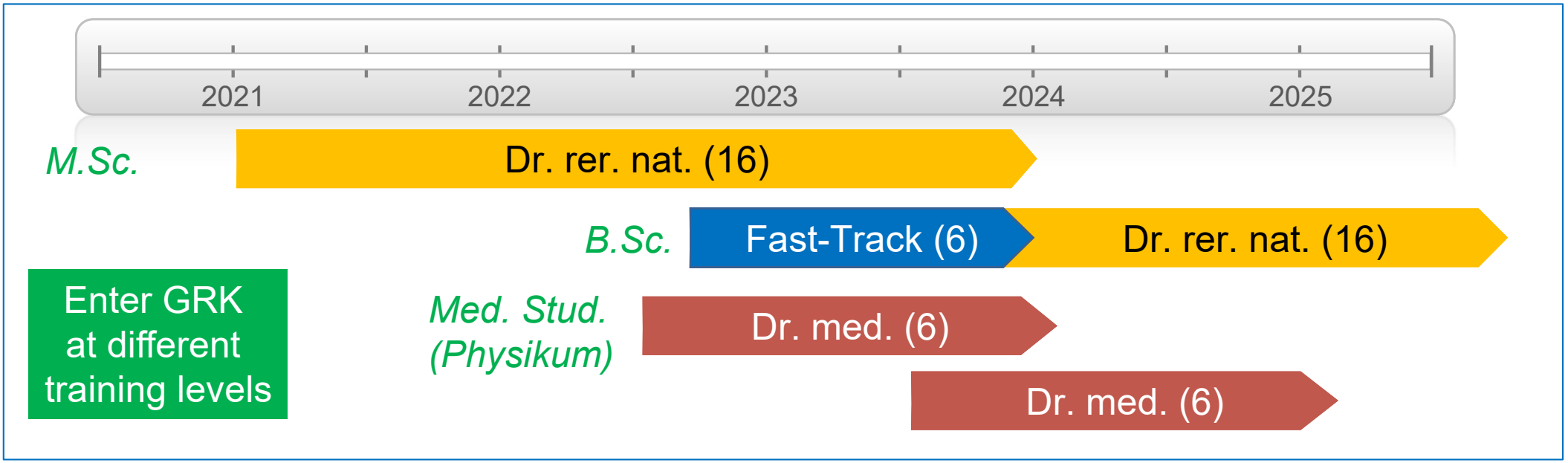
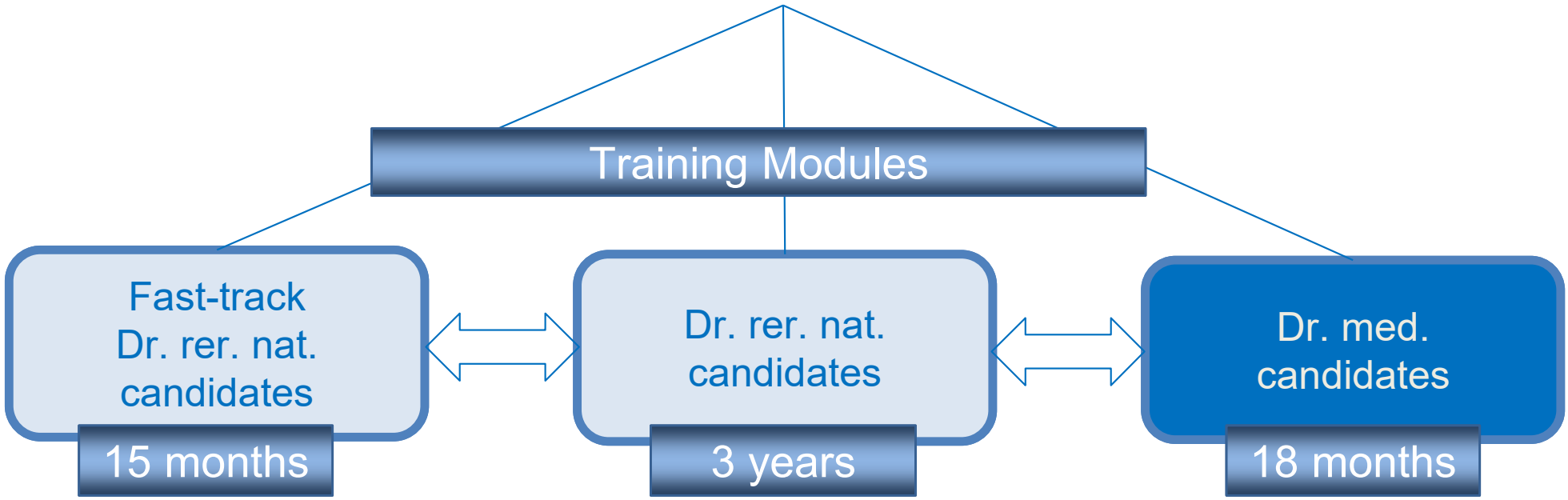
Motivate graduates to further pursue academic research

Produce physicians who can translate laboratory discovery into effective treatments



GRKTG2599 – *Training Modules*

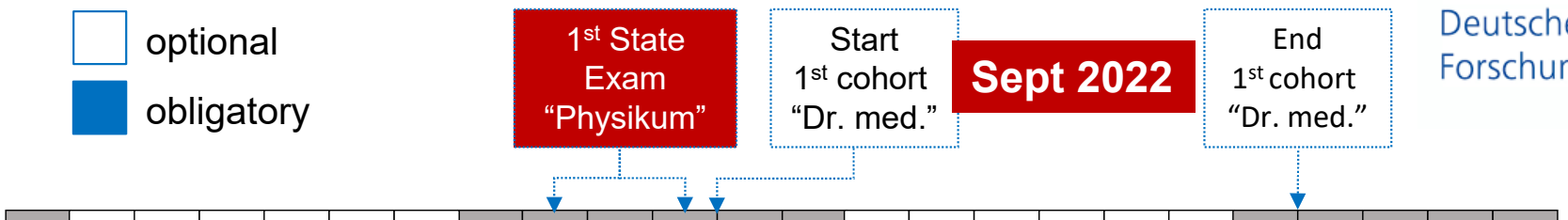




Recruiting Dr. med. candidates

Qualification Program for Dr. med. Candidates (1st cohort)

Deutsche Forschungsgemeinschaft



Recruit	Interview	Prepare	Research	Finish

• Advertise GRK
• Offer GRK-organized curriculum-listed elective seminars for medical students
  ○ *"Vaccines & immunotherapy"*
  ○ *"Doctoral thesis in immunology with laboratory practical*
• Accept applications to GRK
• Advertise DGfI Autumn School and attract funding from other sources
	• Lab techniques (2 weeks in GRK labs during semester break)
	• DGfI Autumn School
	• GRK-organized seminar (Fri) "How to read a manuscript and prepare a grant proposal"
	• Selection of dissertation lab and preparation of proposal
	• Defense of proposed thesis project
		• Lab work
		• GRK Jour-fixe (weekly)
		• Scientific Writing
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		• Int. GRK Symposium
		
		• Lectures from MSc iImmune
		• GRK network
		• GRK seminar
		• DGfI Spring School
		• Paul-Ehrlich-Club
			• Finish lab
			• Write thesis
			• Good Scientific Practice
			• GRK Retreat
			• GRK Public relation
			
			• Bioinformatics
			• Biostatistics
			• GRK network
			• Paul-Ehrlich-Club
			• Write a review for DGfI "immunologie"

Immunology Autumn School

10th 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 09:30	Arrival & Registration (starting at 3pm)	Hans-Martin Jäck	Diana Dudziak	Wolfgang Schuh	Dirk Haller	Departure
		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 10:15		Stefan Bauer	Ludger Klein	Hans-Martin Jäck	Claudia Traidl-Hoffmann	
		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 11:20		Olaf Groß	Hyun-Dong Chang	Hans-Martin Jäck	Birgit Sawitzki	
		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 12:05		Axel Roers	Jochen Hühn	Thomas Kamradt	Ulf Grawunder	
		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 16:00			Sandra Beer-Hammer	Round Table Discussion Groups	Louis Du Pasquier (Beginn 15:00)	
		Break	*How T cells kill* (30 min)	***Animal research*** *Moderators: Kamradt/Beer-Hammer*	*How the immune system evolved* (40 min)	
16:15 16:45		Roland Lang	Carsten Watzl	***Flow cytometry*** *Moderators: Schuh/Chang*	TBA	
		Macrophages & Granulocytes (30 min)	*How innate lympocytes help and kill* (30 min)	***CRISPR/Cas*** *Moderator: Engels/Buch*	*Special Event*	
17:00	Welcome		Break	Break	Break	
17:30 18:15	Klaus Heeg	Nigel Kileen	Thorsten Buch	Michael Sixt		
	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 22:00	Get together	Poster Session I	Free time	Poster Session II	10 Years Autumn School	

Immunology Autumn School

Deutsche G

An up-to-date
everyone inclu
with a backgro
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presentations
to foster netwo

Key Note

Klaus Heeg (Heide
Michael Sixt (Aust
Thorsten Buch (Mü
Nigel Kileen (San F

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-Hoff
Carsten Watzl

10th

Curren

October 07

Monday 08. October	Tuesday 09. October	Wednesday 10. October	Thursday 11. October
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Break	Break	Break	Break
Olaf Groß	**Hyun-Dong Chang**	**Hans-Martin Jäck**	**Birgit Sawitzki**
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PROGRAM 2018

Thursday 11. October	Friday 12. October
Dirk Haller	Departure
Microbiome and immunity (30 min)	
Claudia Traidl-Hoffmann	
Allergy (30 min)	
Break	
Birgit Sawitzki	
Metabolism of immune cells (30 min)	
Ulf Grawunder	
Onco-immunology (30 min)	
Lunch & Meet-the-speakers	
Free time	
Louis Du Pasquier (Beginn 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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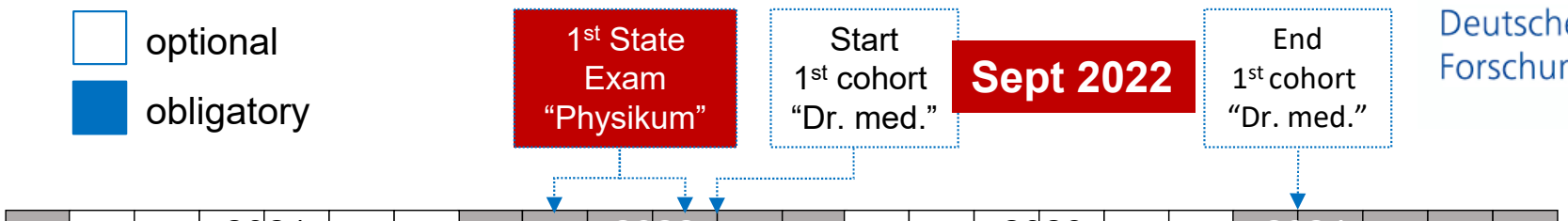

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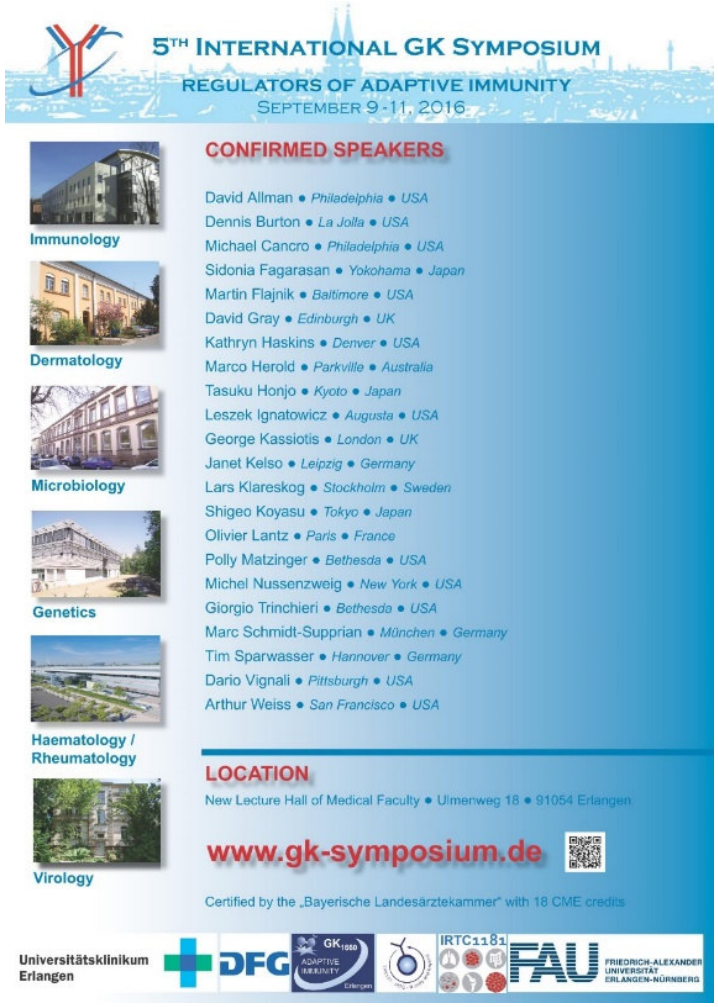
Training Concept – *Meetings*

International GRK Symposium (2022)



GRK Mini Symposia

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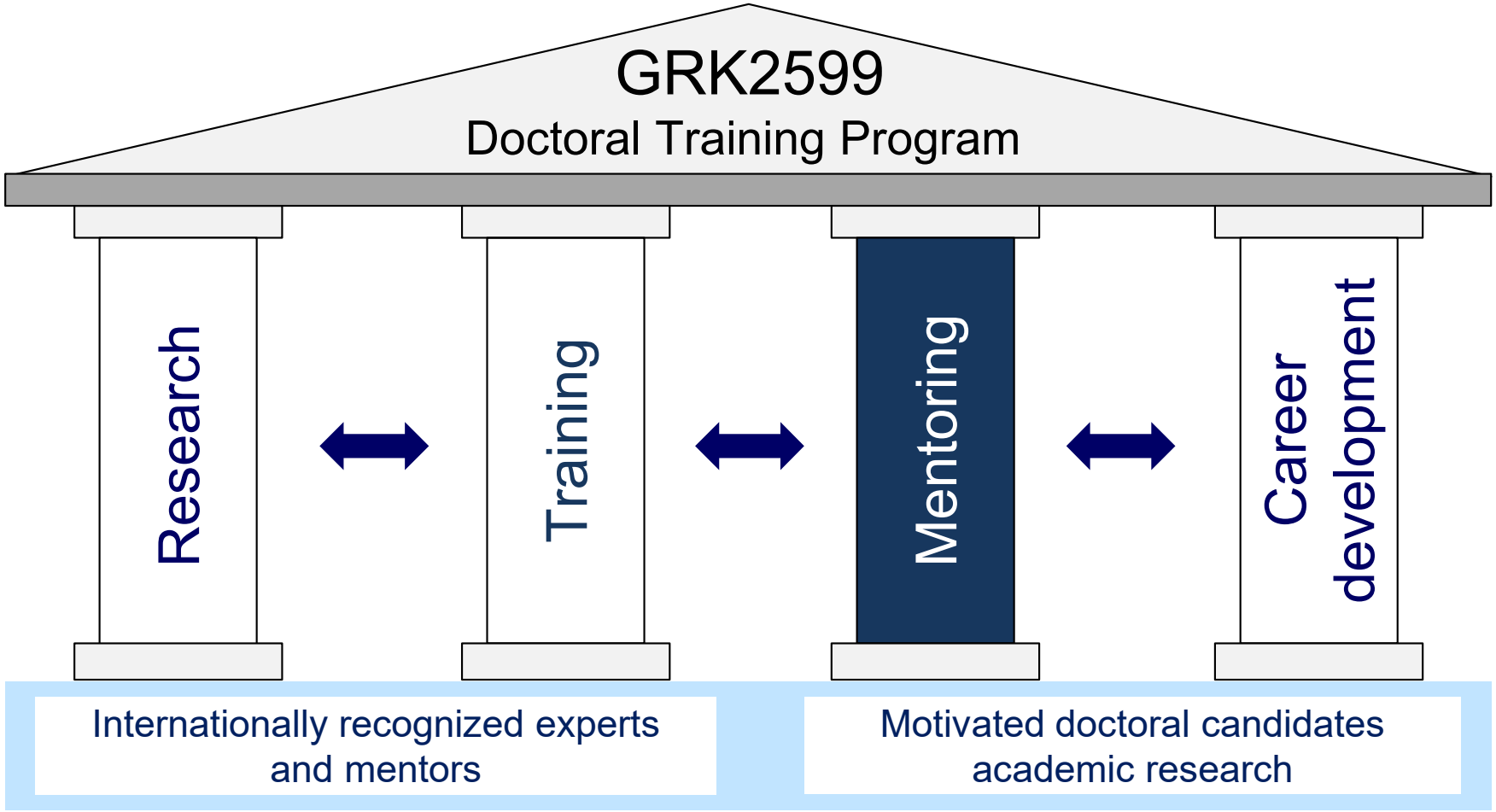

GRK2599 - *Supervision & Mentoring*

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

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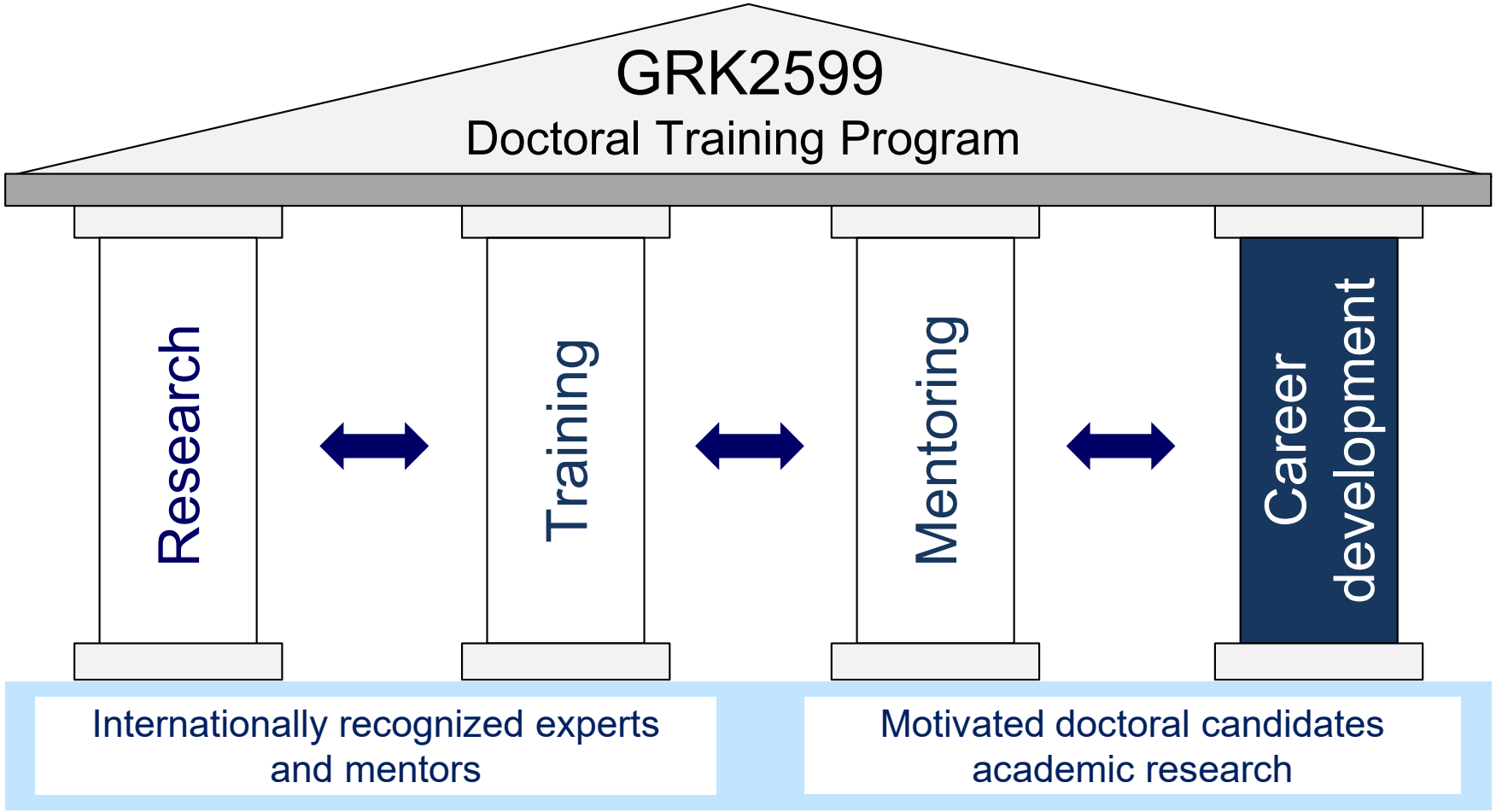


GRK2599 - *Career Development*

- 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

GRK2599 – *Data Management*

ELN

- Lab folder
- SciNote
- Lab Archives
- Labstep
- Benchling
- OpenBis
- ….

- Design experiment
- Material inventory
- Protocols
- Communication

Raw data

- ASCII (flow)
- Tiff (Scans, photos
- Excel (sequences)
- …

Medical Informatics

- *Prof. Prokosch*
- *Dr. Christoph*

Prepare presentation files

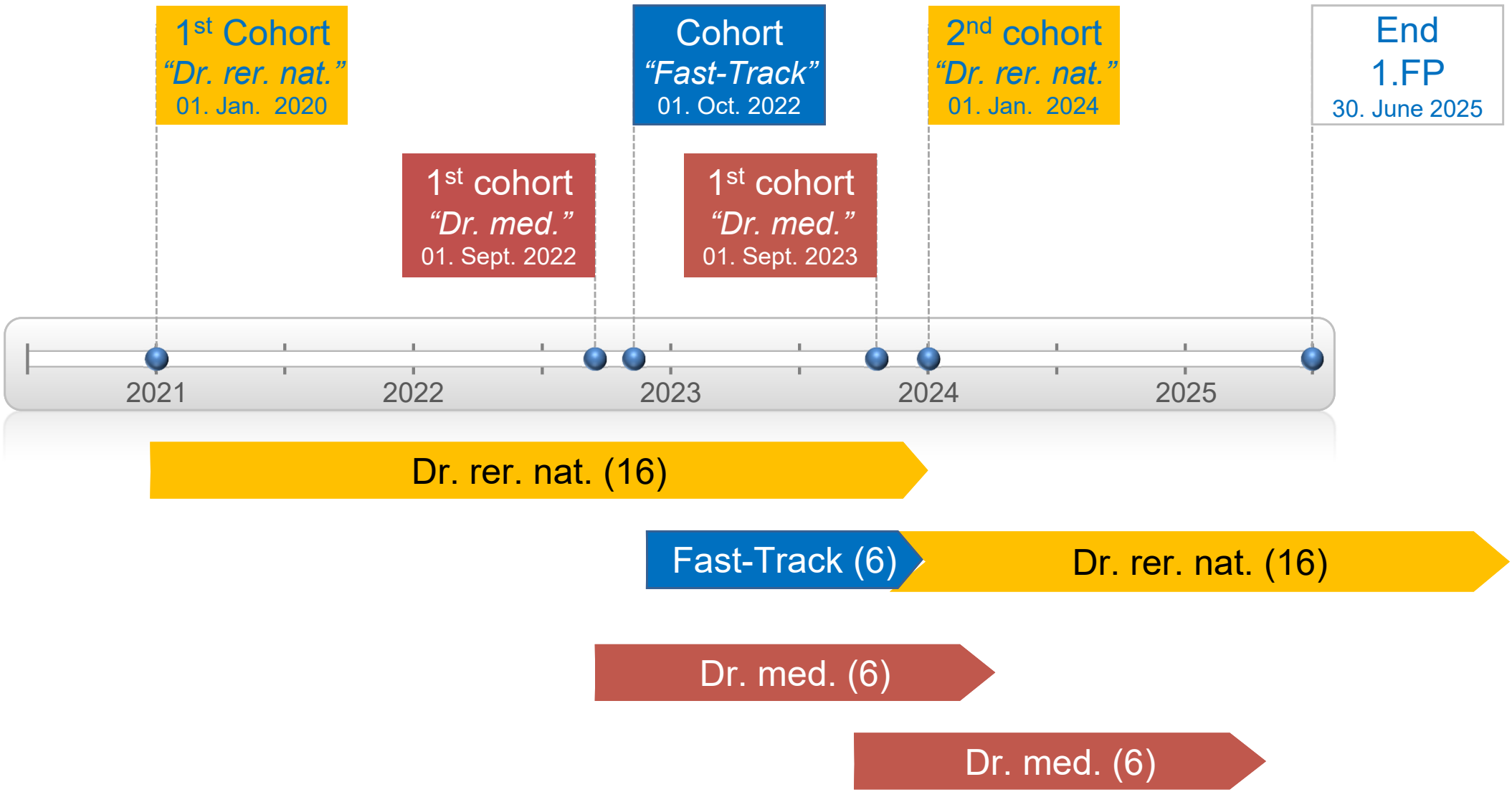
Publication

Retrieval of raw data used in publication

FAU Storage

- Name files and assign an UI
- Upload file into
- searchable FAU Cloud

GRK2599 - Doctoral Cohorts



Recruitment – *Schedule (Dr. med. candidates)*

MD candidates