Biosketch

Dr.in Clarissa Campbell

Position in CoE: Key Researcher

Personal Details

Place of birth	Rio de Janeiro, Brazil
Nationality	Brazilian
Children	–
Affiliation:	CeMM
E-Mail	ccampbell@cemm.ac.at
Profile	ResearcherID: GDW-4673-2022
List of publications	ORCID: 0000-0002-1918-0318
Academic age	3 years since PhD

Academic Career and Positions Held

In **2011** I earned a **Master's degree** from the **Oswaldo Cruz Foundation** (FIOCRUZ, Brazil) studying how bacterial molecules regulate host immunity via nuclear receptors. Then I joined the Tri-Institutional Immunology and Microbial Pathogenesis Program at **Weill Cornell Medical College** in New York as a graduate student, where I specialized in mucosal immunology and regulatory T (Treg) cell biology. After obtaining my **PhD** in **2019**, I stayed under the mentorship of Dr. Alexander Rudensky at **Memorial Sloan Kettering Cancer Center** to further my work on host-commensal interactions and pursue broader scientific questions bridging the fields of immunology and metabolism. I started my lab as a **principal investigator** at **CeMM** in July **2021**.

Scientific Achievements and Scientific Contribution to the CoE

Scientific Achievements. I **discovered two major classes of microbial metabolites** that control the differentiation of anti-inflammatory regulatory T (Treg) cells (Nature 2013 and Nature 2020), identified a role for Treg cells in shaping the gut microbiome and host metabolism (Immunity, 2018), and uncovered a T cell-intrinsic function for metabolite-sensing nuclear receptors in organismal homeostasis (PNAS 2020; JEM 2020). I have presented **16 invited talks** in 6 countries. My work has been **cited 3,548 times** and my **h-factor is 7** (Google Scholar, September 2022).

Scientific Contribution to the CoE. My group will provide gnotobiotic husbandry, transgenic mouse strains, expertise in dietary interventions and experimental models of infection to investigate the mammalian intestinal microbiome in several CoE projects. We will profile intestinal immunity using high dimension flow cytometry analysis and use complementary reductionist approaches including primary cell cultures to probe the mechanisms involved in host-microbe interactions.

10 Most Important Publications (*relevant for the CoE)

1. van der Veeken, J.; **Campbell, C.**; Pritykin, Y.; Schizas, M.; Verter, J.; Hu, W.; Wang, Z.-M.; Matheis, F.; Mucida, D.; Charbonnier, L.-M.; Chatila, T. A.; Rudensky, A. Y. Genetic Tracing Reveals Transcription Factor Foxp3-Dependent and Foxp3-Independent Functionality of Peripherally Induced Treg Cells. *Immunity* **2022**, *55* (7), 1173–1184.e7. *https://doi.org/10.1016/j.immuni.2022.05.010*.
2. ***Campbell, C.**; Dikiy, S.; Bhattarai, S. K.; Chinen, T.; Matheis, F.; Calafiore, M.; Hoyos, B.; Hanash, A.; Mucida, D.; Bucci, V.; Rudensky, A. Y. Extrathymically Generated Regulatory T Cells Establish a Niche for Intestinal Border-Dwelling Bacteria and Affect Physiologic Metabolite Balance. *Immunity* **2018**, *48* (6), 1245–1257.e9. *https://doi.org/10.1016/j.immuni.2018.04.013*.
3. ***Campbell, C.**; McKenney, P. T.; Konstantinovsky, D.; Isaeva, O. I.; Schizas, M.; Verter, J.; Mai, C.; Jin, W.-B.; Guo, C.-J.; Violante, S.; Ramos, R. J.; Cross, J. R.; Kadaveru, K.; Hambor, J.; Rudensky, A. Y. Bacterial Metabolism of Bile Acids Promotes Generation of Peripheral Regulatory T Cells. *Nature* **2020**, *581* (7809), 475–479. *https://doi.org/10.1038/s41586-020-2193-0*.
4. ***Campbell, C.**; Marchildon, F.; Michaels, A. J.; Takemoto, N.; van der Veeken, J.; Schizas, M.; Pritykin, Y.; Leslie, C. S.; Intlekofer, A. M.; Cohen, P.; Rudensky, A. Y. FXR Mediates T Cell-Intrinsic Responses to Reduced Feeding during Infection. *Proc. Natl. Acad. Sci. U.S.A.* **2020**, *117* (52), 33446–33454. *https://doi.org/10.1073/pnas.2020619117*.
5. **Campbell, C.**; Rudensky, A. Roles of Regulatory T Cells in Tissue Pathophysiology and Metabolism. *Cell Metabolism* **2020**, *31* (1), 18–25. *https://doi.org/10.1016/j.cmet.2019.09.010*.
6. Michaels, A. J.; **Campbell, C.**; Bou-Puerto, R.; Rudensky, A. Y. Nuclear Receptor LXRβ Controls Fitness and Functionality of Activated T Cells. *Journal of Experimental Medicine* **2021**, *218* (4), e20201311. *https://doi.org/10.1084/jem.20201311*.
7. *Arpaia, N.; **Campbell, C.**; Fan, X.; Dikiy, S.; van der Veeken, J.; deRoos, P.; Liu, H.; Cross, J. R.; Pfeffer, K.; Coffer, P. J.; Rudensky, A. Y. Metabolites Produced by Commensal Bacteria Promote Peripheral Regulatory T-Cell Generation. *Nature* **2013**, *504* (7480), 451–455. *https://doi.org/10.1038/nature12726*.
8. **Campbell, C.**; Rudensky, A. Y. Immunotherapy breaches low-sugar dieting of tumor Treg cells. *Cell Metabolism* **2021**, *33* (5), 851–852. *https://doi.org/10.1016/j.cmet.2021.04.010*.
9. Araújo, C.V.; **Campbell, C.**; Gonçalves-de-Albuquerque, C.F.; Molinaro, R.; Cody, M.J.; Yost, C.C.; Bozza, P.T.; Zimmerman, G.A.; Weyrich, A.S.; Castro-Faria-Neto, H.C.; Silva, A.R. A PPARγ agonist enhances bacterial clearance through neutrophil extracellular trap formation and improves survival in sepsis. *Shock (Augusta, Ga.)* **2016**, *45* (4), 393. *https://doi.org/10.1097/SHK.0000000000000520*
10. * Jenq, R.R.; Ubeda, C.; Taur, Y.; **Campbell, C.**; Khanin, R.; Dudakov, J.A.; Liu, C.; West, M.L.; Singer, N.V.; Equinda, M.J.; Gobourne, A. Regulation of intestinal inflammation by microbiota following allogeneic bone marrow transplantation. *Journal of Experimental Medicine* **2012**, *209* (5), 903–911. *https://doi.org/10.1084/jem.20112408*.