

## Hosting group information for applicants

Name of DKFZ research division/group:  
**Dendritic Cells in Infection and Cancer (F171)**

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Group homepage: **[www.dkfz.de/de/virus-assozierte-karzinogenese/groups/AGAutenrieth/index.html](http://www.dkfz.de/de/virus-assozierte-karzinogenese/groups/AGAutenrieth/index.html)**

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### RESEARCH PROFILE AND PROJECT TOPICS:

Host defence against microbial pathogens as well as malignant cells relies on the concerted action of both the innate immunity and the antigen-specific adaptive immunity. Key features of the innate immune system include the ability to rapidly recognize pathogens and to signal the presence of danger to cells of the adaptive immune system. Dendritic cells (DCs) are unique antigen presenting cells that are able to recognize and respond to pathogens and inflammation, and then contribute to the initiation and regulation of T cell responses. DCs consist of different subpopulations but their role in immunity to pathogens and immune evasion is largely unclear. Therefore, elucidating the role of different DC subpopulations, their basic function in immune activation upon bacterial infections, inflammation and cancer and how these may disturb this process will not only contribute to increase the basic understanding of DC function upon bacterial infections, inflammation and cancer, but also elucidate the potential of DCs as target for therapeutic intervention.

The main research topics and possible projects are:

- Immunophenotyping of cancer patients

In this project, patient samples will be analysed regarding phenotype and function of various immune cells using multicolour spectral flow cytometry with around 36 markers combined with scRNA seq and unsupervised data analysis.

- What are the molecular mechanism driving monopoiesis at the expense of dendritic cell (DC) differentiation upon systemic bacterial infections

In this project various mouse infection models, scRNA seq analysis as well as multicolor spectral flow cytometry, and in vivo and in vitro differentiation assays will be used.



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