DFG-Graduiertenkolleg GRK2599

Fine-Tuners of Adaptive Immune Responses

Friedrich-Alexander-Universität Erlangen-Nürnberg

Promotion für Medizinstudenten

| DFG |
|------------------------|
| Deutsche |
| Forschungsgemeinschaft |

| Bewerbung: | ab 1. Nov. 2021 | | | |
|----------------------|--------------------|--|--|--|
| Frist: | 20. 12. 2021 | | | |
| Rekrutierung: | 20. Jan. 2022 | | | |
| Beginn: | 26. September 2022 | | | |

Research Training Group 2599

FAIR – Fine-Tuners of the Adaptive Immune Response

Concept

Hans-Martin Jäck



Universitätsklinikum Erlangen



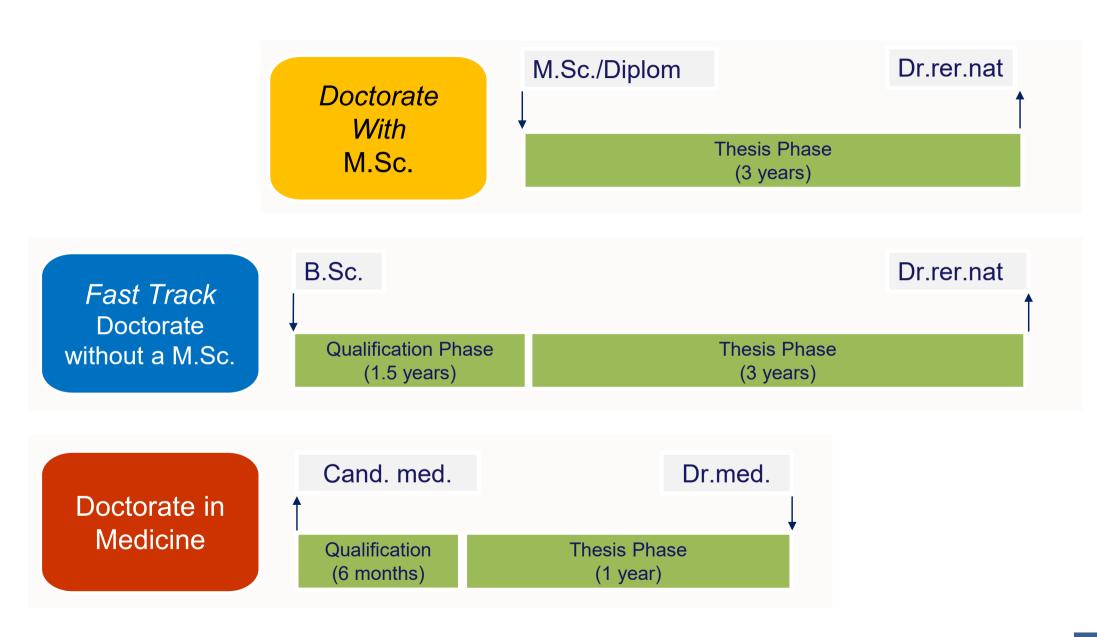
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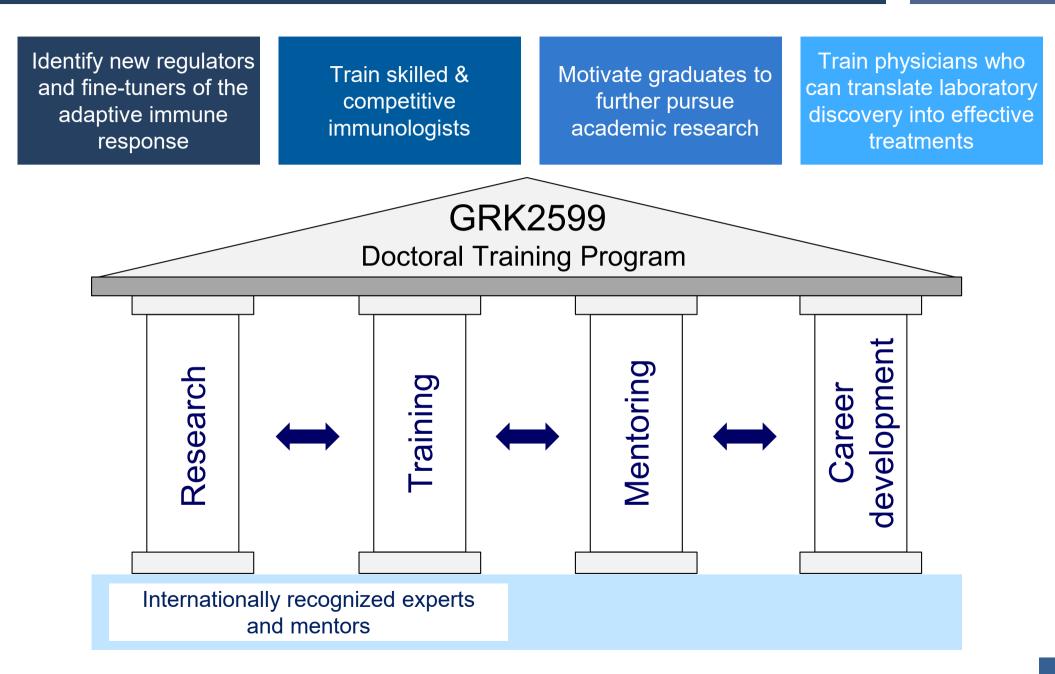
Doctoral Training Program



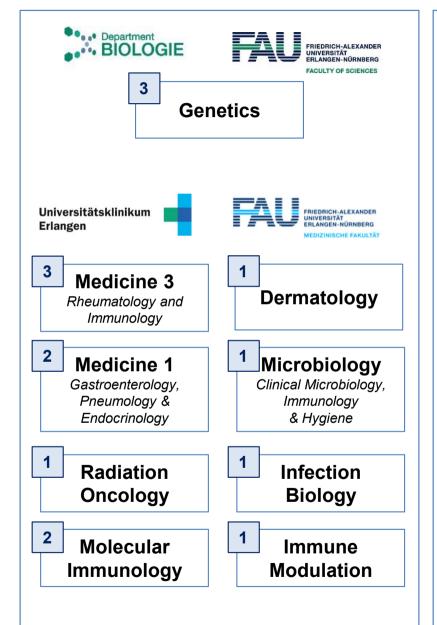
Doctoral Cohorts



GRK2599 – Goal



GRK2599 – Principal Investigators



- 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

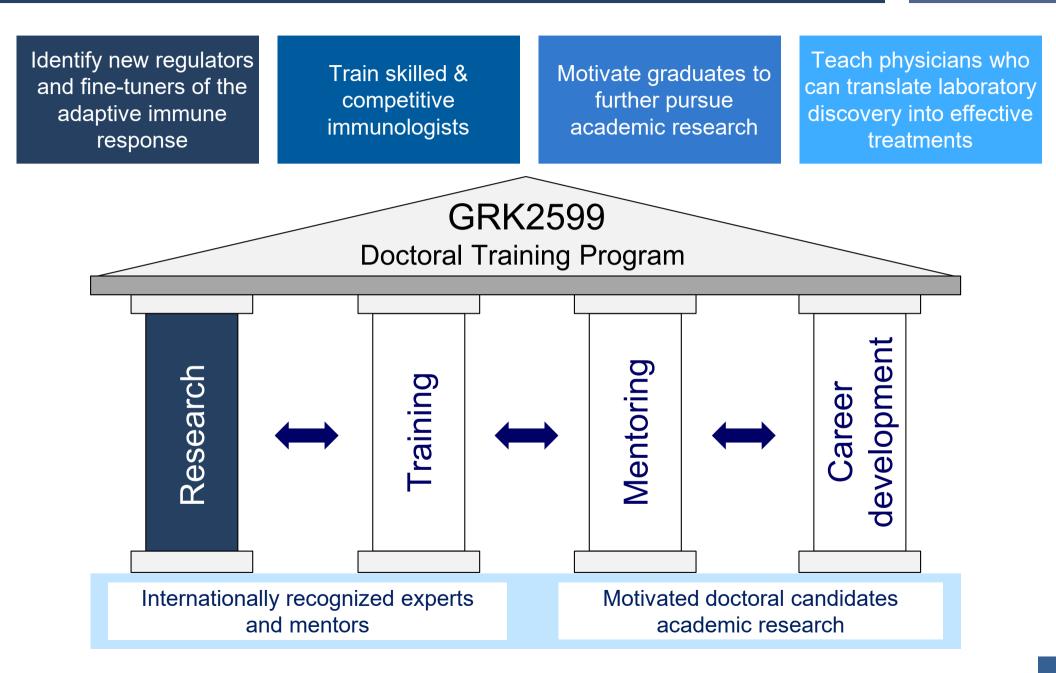
15 Researchers

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

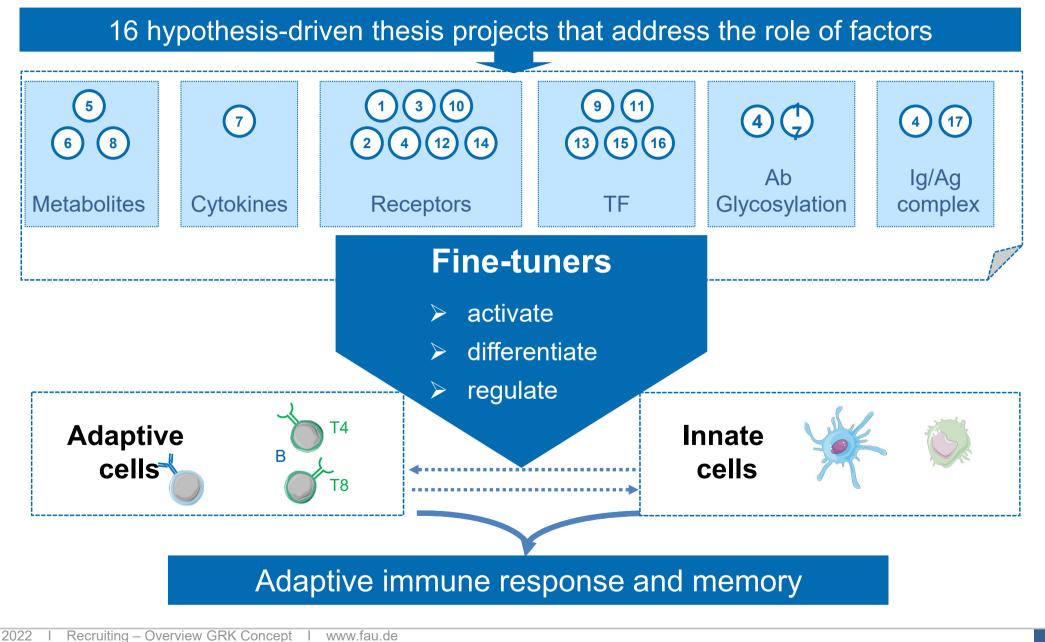
Selection Criteria

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

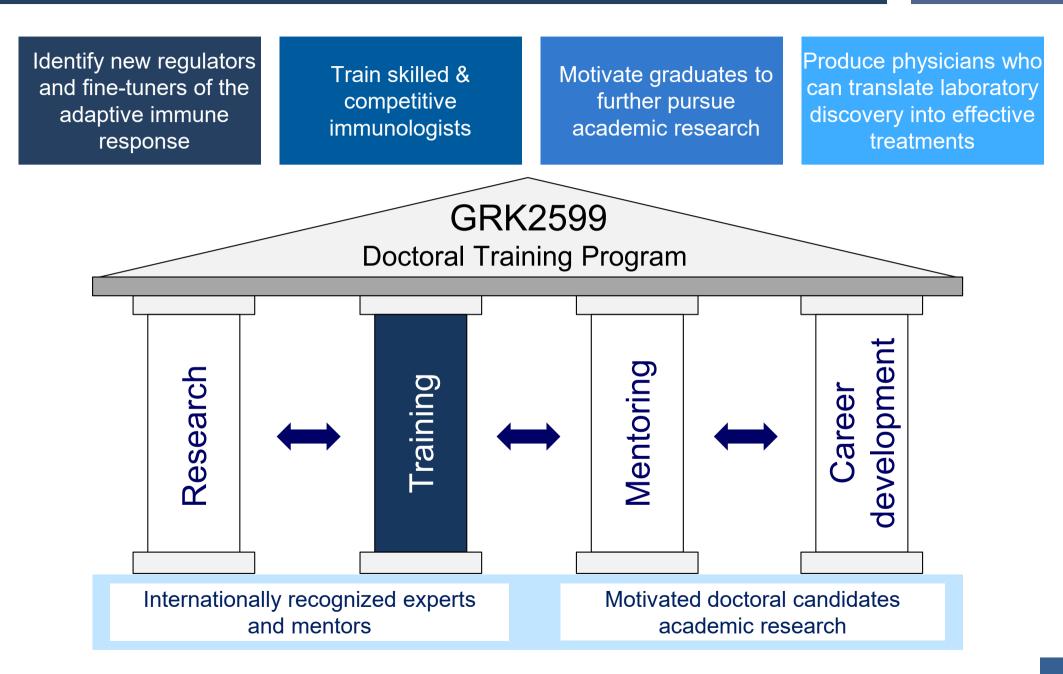
GRK2599 – Goal



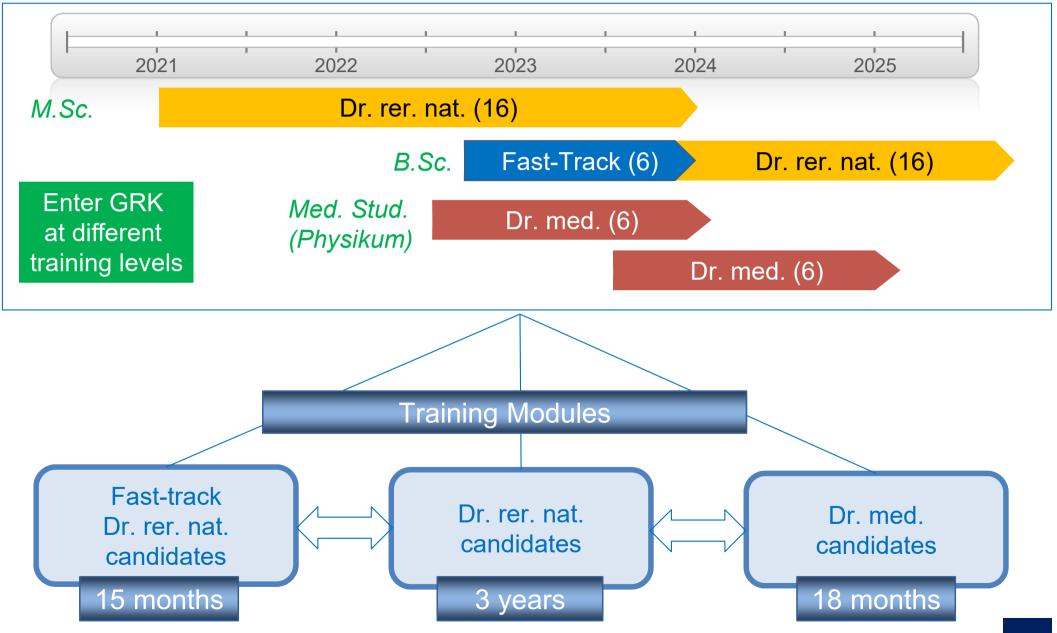
GRK2599 – Research Goals



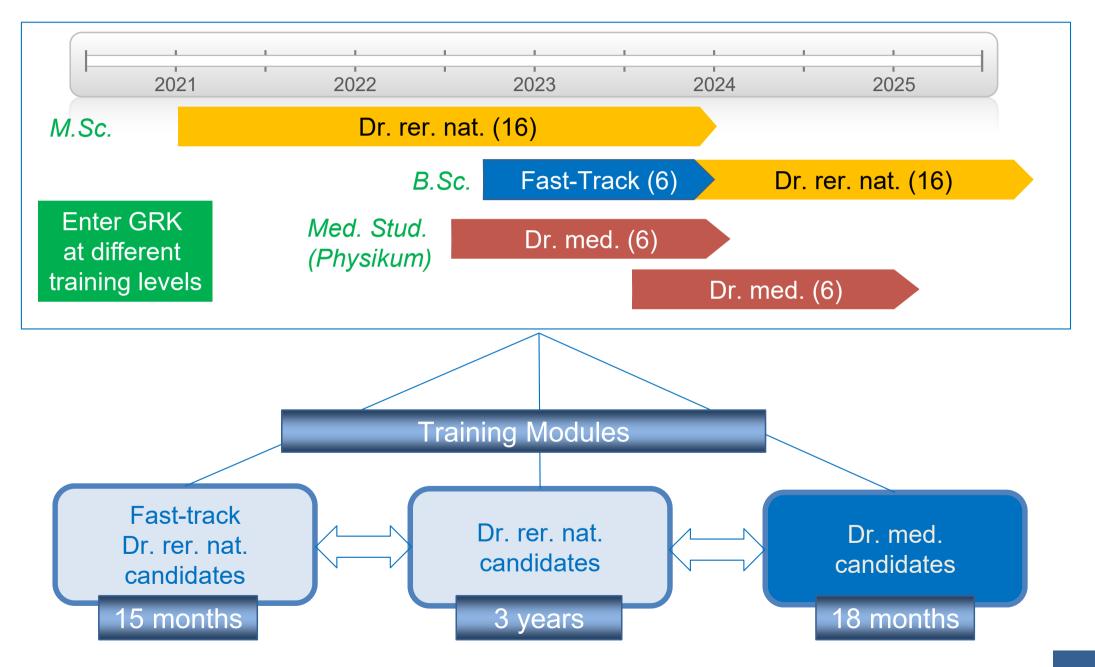
GRK2599 – Goal



GRKTG2599 – *Training Modules*



GRKTG2599 – *Training Modules*



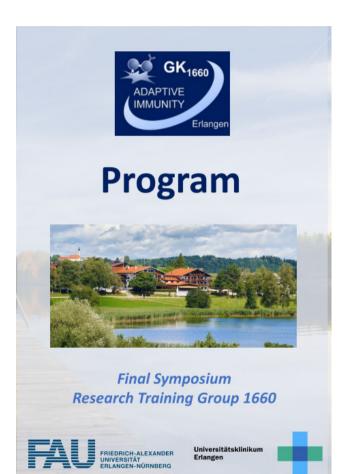
Training Concept – *Dr. med. applicants*

GRK2599 *FAIR*

| Beginning | Defend Thesis project | Finish Iab | Submit thesis to PI |
|--|---|--|--|
| 2 4 | Semester breaks plus free semes | ter (8 mths) | 14 16 |
| Prepare (5 months) Lab techniques (2 wks in GRK labs during semester break) DGfl Autumn School GRK-organized seminar "How to read a manuscript and prepare a grapt prepare" | Research (8 months) Lab work GRK Jour-fixe (2hrs, weekly) WS - Scientific Writing (2d) GRK Retreat (2d) Int. GRK Symposium (3d) | 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) |
| prepare a grant proposal" Selection of dissertation lab and preparation of proposal Defense of proposed thesis project | Paul-Ehrlich Club (every 2wks) GRK Network meeting (3d) GRK seminar iIMMUNE lectures | | Bioinformatics Biostatistics GRK network Paul-Ehrlich-Club |

Annual Internal GRK Retreat

Annual RTG Network Meeting





13th Network Meeting of DFG research training groups

Dept. of Immunology - Immunotherapy Graduate Program - Immunomodulation GK1660 - Adaptive Immunity

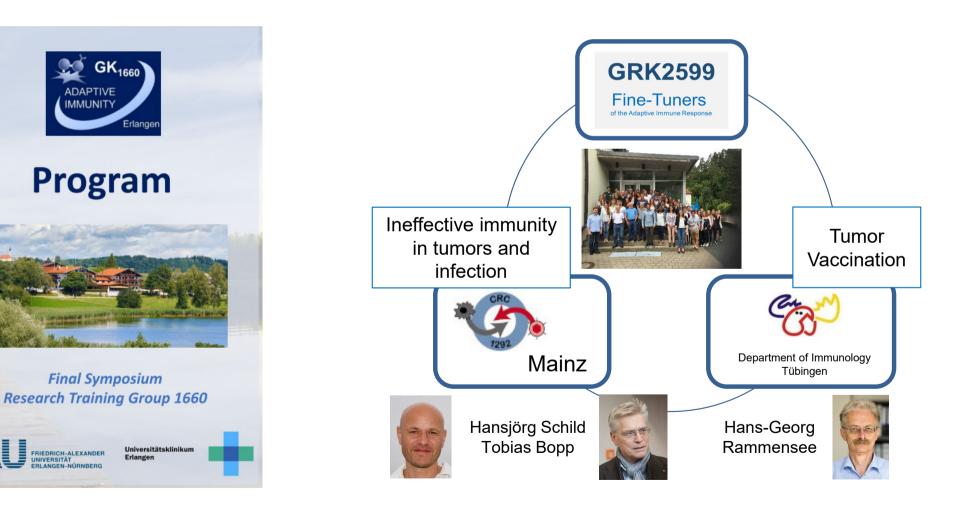
> June 18-20, 2018 Obertrubach





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 David Allman • Philadelphia • USA

Michael Cancro • Philadelphia • USA Sidonia Fagarasan • Yokohama • Japan

Dennis Burton • La Jolla • USA

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



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

Certified by the "Bayerische Landesärztekammer" with 18 CME credits



CONFIRMED SPEAKERS

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 • Parls • France Polly Matzinger • Bethesda • USA Michel Nussenzweig
 New York
 USA Giorgio Trinchieri • Bethesda • USA Marc Schmidt-Supprian

München

Germa Tim Sparwasser • Hannover • Germany Dario Vignali • Pittsburgh • USA Arthur Weiss
 San Francisco
 USA



2018

International GRK Symposium (2022)



5TH INTERNATIONAL GK SYMPOSIUM REGULATORS OF ADAPTIVE IMMUNITY

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Immunology



Dermatology







Janet Kelso • Leipzig • Germany Lars Klareskog • Stockhoim • 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 • Hanover • Germany Dario Vignali • Pittsburgh • USA Arthur Weiss • San Francisco • USA



Rheumatology /



New Lecture Hall of Medical Faculty • Ulmenweg 18 • 91054 Erlangen
www.gk-symposium.de

Certified by the "Bayerische Landesärztekammer" with 18 CME credits



LOCATION

GRK Mini Symposia



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 Neuroendokrinoimmunologie, Universitätskilnikum, 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 |

DGfl 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-fuerimmunologie/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

11th Autumn School

Current Concepts in Immunology October 14 - 19, 2019 • Merseburg • Sachsen-Anhalt

Faculty Hyun-Dong Chang Anne Dudezik Louis Du Pasquier Georg Gasteiger Ulf Grawunder Dirk Haller Jochen Hühn Julia Jellusova Ludger Klein Roland Lang Axel Roers

Ludger Klein Roland Lang Axel Roers Marc Schmidt-Supprian Claudia Traidl-Hoffmann

DGfl





18th B Cell Forum

AllgäuSternHotel, Sonthofen, Germany

12th to 14th March, 2020



UNIVERSITÄTS KLINIKUM Ulm





47th Annual Meeting

of the German Society for Immunology

CELEBRATING 50 ears

12-15 September 2017 - ERLANGEN

Abstract Deadline: 7 May 2017

www.immunology-conference.de

FAU INDERCHALDANDE

Other Meetings

2022 | Recruiting – Overview GRK Concept | www.fau.de

Immunology Autumn School

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> Application deadline: July 01, 2018 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

Wolfgang Schuh

Birgit Sawitzki

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

10th Autumn School

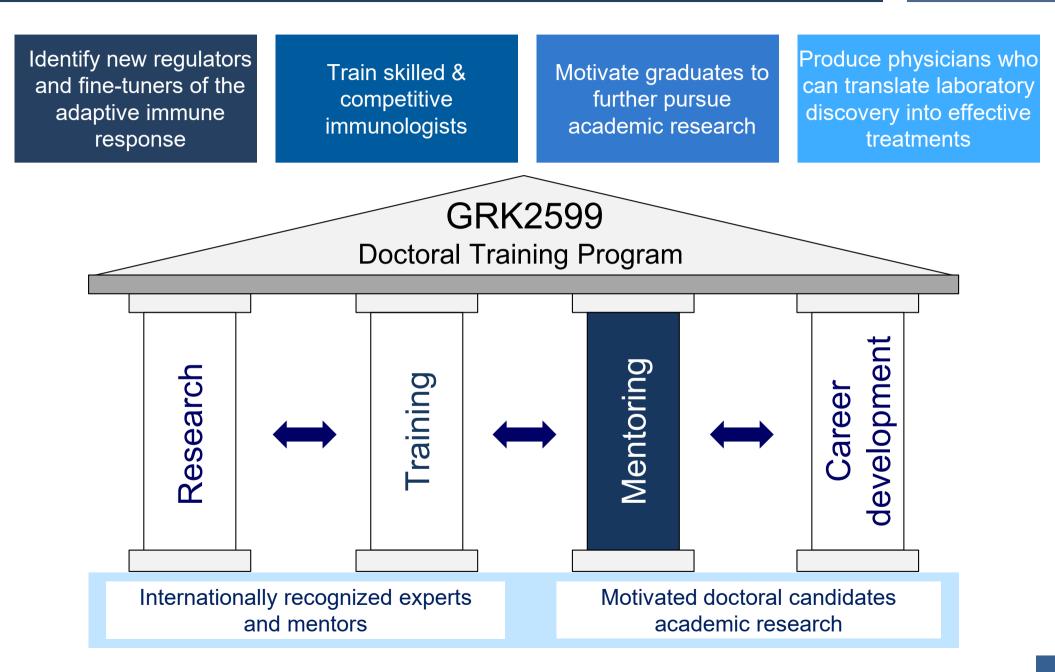
Current Concepts in Immunology October 07 - 12, 2018 • Merseburg • Sachsen-Anhalt

| 10 A | utumn Scho | ol Current Concep | ots in immunolog | gy | PROGRAM 20 | 10 |
|------------------|--|--|---|---|--|-----------|
| Time | Sunday 07. October | Monday 08. October | Tuesday 09. October | Wednesday 10. October | Thursday 11. October | Friday |
| 09:00 09:30 | | Hans-Martin Jäck | Diana Dudziak | Wolfgang Schuh | Dirk Haller | |
| | | 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 | |
| | (mq | 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 | с С | Break | Break | Break | Break | |
| 10:50 11:20 | j at | Olaf Groß | Hyun-Dong Chang | Hans-Martin Jäck | Birgit Sawitzki | |
| | arting | 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 | (sta | Axel Roers | Jochen Hühn | Thomas Kamradt | Ulf Grawunder | |
| | Arrival & Registration (starting at 3pm) | 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 | gistra | | | | | e |
| 13:00 | Å Å | Lunch &Meet- the-speakers | Lunch & Meet-the- speakers | Lunch & Meet- the-speakers | Lunch & Meet- the-speakers | Departure |
| | ~ | | | | | ē |
| 14:15 | Ø | Meet the | Free time | Free time | Free time | |
| 15:30 16:00 | rriv | companies (14:15 - 15:45) | Sandra Beer-Hammer | Round Table Discussion Groups | Du Pasquier (Beainn 15:00) | |
| | A | 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: Schut/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 | Free time | Poster Session | 10 Years Autumn School | |

Immunology Autumn School



GRK2599 – Goal



GRK2599 - Supervision & Mentoring

Qualification Phase

For Fast-Track and Dr. med. candidates

- Assigned advisors
 - One GRK PI as mentor
 GRK speaker and vice-speakers
 - o GRK coordinator

Duties

Advice on course selection
& lab internship abroad
Any other questions

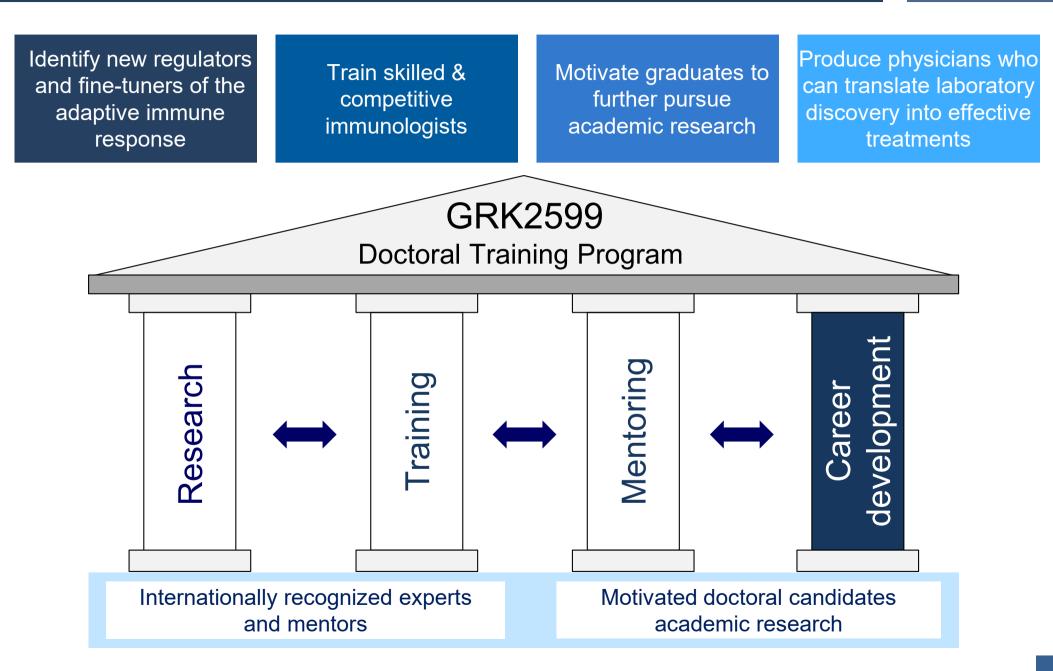
Dissertation Phase

For all doctoral candidates

- Thesis advisory committee (TAC)
 - 3 GRK PIs suggested by candidate
 - o 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
 - o Annual internal retreats
 - o Annual RTG network meeting

GRK2599 – Goal



- □ 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

RTG2599 - Career Development

□ Improve paper and grant writing proficiencies

□ Acquire **mentor expertise** through supervision of students

Deutsch | English | Contact

> DAAD Homepage





Graduate School GK1660 Prof. Dr. rer. nat. Hans-Martin Jäck Contact Information Tobit Steinmetz

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 upregulated in PC, the Tropomyosin receptor kinase (Trk) fused gene (Tfg). Tfg 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 Crispr/Cas-targeted CH12 murine lymphoma and MOPC104E plasmacytoma cells have revealed three phenotypes: Tfg 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 Tfg (TfgKO) but we were not able to obtain homozygous TfgKO offspring. Yet, already Tfg 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 Tfg is important for PC homeostasis in vivo by regulating ER quality control and autophagy. We want to determine how Tfg 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 Tfg by establishing and crossing Tfg^{ht} 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.

Planed 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, EliSpot 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 Crisper/Cas. Standard methods like flow cytometry, western blotting and PCR are common methods in our laboratory.

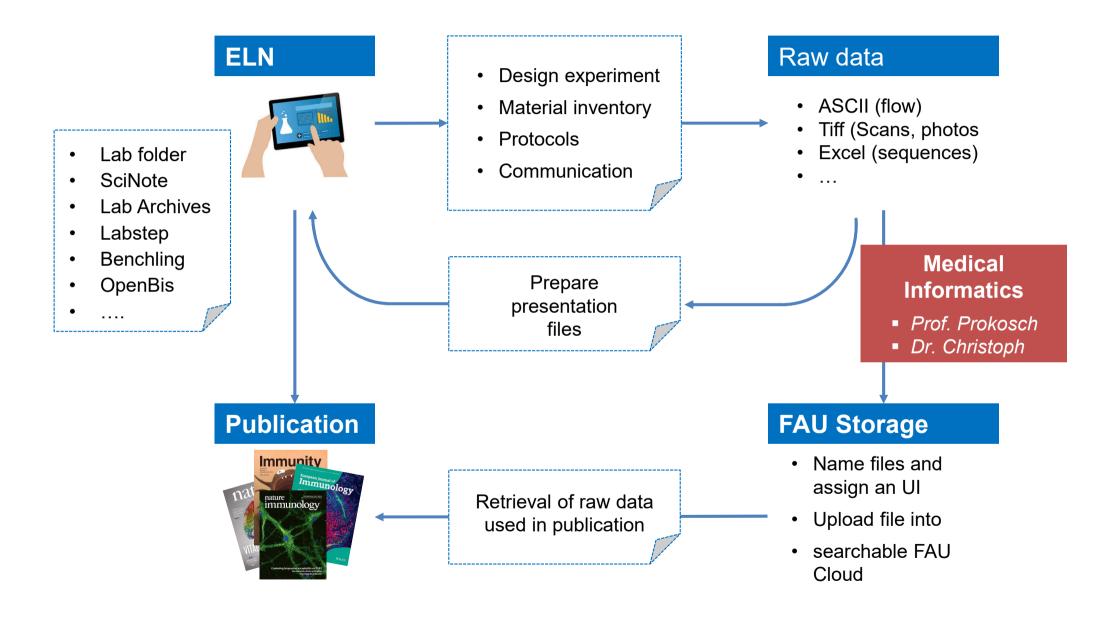
The research Institute is located in the medium sized town of Erlangen famous for its outstanding university clinic, in the middle of Baveria. Nevertheless the city has a natural, rural charm and despite its size relaxation in the nature is never far away. The whole region of Franconia is famous for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

DAAD RISE Research Internships in Science and Engineering

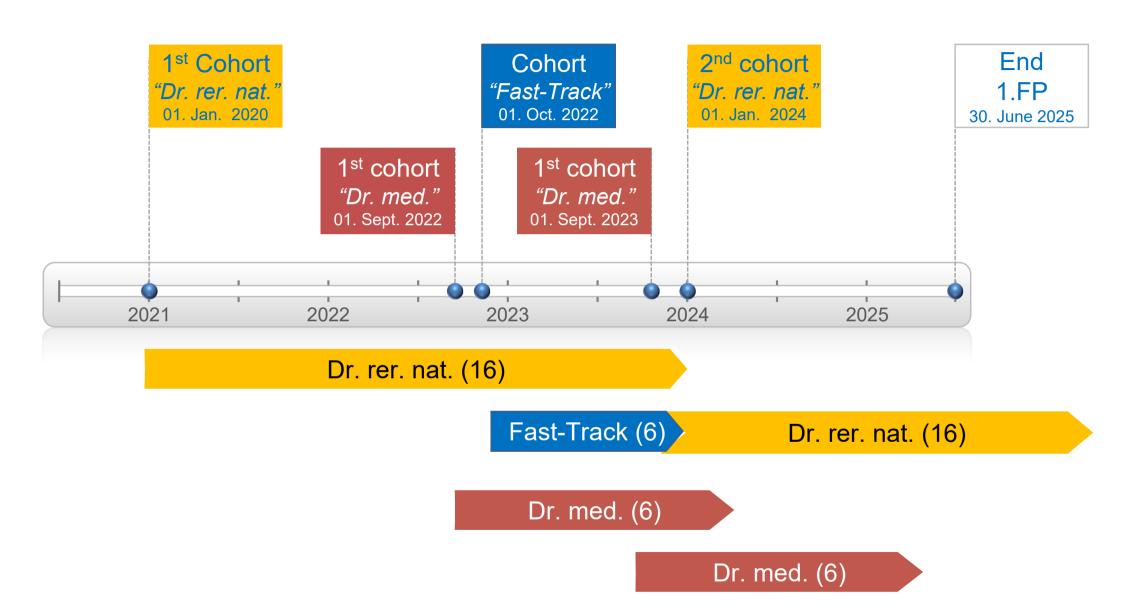
Home | RISE Germany | RISE Professional | RISE Worldwide



GRK2599 – Data Management



GRK2599 - Doctoral Cohorts

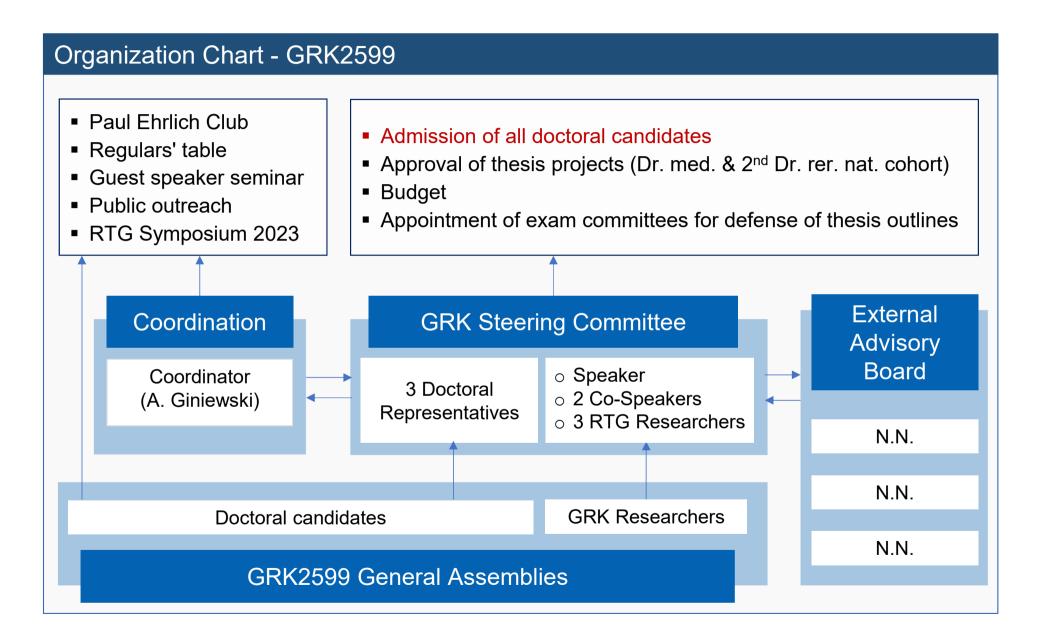


Recruitment – *Schedule (Dr. med. candidates)*

MD candidates



Recruitment – *Selection*



Recruitment – Schedule (Dr. med. candidates)

MD candidates



Dr. Natalie Schröter

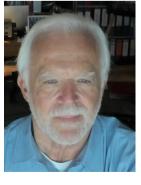
Koordinatorin



Natalie.schroeter@uk-erlangen.de

Prof. Dr. Hans-Martin Jäck

Direktor



Hans-martin.jaeck@fau.de



- <u>www.lymphozyten.de</u>
- Hans-martin.jaeck@fau.de