



CRC/TRR241 Newsletter

February 2019 – Issue 2

We proudly present the PhD students of the TRR241

During the following months we will present the PhD students of the TRR241. We start with Annette Stahl (Erlangen) and Daniela Hernandez (Berlin), who are the student representatives of the iRTG.



My name is Annette Stahl and I started my PhD under the supervision of Prof. Dr. Neurath at the Universitätsklinikum Erlangen. While still in school I decided I wanted to become a molecular biologist and went straight for it by studying and graduating in Biochemistry with the corresponding main focus in lectures. After a family member got diagnosed with Crohn's disease, I already took up reading on the subject years ago and am excited to be part of such an excellent program as the TRR241 with so many specialists involved. My project "A phase II multi-center clinical trial to study efficacy and *in vivo* trafficking of autologous adoptively transferred *ex vivo* expanded regulatory T cells in patients with ulcerative colitis" (C04) gives me the opportunity to work directly on a new, promising therapy option for IBD. At the same time I want to work on a better understanding of Treg trafficking and homing, and translate findings directly to an optimization of clinical therapies.

As Daniela Hernández is for the Berlin PhD students, I am the student representative of the PhD students from Erlangen in the iRTG. I am looking forward to a close and fruitful cooperation with the other PhD students and the principal investigators.

My name is Daniela Hernandez, I was born in Venezuela, obtained a B.Sc. in Immunology from McGill University in Montréal, Canada, and a M.Sc. in Molecular Medicine from Charité Universitätsmedizin, in Berlin, Germany. Currently I am a doctoral candidate in the lab of Prof. Chiara Romagnani at the Deutsches-Rheuma Forschungszentrum in Berlin. My project (B02) focuses on human innate lymphoid cells (ILCs), and their development, differentiation, and activation, particularly in the context of chronic inflammation. I work with a system of *in vitro* ILC generation from hematopoietic progenitor cells to facilitate the study of signals leading to lineage decision and activation of ILCs. This, in tandem with samples from patients with inflammatory bowel disease, enables us to study how stress signals, derived for example from the intestinal epithelium during disease, can engage ILC activating receptors and critically shape ILC subset identity and effector functions, leading to the initiation and persistence of intestinal inflammation.



iRTG student Retreat – Berlin meets Erlangen

The first PhD student Retreat will take place in the SI Hotel, Berlin at the 13th and 14th of May 2019. Each PhD student will present her/his project in a poster session. Furthermore, two leading scientists in the fields of IBD, intestinal epithelial cells and immunology will be invited for a talk by the PhD students. Additionally, two PIs of the TRR241 will join the PhD student retreat.



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New TRR 241 Publications

Raja Atreya (C03) and **Markus F. Neurath (C04)** published the article Mechanisms of molecular resistance and predictors of response to biological therapy in inflammatory bowel disease in the **Lancet Gastroenterology & Hepatology**.

Michael Schumann (C03) published the article Gluten-Free Diet in Celiac Disease- Forever and for All? in **Nutrients**.

Michael Stürzl (A06), **Stefan Wirtz (A03)**, **Markus F. Neurath (C04)**, **Claudia Günther (A02)** and **Christoph Becker (A03)** published the article Chronic intestinal inflammation in mice expressing viral Flip in epithelial cells. in **Mucosal Immunology**.

Michael Stürzl (A06) published the article Soluble intercellular adhesion molecule-1 is a prognostic marker in colorectal carcinoma. in **International Journal Colorectal Disease**.

Alexander Scheffold (B07) published the article The effect of regulatory T cells on tolerance to airborne allergens and allergen immunotherapy in **The Journal of Allergy and Clinical Immunology**.

Britta Siegmund (B01) published the article Human microglia regional heterogeneity and phenotypes determined by multiplexed single-cell mass cytometry in **Nature Neuroscience**.

Markus F. Neurath (C04) and **Maximilian Waldner (C01)** published the article Contrast-Enhanced μ CT for Visualizing and Evaluating Murine Intestinal Inflammation in **Theranostics**.

Andreas Diefenbach and **Antigoni Triantafyllopoulou (A01)** published the article Interleukin-22 protects intestinal stem cells against genotoxic stress in **Nature**.

!SAVE THE DATE!

The next TRR241 Retreat will take place in Schloss Thurn Heroldsbach from the 28th of October to the 30th of October 2019. More information will follow.

It's all about the money

Please make sure that the projects with a shared location arrange a budget apportioning. Only when the budget arrangement has arrived at Ms. Birwe (Erlangen) she is able to release your budget for 2019.

Of note

- money from the cost unit that is not used in 2019 cannot be transferred into 2020
- please make sure that your last invoice and delivery will take place in November 2019 to make sure that your order can be paid in time with your TRR241 budget
- in case your invoice and delivery will be delayed (dated in 2020) your order has to be paid with your budget of 2020
- there is an extra cost unit for basic equipment

In search for new medical doctoral students

In 2019 six medical doctoral students should be enrolled in projects of the TRR241. In order to arouse interest the concept of the iRTG and the TRR241 was presented by Dr. Imke Atreya at the Second-FAU-Networking-Night (14th November 2018). If someone is interested in involving a MD in her/his project please contact Dr. Imke Atreya or Ina Schlelein.

Methodical Internships

Roodline Cineus (A05) and Daniela Hernandez (B02) took the opportunity and visited the laboratory of Claudia Günther (A02) and Stefan Wirtz and Christoph Becker (A03). They received first-hand experience on culturing and handling murine organoids and the preparation of organoids for immunohistochemistry.

Information exchange

It would be a great help if PIs, technical assistants and PhDs would contact us to share important information which should be listed in the TRR241 application for prolongation. This includes the purchase of equipment (over 10.000 Euro), student exchange, congress contribution, awards, publications etc.



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Web Tip

Did you know the webpage https://portals.broadinstitute.org/single_cell/?

Single Cell PORTAL
Reducing barriers and accelerating single-cell research

Featuring 68 studies 745,028 cells

Search Studies Search Genes

Search Studies [input] [Search] [Help] [Most Recent] [Most Popular] [Reset Filters]

Single nucleus RNA-seq of cell diversity in the adult mouse hippocampus (sNuc-Seq)

Single nucleus RNA-seq of cell diversity in the adult mouse hippocampus. Habib N, Li Y, Heidenreich M, Swiech L, Avraham-David I, Trombetta J, Hession C, Zhang F, Regev A. Div-Seq. Single-nucleus RNA-Seq reveals dynamics of rare adult newborn neurons. Science. 28 Jul 2016. DOI: 10.1126/science.aad7038 Contact: naomi@broadinstitute.org Single cell RNA-Seq provides rich information about cell types and states. However, it is difficult to capture rare dynamic processes, such as adult neurogenesis, because isolation of rare neurons from adult tissue is challenging and markers for each phase are limited. Here, we develop Div-Seq, which combines scalable single-nucleus RNA-Seq (sNuc-Seq) with pulse labeling of proliferating cells by Edu... (continued)

Two studies are of particular interest: “small intestine epithelium” focusing on intestinal epithelium cell subsets and “intestinal stem cell” focusing on the immune cells of the gut

Study: Small intestinal epithelium 28723 cells

[Summary](#) [Explore](#) [Download](#)

A single-cell survey of the small intestinal epithelium

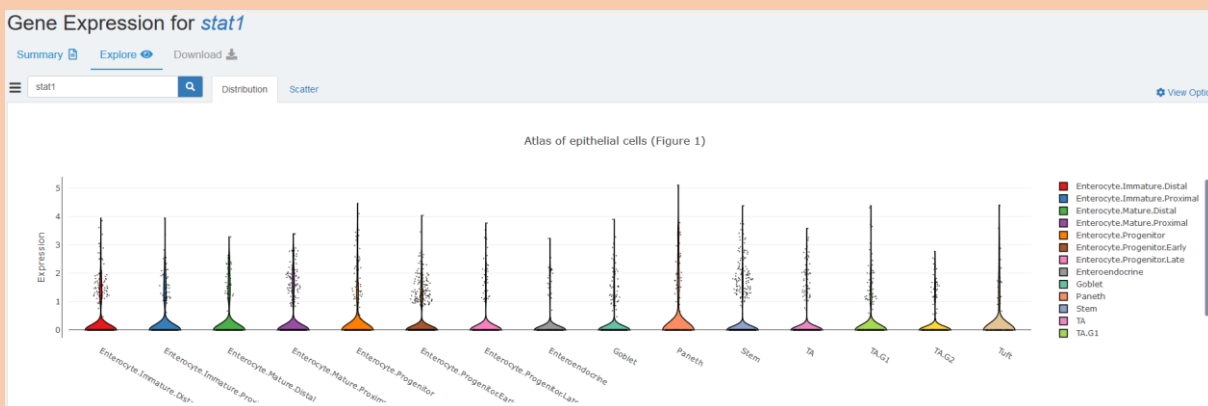
Adam L. Haber, Moshe Biton, Noga Rogel, Rebecca H. Herbst, Karthik Shekhar, Christopher Smillie, Grace Burgin, Omer Yilmaz, Ramnik J Xavier and Aviv Regev.

Nature 16 November 2017 DOI: 10.1038/nature24489

Contact: aregev@broadinstitute.org

Click on explore

Enter your gene of interest



Find out the expression of your gene of interest in different immune cell types of the intestinal epithelium

Contact: Ina.Schlelein@uk-erlangen.de

Erika.Buehler@charite.de