

## **Postdoctoral Fellowship**

Molecular Microbiology and Cancer Research in the

### **Laboratory of Infection Oncology**

**Institute of Clinical Molecular Biology, Christian Albrecht's University of Kiel and University Hospital Schleswig  
Holstein – Campus Kiel, Germany**

We are looking for a highly qualified early career researcher who holds a Ph.D. and/or M.D. in Cellular Microbiology, Molecular Genetics or Cancer Biology. The appointed candidate will be involved in cutting-edge studies on the role of microbes and microbiota in human pathology and the origin of cancer. The fellowship is sponsored by Focus Biomed Foundation and will be available for the duration of two years with an option of prolongation. The fellowships are intended to promote young researchers and encourage them to establish a research track and ultimately acquire their own funding.

Thomas F. Meyer (previous director at the Max Planck Institute of Infection Biology, Berlin) has established a new research location (the Laboratory of Infection Oncology) at the University of Kiel in order to investigate the sequels of persistent microbial infections. The laboratory is embedded in a network of prominent institutions and consortia, which emphasize research on the role of microbiota in inflammation, immunity, inherited diseases and cancerogenesis. Furthermore, our lab offers a stimulating, ambitious and supportive research environment with strong national and international links. Its location is in the Institute of Clinical Molecular Biology (IKMB) at the University Hospital Schleswig-Holstein (UKSH) and the Christian Albrecht's University of Kiel (CAU).

If you are interested in the specific project described below, please send an application and CV, including a summary of research experiences, a list of publications, and letters of reference, directly to Prof. Meyer at [tfm\(at\)mpiib-berlin.mpg.de](mailto:tfm(at)mpiib-berlin.mpg.de) by April 20, 2022. The successful candidate is expected to contribute experimentally and intellectually to the project's performance and development.

#### **Mutational signatures of bacterial infections and the origin of human cancer development**

Mounting evidence suggests a role for bacterial infections in human carcinogenesis. However, only a few cases could draw causality between infection and resulting cancer. One such example is the human papillomavirus, for which a telltale signature comprised by the deposition of viral transforming genes could be demonstrated in the genome of cervical cancer cells. In contrast to transforming viruses, bacteria do not usually deliver transforming DNA in infected cells, therefore, rendering any demonstration of causality more difficult. Knowledge of such causalities is, however, important as it opens an avenue of approaches to generate preventive means, such as vaccines.

This laboratory has recently identified, for the first time, a highly specific signature of DNA damage caused by the bacterial genotoxin Colibactin; this signature is detected in the cancer genomes of a subset of human colon cancer patients. We have also identified a route of DNA damage resolution after colibactin action distinct from the signature-prone pathway, leading to signs of transformation in colon organoid cells. These data provide the basis for a comprehensive understanding of the impact of Colibactin-producing bacteria in driving human carcinogenesis.

Yet, several other infection-dependent pathways are known to lead to DNA damage and, thus, possibly, to specific mutational signatures connected with distinct human cancers. Such pathways could be driven not only by typical genotoxins but also by extrinsic and intrinsic factors. This particular project aims to unravel the molecular and cellular features of such highly specific genotoxic pathways that drive human cancer development.

<https://www.meyer-laboratory.de/>

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