Call for Proposals: Transdisciplinary Research in Intercellular Communication and Functional Cellular Ensembles in the Tissue

Within a tissue, different cell types collaborate as an ensemble to achieve functions in both homeostasis and in response to extrinsic and intrinsic threats, which cannot be accomplished by a single cell type. This requires tight communication and coordination of cellular functions. A full understanding of these processes will benefit from novel developments in cell biology, organoid technologies, but also advanced cultivation of explanted tissues derived from animals or clinical samples.

The Transdisciplinary Research Area (TRA) Life and Health is pleased to announce a call for proposals for innovative, transdisciplinary research in the outlined emerging fields of tissue biology that investigates the communication and regulation of functional cellular ensembles in both tissues derived from animals and clinical samples (*ex vivo* models) and organoid models derived from stem cells and self-regenerating tissue samples (constructive biology). We are seeking for innovative projects bridging micro-physiological culture systems to biophysics, pharmaceutical and computer sciences with the potential to advance our understanding on cell-cell communications within a functional tissue, driving homeostasis and disease.

Objective of the Call

This call aims to support collaborative research projects that combine expertise from diverse biomedical fields and technologies to reach a better understanding of cell communication and behavior in the tissue. This is meant to foster integration of different approaches for the development and application of advanced tissue culture models. Proposals should explore ways to leverage constructive biology and *ex vivo* models for addressing complex biomedical challenges, contributing to either fundamental research or translational applications in health care. The explicit aim of this call is also to seed-fund research in tissue biology that will feed into future research lines and potential collaborative efforts within and beyond the TRA.

Key Focus Areas

The proposals should align with one or more of the following thematic areas:

- Cell communication and collective cell behavior acting as an ensemble within the tissue.
- Development and application of culture models (constructive biology) focused on the generation and characterization of systems to study cellular interactions in a tissue.
- Development and application of culture systems derived from explants from animal and patient tissues to study cellular communication and interactions.
- Disease mechanisms and therapies: investigations into how the abovementioned culture systems can be used for disease modeling, drug discovery, or therapeutic innovation.

Eligibility

Expected are joint applications from two project leaders, of which at least one should be member of TRA Life and Health (University of Bonn affiliation).
Funding can also be awarded to postdocs hosted within the groups of university TRA members.

Funding and Duration

Grant Amount: Each successful proposal will be funded with up to 40,000 €, depending on the scope and complexity of the proposed research.
Project Duration: Projects should be planned for a duration of 1 year, starting in 2025 as soon as possible after approval.

How to apply

- The proposal (including figures) should not exceed 8 pages including all material (DIN A4, font size 11 including a summary (200 words), figures and references). Please use our TRA application form.
- The application should contain a short CV of the applicants incl. list of up to five publications relevant for this proposal.
- The proposal should make clear the state of the art, explain how the proposal goes beyond it and provide a balanced description of feasibility and risky aspects of the project. The proposal should be concise, but still be understandable without additional resources.
- The proposal should emphasize which future (collaborative) work will be enabled with the initial funding. This may also include the inclusion of additional collaboration partners once certain cultivation systems are set up.
- It should contain a brief account of how the prize money will be used. Ideally, the funding should be spent in 2025.

Selection criteria will be:

- Alignment with outlined research directions
- Innovation and quality of the proposed project
- Qualification of the applicants for this project
- Potential to create impact for future collaborative research in this topic area

Exclusion criteria are:

- Projects not driven forward by members of two laboratories
- Continuation of running projects

Application deadline is March 2, 2025.

Selection process

The Steering Committee of TRA Life and Health (with potential support from further reviewers) will evaluate and select the proposals.

Committee members with conflict of interest will be excluded from decisions.

A final report will have to be submitted at the latest four months after the end of the project to the TRA management.

Please submit your application in one PDF file to life-and-health@uni-bonn.de until March 2, 2025.

For questions, please contact Dr. Meike Brömer (life-and-health@uni-bonn.de).