

GRK 2751  
**InCuPANC**

# WELCOME BOOKLET

for PhD and MD students of the Research Training  
Group (RTG) 2751 InCuPANC

## FOREWORD

Dear Doctoral Students,

We are delighted to welcome you to the exciting field of pancreatic diseases. At our RTG, we aim to train you to become qualified young scientists through outstanding research.

A sophisticated training and mentoring program has been established to provide you with comprehensive support and guidance. You should enjoy your time with us and develop a passion for research.

Comments and suggestions are welcome and will be integrated into the continuous improvement of our program.



Prof. Dr. Jonas Rosendahl



Prof. Dr. Monika Hämmerle



Prof. Dr. Ivonne Regel

## CONTACTS



### Spokesperson

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## CONTACTS



### Scientific Coordinator

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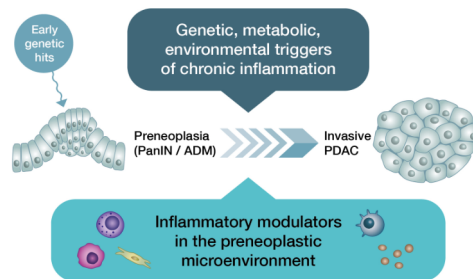
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## RTG 2751 InCuPANC

Chronic inflammation is an important risk factor for numerous malignancies including pancreatic cancer. In established pancreatic tumors, the impact of the inflammatory tumor microenvironment has been extensively studied during recent years. However, knowledge about the molecular circuits triggering inflammation-induced early

pancreatic carcinogenesis is still very limited. Therefore, this Research Training Group (RTG) aims to systematically decipher the influence of different inflammatory cues on the transition from preinvasive precursor lesions to invasive cancers during early pancreatic carcinogenesis.

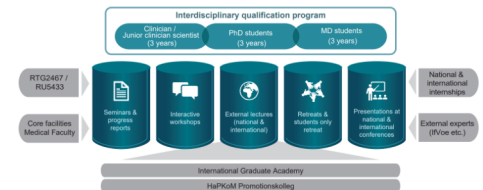




## QUALIFICATION PROGRAM

The qualification program of the RTG relies on four columns: student seminars including progress reports, theoretical and interactive hands-on courses, workshops, lectures with international experts in the fields of pancreatic research, oncology, immunology, as well as annual retreats and a summer school. The program uses successful qualification concepts from existing RTGs and is implemented under the umbrella of MLU's International Graduate Academy (InGrA). For PhD students, the educational program aims to complete a thesis in three years, and for MD students, it is an experimental research one-year program.

The RTG also integrates MDs into the Clinician Scientist program.



### Elements of the Training Program

- **Annual Retreat (Mandatory):** Each year, all PhD students and faculty participate in a 3-day retreat with project presentations, feedback, and networking.

## QUALIFICATION PROGRAM

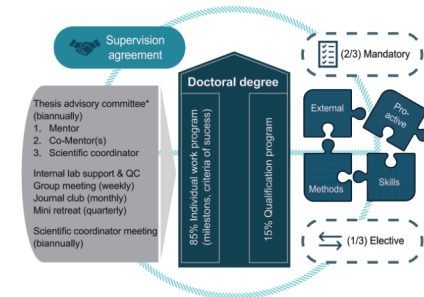
- **InGrA Halle (Voluntary):** Continuous access to a broad portfolio of additional workshops (soft skills, methodological training, career development) tailored to individual needs.
  - **Voluntary Workshops (Mandatory Selection):** Each PhD student is required to complete at least four voluntary workshops during their doctoral training (table below), chosen according to individual research interests and needs.
  - **Student-driven Courses:** Students are encouraged to propose additional workshops or invite experts based on their individual research needs (table below).
  - **Lab Rotation (Mandatory):** Every PhD student must complete a 1–2 week lab rotation either within Halle or with an external cooperation partner, with a focus on hands-on training in a new technique.
- Conferences (Mandatory):**
- **National conference:** At least once per year.
  - **International conference:** At least once during the PhD period.
  - **RTG Seminar Series (Mandatory):** All PhD students are required to attend the regular RTG seminar series (1–2 invited talks per year). Absence is only permitted with a justified reason.



## QUALIFICATION PROGRAM

- **RTG Colloquium (Mandatory):** Participation in the RTG colloquium is compulsory for all PhD students. Absence is only permitted with a justified reason.
- **Guest Lectures (Mandatory):** Each PhD student must invite one national or international guest speaker to the RTG colloquium and act as host/moderator.
- **Supervision Meetings (Mandatory):** Each PhD student must meet with their Thesis Advisory Committee (TAC) and their Scientific Coordinator (ScC) twice per year to discuss project progress and development.

Illustration of RTG's training strategy. Structured qualification within the individual RTG groups comprise a substantial proportion (85%) of educational efforts, complemented by the qualification program (15%). Two-thirds of the qualification program consist of mandatory activities and one-third of elective activities.



Year / Month	Workshop / Activity	Duration	Contents	Participation	Instructors / Organizers
<b>Year 1</b>					
Month 1-2	Kick-off Retreat	2 days	Introduction to RTG structure, presentation of projects, networking, alumni session	Mandatory	RTG
Month 1-4	Good Scientific Practice	2 days	Research integrity, data management, ethics	Mandatory	InGrA Halle
Month 1-4	Laboratory Animal Science (FELASA-B course)	4-6 weeks online + 2 days practical	Online theoretical module (LAS), 2-day hands-on course	Voluntary	LAS interactive LAS interactive (theory), ZMG Halle (practical)
Month 3-5	Workshop 1: Pancreas Clinic	3 days	Clinical aspects of pancreatitis and pancreatic cancer (lectures from Internal Medicine & Surgery), hospital ward visit, OR tour, lecture on biobanking & sample collection, overview of therapies	Voluntary	P01, P05, Biobank
Month 4-6	Workshop 2: Cell Culture in Pancreas Research	5 days	Introduction to available cell lines and organoid models, hands-on practice with different cell types, Live Cell imaging 2D, 3D cultures - imaging and image analyses	Voluntary	P02, P09, P10, P11
Month 6-10	Workshop 4: Advanced Lab Animal Science – Pancreas and Obesity Models	2 days	Pancreas- and obesity-specific research needs, i.p. injection & oral gavage, Pancreas dissection & perfusion, Pancreas ligation techniques, Project-specific adaptations and troubleshooting	Voluntary	P06, P07, ScC
Month 8-10	Workshop 4: Introduction to Statistics & Bioinformatics	3 days	R introduction, statistical basics, data management, simple omics datasets	Mandatory	P09, Bioinformatics
Month 10-12	Soft-Skills Workshop 1: Project Organization	1 day	Time and project management for PhD projects	Mandatory	External provider

Year / Month	Workshop / Activity	Duration	Contents	Participation	Instructors / Organizers
<b>Year 2</b>					
Month 13-14	Workshop 5: Histology & Pathology	3 days	Principles of histology and pathology, hands-on staining techniques and microscopy,	Voluntary	P02, P04, P06, P07
Month 15-18	Workshop 6: Cloning Club	5 days	Molecular biology techniques: cloning, CRISPR/Cas, hands-on experiments	Voluntary	P03, P08
Month 16-20	Workshop 7: Flow Cytometry & Seahorse	2 days	Flow cytometry (analysis, sorting), Seahorse metabolic assays	Voluntary	ZMG Halle
Month 22-24	Workshop 8: Bioinformatics II – Omics Data Analysis	3 days	Analysis of RNA-seq, scRNA-seq, integration of omics data, network biology	Mandatory	P09, Bioinformatics
Month 22-24	Soft-Skills Workshop 2: Scientific Communication & Networking	2 days	Presentation skills, scientific networking, science communication to diverse audiences	Mandatory	External provider
<b>Year 3</b>					
Month 24-28	Student-only Retreat	3 days	Organized by PhD students; focus on soft-skills and invited speakers (talks or hands-on)	Mandatory	PhD students
Month 26-30	Workshop 9: Spatial Transcriptomics & Single-Cell	4 days	Introduction to spatial transcriptomics & single-cell technologies; hands-on in KIM-I laboratory; data analysis	Voluntary	P01, P10
Month 30-32	Soft-Skills Workshop 3: Grant Writing & Fundraising	2 days	Structure of funding applications (DFG, EU, foundations), peer-review simulation, writing practice	Mandatory	External provider
Month 32-35	Soft-Skills Workshop 4: Career Development in Biomedical Research	1 day	Career paths: academia vs. industry, entrepreneurship, alumni panel	Mandatory	External provider
Month 36	Final Retreat & Mock Defense	3 days	Final presentation of projects, mock thesis defense, peer and faculty feedback	Mandatory	RTG

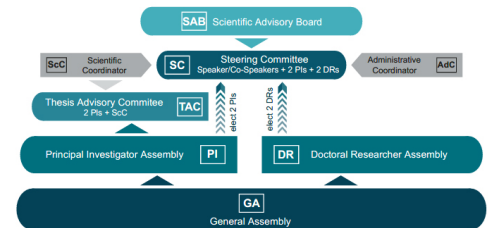


## ORGANIZATION

### Structure

The General Assembly unites all members of the RTG and convenes at least once a year. In addition, the doctoral researchers (Doctoral Researcher Assembly) and the principal investigators (Principal Investigator Assembly) have their own committee, each of which appoints two representatives. The Steering Committee is composed of the spokesperson, the co-spokesperson as well as the four elected representatives and, in an advisory capacity, the two coordinators. The Steering Committee meets once a month. The Thesis Advisory Committees,

composed of the project leader, the deputy project leader and the Scientific Coordinator, oversee the individual doctoral projects; they convene twice a year.



The organizational structure of the RTG

## ORGANIZATION

### Conflict Management

The primary contact for resolving conflicts within our RTG that cannot be addressed within the respective research group or TAC is the scientific coordinator. If the scientific coordinator is unable to resolve the issue, an ombuds committee, comprising the Spokesperson, Co-spokespersons, the elected Students representatives, and the Scientific Coordinator will convene. Further members of this committee will be jointly selected by the parties involved in the conflict and the scientific coordinator to ensure a balanced and impartial composition. To provide additional independent unbiased support, social and conflict counselling services are

available through Anke Märker, a graduate psychologist at MLU (Sozial- und Konfliktberatung, MLU). During the first funding period, all conflicts were successfully resolved at the group, TAC, or ombuds committee levels. For international students the International Office at MLU offers continuous support in all relevant matters (International Office MLU).

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## ORGANIZATION

### International Office

The International Office supports all areas of the university in their internationalization activities and works closely with the Halle-based research institutes of the Max Planck Society, the Helmholtz Association, the Leibniz Association, the Fraunhofer Society and with the Leopoldina. It provides information and advice to international and domestic students, doctoral candidates and academics as well as staff, trainees and alumni of the University of Halle on opportunities for study abroad, semesters abroad, financing options, further support services and many and varied partnerships with universities and research institutions worldwide.

### Office hours for international (PhD) students

Monday & Tuesday, 10.00 a.m. - 12.00 p.m.  
Consultation hours can be attended without making an appointment)

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### Office hours for domestic (PhD) students

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## ORGANIZATION

### Thesis Registration & Information

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UMH Information MD Program (German only)

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## ORGANIZATION

### Studentenwerk Halle and StuRa

To take advantage of the wide range of services offered by the Studentenwerk & the Student Council (StuRa), you must be matriculated. Once you have officially registered for the doctoral program, you can also enroll. There are many advantages to becoming a member: the most well-known is discounted meals in the mensa. In addition, there is a wide range of interesting opportunities to make your PhD life easier.

One example is the social counseling service provides information and advice on a wide range of study and everyday issues, particularly on financing your studies and your entitlements from service providers. The wide range of advisory services includes:

Part-time jobs during your studies, Debt counseling, Scholarship counseling, Nationwide bank loans, Health insurance, Accident insurance, Housing allowance and citizen's income, Broadcasting license fee International Student Identity Card (ISIC card) See also [www.isic.de](http://www.isic.de).

The goal is to find the perfect combination of the various financing options available. They also offer assistance with book subsidies, free meals, and financial aid in cases of extreme financial hardship. Social counseling is always free of charge! Another advantage could be legal advice.

Be sure to check out the website:  
<https://studentenwerk-halle.de/>

## ORGANIZATION

### Family Support

Childcare services offered during seminars, retreats, and conferences, as well as part-time laboratory substitutes to support staff during pregnancy or sick leave or because of other family obligations will be organized by the RTGs administrative office (please contact Sina Krehan for advice). To enhance the compatibility of family (planning) and scientific careers, MLU Halle-Wittenberg has established a dedicated “Family Office” aimed at improving conditions for families at the university (Family Office MLU). Additional family support efforts led to MLU Halle-Wittenberg’s participation in the “Dual Career Network Mitteldeutschland” a collaboration of approx. 30 academic and industrial institutions in

central Germany that aims to provide dual employment opportunities for partnered scientists (<https://www.dcnm.de/de>). The family-supportive infrastructure is conveniently located near the laboratories on the Weinberg Campus. A childcare facility offering kindergarten and crèche services with capacity for 175 children from nine weeks of age is situated at the heart of the campus (Kita Weinberg) and an additional kindergarten with capacity for 100 children at the University Hospital (Medikids). For extended working hours, the crèche “Weinberg Kids” provides childcare until the late evening (8:30 p.m.). Additionally, MLU offers childcare services to cover vacation closures of other facilities.

## ORGANIZATION

### Health Management & Sports

In alignment with these values, the RTG is dedicated to fostering an inclusive environment, accommodating individual health needs, safeguarding the well-being of its trainees, and implementing preventive measures to avoid harm. Offers from MLU's Occupational Health Management program (<https://bgf.uni-halle.de/>) will continue to be available to all RTG members. Furthermore, health-promoting activities such as "moving pauses" will be incorporated into retreats and other group events. Sports Offers are from Aikido to Zumba - the University Sports Centre offers a program with a variety of sports every semester. The current program and all information about registration can be found on the

homepage of the University Sports Center (USZ).

### Language Courses

At the university and in Halle there are various possibilities to take German courses. **PhD-network:** Every semester, the network offers German courses for international doctoral students and postdocs for a fee. **Institute for German Language and Culture:** Offers semester courses or intensive courses for a fee.


You can also take the examinations TestDaF and telc. Language Centre of the MLU: The Language Centre of the University of Halle offers free German courses every semester for students of the university. The registration takes place at the beginning of the semester via [stud.ip](http://stud.ip).

## ORGANIZATION

### Doctoral Regulations

[https://www.ingra.uni-halle.de/doctoral\\_regulations/](https://www.ingra.uni-halle.de/doctoral_regulations/)



The website is available in English and German. Please click on the tiny icon  at the very top right to switch languages.



### Funding Opportunities

To provide protected time for further career development, the RTG will continue to support two outstanding candidates of the second cohort with a six-month start-up package covering salary and consumables.

Additionally, MLU provides continuously updated information on relevant options for early career researchers to pursue funding (Early Career Researchers MLU). Lastly, the "RTG Alumni" Club, where PhD graduates from the first cohort – and later, the second – will come together to share their recent career experiences and provide insights and suggestions based on the current job market situation.

## ORGANIZATION

### Organizations & Meeting

- German Pancreatic Club (DPC) & Annually
- European Pancreatic Club (EPC) & Annually
- United European Gastroenterology (UEG) & Annually
- Pancreatic Cancer Europe (PCE)
- American Pancreatic Association (APA) & Annually
- AI Bootcamp in Stanford
- Digestive Disease Week (DDW) & Annually

### Bioinformatics Courses

- Seurat. R toolkit for single cell genomics. Satija Lab and Collaborators. (R)  
<https://satijalab.org/seurat/>
- Analysis of single cell RNA-seq data. Wellcome Sanger Institute. (R)  
<https://www.singlecellcourse.org/index.html>
- Analysis of single cell RNA-seq data. Broad Institute. (R)  
[https://broadinstitute.github.io/2020\\_scWorkshop/index.html](https://broadinstitute.github.io/2020_scWorkshop/index.html)
- Single-cell best practices. Single-cell best practices consortium. (Python)  
<https://www.sc-best-practices.org/preamble.html>



## Possibly Interesting LITERATURE

### Mouse Models

- **Hingorani SR, et al.** Preinvasive and invasive ductal pancreatic cancer and its early detection in the mouse. *Cancer Cell.* 2003 Dec;4(6):437-50. doi: 10.1016/s1535-6108(03)00309-x. PMID: 14706336. Hingorani SR, et al. Preinvasive and invasive ductal pancreatic cancer and its early detection in the mouse. *Cancer Cell.* 2003 Dec;4(6):437-50. doi: 10.1016/s1535-6108(03)00309-x. PMID: 14706336.
- **Hingorani SR, et al.** Trp53R172H and KrasG12D cooperate to promote chromosomal instability and widely metastatic pancreatic ductal adenocarcinoma in mice. *Cancer Cell.* 2005 May;7(5):469-83. doi: 10.1016/j.ccr.2005.04.023. PMID: 15894267.
- **Mazur PK, Siveke JT.** Genetically engineered mouse models of pancreatic cancer: unravelling tumour biology and progressing translational oncology. *Gut.* 2012 Oct;61(10):1488-500. doi: 10.1136/gutjnl-2011-300756. Epub 2011 Aug 26. PMID: 21873467.
- **Hegy E, Sahin-Tóth M.** Human CPA1 mutation causes digestive enzyme misfolding and chronic pancreatitis in mice. *Gut.* 2019 Feb;68(2):301-312. doi: 10.1136/gutjnl-2018-315994. Epub 2018 Jul 25. PMID: 30045879.

## Possibly Interesting LITERATURE

### Single-Cell Transcriptomics & Pancreatic Carcinogenesis

- **Schlesinger Y, et al.** Single-cell transcriptomes of pancreatic preinvasive lesions and cancer reveal acinar metaplastic cells' heterogeneity. *Nat Commun.* 2020 Sep 9;11(1):4516. doi: 10.1038/s41467-020-18207-z. PMID: 32908137.
- **Burdziak C, et al.** Epigenetic plasticity cooperates with cell-cell interactions to direct pancreatic tumorigenesis. *Science.* 2023 May 12;380(6645):eadd5327. doi: 10.1126/science.add5327. Epub 2023 May 12. PMID: 37167403
- **Del Poggetto E, et al.** Epithelial memory of inflammation limits tissue damage while promoting pancreatic tumorigenesis. *Science.* 2021 Sep 17;373(6561):eabj0486. doi: 10.1126/science.abj0486. Epub 2021 Sep 17. PMID: 34529467.

### Single-Cell Transcriptomics & Pancreatitis

- **Aney KJ, et al.** Novel Approach for Pancreas Transcriptomics Reveals the Cellular Landscape in Homeostasis and Acute Pancreatitis. *Gastroenterology.* 2024 Jun;166(6):1100-1113. doi: 10.1053/j.gastro.2024.01.043. Epub 2024 Feb 6. PMID: 38325760.
- **Ma Z, et al.** Single-Cell Transcriptomics Reveals a Conserved Metaplasia Program in Pancreatic Injury. *Gastroenterology.* 2022 Feb;162(2):604-620.e20. doi: 10.1053/j.gastro.2021.10.027. Epub 2021 Oct 23. PMID: 34695382.

## Possibly Interesting LITERATURE

### Single-Cell Transcriptomics & PDAC

- **Peng J, et al.** Cell Res. 2019 Sep;29(9):725-738. doi: 10.1038/s41422-019-0195-y. Epub 2019 Jul 4. Erratum in: Cell Res. 2019 Sep;29(9):777. doi: 10.1038/s41422-019-0212-1. PMID: 31273297.
- **Werba G, et al.** Single-cell RNA sequencing reveals the effects of chemotherapy on human pancreatic adenocarcinoma and its tumor microenvironment. Nat Commun. 2023 Feb 13;14(1):797. doi: 10.1038/s41467-023-36296-4. Erratum in: Nat Commun. 2023 Jul 3;14(1):3912. doi: 10.1038/s41467-023-39680-2. PMID: 36781852.
- **Cui Zhou D, et al.** Spatially restricted drivers and transitional cell populations cooperate with the microenvironment in untreated and chemo-resistant pancreatic cancer. Nat Genet. 2022 Sep;54(9):1390-1405. doi: 10.1038/s41588-022-01157-1. Epub 2022 Aug 22. PMID: 35995947.

## Possibly Interesting LITERATURE

### Spatial Transcriptomics & PDAC

- **Kim S, et al.** Integrative analysis of spatial and single-cell transcriptome data from human pancreatic cancer reveals an intermediate cancer cell population associated with poor prognosis. *Genome Med.* 2024 Jan 31;16(1):20. doi: 10.1186/s13073-024-01287-7. PMID: 38297291.
- **Sans M, et al.** Spatial Transcriptomics of Intraductal Papillary Mucinous Neoplasms of the Pancreas Identifies NKX6-2 as a Driver of Gastric Differentiation and Indolent Biological Potential. *Cancer Discov.* 2023 Aug 4;13(8):1844-1861. doi: 10.1158/2159-8290.CD-22-1200. PMID: 37285225.
- **Chen MM, et al.** Integrated single-cell and spatial transcriptomics uncover distinct cellular subtypes involved in neural invasion in pancreatic cancer. *Cancer Cell.* 2025 Sep 8;43(9):1656-1676.e10. doi: 10.1016/j.ccell.2025.06.020. Epub 2025 Jul 17. PMID: 40680743.

## Possibly Interesting LITERATURE

### Early Pancreatic Carcinogenesis

- **Storz P.** Acinar cell plasticity and development of pancreatic ductal adenocarcinoma. *Nat Rev Gastroenterol Hepatol.* 2017 May;14(5):296-304. doi: 10.1038/nrgastro.2017.12. Epub 2017 Mar 8. PMID: 28270694.
- **Braxton AM, et al.** 3D genomic mapping reveals multifocality of human pancreatic precancers. *Nature.* 2024 May;629(8012):679-687. doi: 10.1038/s41586-024-07359-3. Epub 2024 May 1. PMID: 38693266.
- **Carpenter ES, et al.** Analysis of Donor Pancreata Defines the Transcriptomic Signature and Microenvironment of Early Neoplastic Lesions. *Cancer Discov.* 2023 Jun 2;13(6):1324-1345. doi: 10.1158/2159-8290.CD-23-0013. PMID: 37021392.

### PDAC Subtypes

- **Moffitt RA, et al.** Virtual microdissection identifies distinct tumor- and stroma-specific subtypes of pancreatic ductal adenocarcinoma. *Nat Genet.* 2015 Oct;47(10):1168-78. doi: 10.1038/ng.3398. Epub 2015 Sep 7. PMID: 26343385.
- **Bailey P, et al.** Genomic analyses identify molecular subtypes of pancreatic cancer. *Nature.* 2016 Mar 3;531(7592):47-52. doi: 10.1038/nature16965. Epub 2016 Feb 24. PMID: 26909576.
- **Collisson EA, et al.** Subtypes of pancreatic ductal adenocarcinoma and their differing responses to therapy. *Nat Med.* 2011 Apr;17(4):500-3. doi: 10.1038/nm.2344. Epub 2011 Apr 3. PMID: 21460848.



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