



TRR 241 Retreat

16.-17. September 2024, Erfurt



The annual retreat of the TRR 241 took place from **September 16–17, 2024**, in Erfurt. During the Project Leader Assembly, discussions focused primarily on the public outreach strategies of the TRR 241, as well as the planning for the upcoming funding period. Following the retreat, the annual iRTG meeting was held, providing an opportunity for early-career researchers to connect and engage in further discussions related to the research focus of the TRR 241.

As a highlight, the Poster Award for outstanding scientific work was presented to **Miguel Gonzalez Acera** and **Klara Penkert**. Contratulations!

We would like to thank all the participants for the constructive discussions, the lively exchange and the opportunity to meet all of us again in persona!





CRC / TRR 241 Newsletter

Issue 13 - October 2024

TRR 241 Vision 2030

International Symposium- save the date!

Please save the date for the next TRR 241
International Symposium “Vision 2030”,
which will be held in Berlin at the
Berlin-Brandenburgische Akademie der Wissenschaften
from ***May 26-27, 2025***.



We are pleased to have secured the participation of many renowned scientists in the field of IBD, including James Lee (London), Greg Sonnenberg (New York), Clarissa Campbell (Vienna), Saurabh Mehandru (New York), Eduardo Villablanca (Stockholm), Dirk Brenner (Esch-sur-Alzette), Melanie Schirmer (Munich), Isabelle Arnold Wallén (Zurich), and Holm Uhlig (Oxford). The program will follow shortly.



New TRR 241 Publications

- Schulze LL, Becker E, Dedden M, Liu LJ, van Passen C, Mohamed-Abdou M, Müller TM, Wiendl M, Ullrich KAM, Atreya I, Leppkes M, Ekici AB, Kirchner P, Stürzl M, Sexton D, Palliser D, Atreya R, Siegmund B; TRR241 IBDome consortium; Neurath MF, Zundler S. Differential Effects of Ontamalimab Versus Vedolizumab on Immune Cell Trafficking in Intestinal Inflammation and Inflammatory Bowel Disease. *J Crohns Colitis*. 2023 Nov 24;17(11):1817-1832. doi: 10.1093/ecco-jcc/jjad088. PMID: 37208197.
- Budzinski L, von Goetze V, Chang HD. Single-cell phenotyping of bacteria combined with deep sequencing for improved contextualization of microbiome analyses. *Eur J Immunol*. 2024 Jan;54(1):e2250337. doi: 10.1002/eji.202250337. Epub 2023 Nov 16. PMID: 37863831.
- Chiriac MT, Hracsko Z, Günther C, Gonzalez-Acera M, Atreya R, Stolzer I, Wittner L, Dressel A, Schickedanz L, Gamez-Belmonte R, Erkert L, Hundorfean G, Zundler S, Rath T, Vetrano S, Danese S, Sturm G, Trajanoski Z, Kühl AA, Siegmund B, Hartmann A, Wirtz S, Siebler J, Finotto S, Becker C, Neurath MF. IL-20 controls resolution of experimental colitis by regulating epithelial IFN/STAT2 signalling. *Gut*. 2024 Jan 5;73(2):282-297. doi: 10.1136/gutjnl-2023-329628. PMID: 37884352; PMCID: PMC10850655.
- Schramm S, Liu LJ, Saad M, Dietz L, Dedden M, Müller TM, Atreya I, Voskens CJ, Atreya R, Neurath MF, Zundler S. Blocking GPR15 Counteracts Integrin-dependent T Cell Gut Homing in Vivo. *J Crohns Colitis*. 2024 Aug 6;18(7):1162-1172. doi: 10.1093/ecco-jcc/jjae012. PMID: 38243565.
- Wiese JJ, Manna S, Kühl AA, Fasci A, Elezkurtaj S, Sonnenberg E, Bubeck M, Atreya R, Becker C, Weixler B, Siegmund B, Patankar JV, Prüß MS, Schumann M. Myenteric Plexus Immune Cell Infiltrations and Neurotransmitter Expression in Crohn's Disease and Ulcerative Colitis. *J Crohns Colitis*. 2024 Jan 27;18(1):121-133. doi: 10.1093/ecco-jcc/jjad122. PMID: 37565754; PMCID: PMC10821712.
- Wiendl M, Dedden M, Liu LJ, Schweda A, Paap EM, Ullrich KA, Hartmann L, Wieser L, Vitali F, Atreya I, Müller TM, Günther C, Atreya R, Neurath MF, Zundler S. Etrolizumab-s fails to control E-Cadherin-dependent co-stimulation of highly activated cytotoxic T cells. *Nat Commun*. 2024 Feb 3;15(1):1043. doi: 10.1038/s41467-024-45352-6. PMID: 38310086; PMCID: PMC10838339.
- Lehmann M, Weixler B, Elezkurtaj S, Loddenkemper C; TRR241 IBDome Consortium; Kühl AA, Siegmund B. Spatial Single Cell Profiling Using Imaging Mass Cytometry: Inflammatory Versus Penetrating Crohn's Disease. *J Crohns Colitis*. 2024 Aug 14;18(8):1305-1318. doi: 10.1093/ecco-jcc/jjae033. PMID: 38465390.
- Schulz-Kuhnt A, Rühle K, Javidmehr A, Döbrönti M, Biwank J, Knittel S, Neidlinger P, Leupold J, Liu LJ, Dedden M, Taudte RV, Gessner A, Fromm MF, Mielenz D, Kreiss L, Waldner MJ, Schürmann S, Friedrich O, Dietel B, López-Posadas R, Plattner C; TRR241 IBDome Consortium; Zundler S, Becker C, Atreya R, Neurath MF, Atreya I. ATP citrate lyase (ACLY)-dependent immunometabolism in mucosal T cells drives experimental colitis in vivo. *Gut*. 2024 Mar 7;73(4):601-612. doi: 10.1136/gutjnl-2023-330543. PMID: 38176897.
- Erkert L, Gamez-Belmonte R, Kabisch M, Schödel L, Patankar JV, Gonzalez-Acera M, Mahapatro M, Bao LL, Plattner C, Kühl AA, Shen J, Serneels L, De Strooper B; TRR241 IBDome Consortium; Neurath MF, Wirtz S, Becker C. Alzheimer's disease-related presenilins are key to intestinal epithelial cell function and gut immune homeostasis. *Gut*. 2024 Sep 9;73(10):1618-1631. doi: 10.1136/gutjnl-2023-331622. PMID: 38684238.
- Voges L, Weiß F, Branco AT, Fromm M, Krug SM. Expression and Localization Profiles of Tight Junction Proteins in Immune Cells Depend on Their Activation Status. *Int J Mol Sci*. 2024 Apr 29;25(9):4861. doi: 10.3390/ijms25094861. PMID: 38732086; PMCID: PMC11084252.



New TRR 241 Publications

- Jairath V, Rubin DT, Verstockt B, Çekin AH, Abreu MT, Lees CW, Fellmann M, Woolcott JC, Crosby C, Wu J, Bhattacharjee A, Herman D, Gu G, Siegmund B. The Effect of Etrasimod on Fecal Calprotectin and High-sensitivity C-reactive Protein: Results From the ELEVATE UC Clinical Program. *Inflamm Bowel Dis*. 2024 Jun 20:izae111. doi: 10.1093/ibd/izae111. Epub ahead of print. PMID: 38899786.
- Atreya I, Neurath MF. Linking IL-10 signaling with lipid metabolic programs in macrophages: dysregulated ceramide homeostasis drives colitis. *Signal Transduct Target Ther*. 2024 Jun 8;9(1):156. doi: 10.1038/s41392-024-01864-7. PMID: 38851767; PMCID: PMC11162417.
- Dorner H, Stolzer I, Mattner J, Kaminski S, Leistl S, Edrich LM, Schwendner R, Hobauer J, Sebald A, Leikam S, Gonzalez Acera M, Düll M, Lang R, Seidel G, Seitz T, Hellerbrand C, Fuhrmann G, Distler U, Tenzer S, Eichhorn P, Vieth M, Schramm C, Arnold P, Becker C, Weidinger C, Siegmund B, Atreya R, Leppkes M, Naschberger E, Sampaziotis F, Dietrich P, Rauh M, Wirtz S, Kremer AE, Neurath MF, Günther C. Gut Pathobiont-Derived Outer Membrane Vesicles Drive Liver Inflammation and Fibrosis in Primary Sclerosing Cholangitis-Associated Inflammatory Bowel Disease. *Gastroenterology*. 2024 Nov;167(6):1183-1197.e16. doi: 10.1053/j.gastro.2024.06.032. Epub 2024 Jul 9. PMID: 38992449.
- Topczewska PM, Savvopoulou A, Cosovanu C, Klose CSN. Transcriptional profiling identifies IL-33-expressing intestinal stromal cells as a signaling hub poised to interact with enteric neurons. *Front Cell Dev Biol*. 2024 Aug 1;12:1420313. doi: 10.3389/fcell.2024.1420313. PMID: 39149516; PMCID: PMC11325031.
- Ceccon M, Kantsjö JB, Ronchi F. Personalized Paths: Unlocking Alzheimer's via the Gut-Brain Axis. *Visc Med*. 2024 Aug;40(4):194-209. doi: 10.1159/000535869. Epub 2024 Apr 8. PMID: 39157730; PMCID: PMC11326767.
- Roth D, Düll MM, Horst LJ, Lindemann A, Malzer X, Koop K, Zundler S, Vetter M, Jefremow A, Atreya R, Geppert C, Weidemann S, Waldner MJ, Dietrich P, Günther C, Munoz LE, Herrmann M, Scheffold A, Neurath MF, Siebler J, Schramm C, Kremer AE, Leppkes M. Integrin $\alpha V\beta 6$ - autoantigen and driver of epithelial remodeling in colon and bile ducts in primary sclerosing cholangitis and inflammatory bowel disease. *J Crohns Colitis*. 2024 Aug 30:jjae131. doi: 10.1093/ecco-jcc/jjae131. Epub ahead of print. PMID: 39212221.
- Saggau C, Bacher P, Esser D, Rasa M, Meise S, Mohr N, Kohlstedt N, Hutloff A, Schacht SS, Dargvainiene J, Martini GR, Stürner KH, Schröder I, Markewitz R, Hartl J, Hastermann M, Duchow A, Schindler P, Becker M, Bautista C, Gottfreund J, Walter J, Polansky JK, Yang M, Naghavian R, Wendorff M, Schuster EM, Dahl A, Petzold A, Reinhardt S, Franke A, Wieczorek M, Henschel L, Berger D, Heine G, Holtsche M, Häußler V, Peters C, Schmidt E, Fillatreau S, Busch DH, Wandinger KP, Schober K, Martin R, Paul F, Leypoldt F, Scheffold A. Autoantigen-specific CD4⁺ T cells acquire an exhausted phenotype and persist in human antigen-specific autoimmune diseases. *Immunity*. 2024 Oct 8;57(10):2416-2432.e8. doi: 10.1016/j.immuni.2024.08.005. Epub 2024 Sep 2. PMID: 39226901.
- Horn V, Cancino CA, Steinheuer LM, Obermayer B, Fritz K, Nguyen AL, Juhra KS, Plattner C, Bösel D, Oldenburg L, Burns M, Schulz AR, Saliutina M, Mantzivi E, Lissner D, Conrad T, Mashregi MF, Zundler S, Sonnenberg E, Schumann M, Haag LM, Beule D, Flatz L; TRR241 IBDome Consortium; Trjanoski Z, D'Haens G, Weidinger C, Mei HE, Siegmund B, Thurley K, Hegazy AN. Multimodal Profiling of Peripheral Blood Identifies Proliferating Circulating Effector CD4⁺ T Cells as Predictors for Response to Integrin $\alpha 4\beta 7$ -Blocking Therapy in Inflammatory Bowel Disease. *Gastroenterology*. 2024 Sep 28:S0016-5085(24)05527-6. doi: 10.1053/j.gastro.2024.09.021. Epub ahead of print. PMID: 39343250.



New TRR 241 Publications

- Wagner K, Müller TM, Vitali F, Fischer S, Haberkamp S, Rouse-Merkel R, Atreya R, Neurath MF, Zundler S. Treatment trajectories and outcomes in inflammatory bowel disease: a tertiary single-centre experience. *Therap Adv Gastroenterol.* 2024 Sep 28;17:17562848241284051. doi: 10.1177/17562848241284051. PMID: 39381754; PMCID: PMC11459667.
- Müller TM, Liu LJ, Wiesinger M; TRR241 Working Group; Neurath MF, Voskens CJ, Zundler S. Engineering therapeutic Tregs to overexpress GPR15 improves functional fitness for in vivo gut homing. *Gastroenterology.* 2024 Oct 8:S0016-5085(24)05565-3. doi: 10.1053/j.gastro.2024.10.003. Epub ahead of print. PMID: 39389186.
- Atreya R, Neurath MF. IL-23R-Specific Chimeric Antigen Receptor Tregs in Crohn's Disease: Dawn of a Cellular Immunotherapeutic Era? *J Crohns Colitis.* 2024 Oct 21;jjae159. doi: 10.1093/ecco-jcc/jjae159. Epub ahead of print. PMID: 39432833.
- Krause JL, Engelmann B, Lallinger DJD, Rolle-Kampczyk U, von Bergen M, Chang HD. Multi-Omics Analysis Unravels the Impact of Stool Sample Logistics on Metabolites and Microbial Composition. *Microorganisms.* 2024 Sep 30;12(10):1998. doi: 10.3390/microorganisms12101998. PMID: 39458307; PMCID: PMC11509235.
- Liebing E, Krug SM, Neurath MF, Siegmund B, Becker C. Wall of Resilience: How the Intestinal Epithelium Prevents Inflammatory Onslaught in the Gut. *Cell Mol Gastroenterol Hepatol.* 2024 Oct 24:101423. doi: 10.1016/j.jcmgh.2024.101423. Epub ahead of print. PMID: 39461590.