

Seminar series TRR 305 – Striking a moving target: From mechanisms of metastatic organ colonisation to novel systemic therapies



Wednesday, 09 October 2024

14.00 h

hybrid (on site in Regensburg)

Seminarroom of the Chair of Experimental Medicine

(H5, 1.OG, 2.13)

University Hospital Regensburg

Wolfgang Kastenmüller,

Director of Institute of Systems Immunology,
University of Würzburg



Spatiotemporal dynamics during T cell priming

T cell priming is characterized by an initial activation phase that involves long-term interactions with dendritic cells (DC). How paracrine signals are spatiotemporally transmitted once activated T cells have disengaged from DC and resumed their migration is currently unclear. Here, we identified a separate phase that serves to select and expand high-affinity CD8 T cells in specific subfollicular niches in lymph nodes. CD8⁺ T cells required stop signals mediated by CXCR3 and a high affinity TCR to re-engage with antigen-laden DC in restricted microdomains. There, CD4 T cells delivered paracrine IL-2 in a stop-and-go migration. Selective depletion of CD4 helper T cells further uncovered their essential role in scaling primary CD8 T cell responses. Our results revise the current paradigm of T cell priming and have direct implications for vaccinations and cellular immunotherapies.

[CD4⁺ T cell-induced inflammatory cell death controls immune-evasive tumours.](#)

Kruse B, Buzzai AC, Shridhar N, Braun AD, Gellert S, Knauth K, Pozniak J, Peters J, Dittmann P, Mengoni M, van der Sluis TC, Höhn S, Antoranz A, Krone A, Fu Y, Yu D, Essand M, Geffers R, Mougiakakos D, Kahlfuß S, Kashkar H, Gaffal E, Bosisio FM, Bechter O, Rambow F, Marine JC, Kastenmüller W, Müller AJ, Tüting T. *Nature*. 2023 Jun;618(7967):1033-1040. doi: 10.1038/s41586-023-06199-x. Epub 2023 Jun 14. PMID: 37316667 Free PMC article.

[Lymphatic migration of unconventional T cells promotes site-specific immunity in distinct lymph nodes.](#)

Ataide MA, Knöpper K, Cruz de Casas P, Ugur M, Eickhoff S, Zou M, Shaikh H, Trivedi A, Grafen A, Yang T, Prinz I, Ohlsen K, Gomez de Agüero M, Beilhack A, Huehn J, Gaya M, Saliba AE, Gasteiger G, Kastenmüller W. *Immunity*. 2022 Oct 11;55(10):1813-1828.e9. doi: 10.1016/j.immuni.2022.07.019. Epub 2022 Aug 23. PMID: 36002023 Free article.

Zoom-Meeting-Link

<https://uni-regensburg.zoom-join.com/j/65802824489?pwd=waIV5XmTBQKebw61WYyPOVFotrJWgW.1>

Meeting-ID: 658 0282 4489

Kenncode: 719101