



Technische Universität München



Else Kröner-Fresenius-Zentrum
für Ernährungsmedizin

2 Master / Diploma theses

The Institute of Nutritional Medicine (Dr. Helmut Laumen) and the Institute of Nutritional Physiology (Dr. Britta Spanier) at the TUM (Technische Universität München, Wissenschaftszentrum Weihenstephan, Freising) offer 2 Master/Diploma theses in the field of cell biology/molecular biology/human studies on the topic:

Immunometabolism – metabolic and immunologic inducibility of peripheral blood mononuclear cells (PBMC)

Immunometabolism is an emerging field that lies at the interface between immunology and metabolism. The arising question is the extent to which, and the precise mechanisms by which, metabolic processes in the human body influence the intrinsic activity and performance of immune cells.

The master-theses are based on different human studies during which PBMC were collected before and after dietary challenges. Both theses will be conducted in close cooperation between the two institutes.

The following approaches will be used:

- investigation of protein phosphorylation in relevant signaling pathways (mTOR, Insulin)
- determination of metabolite profiles and/or evaluation of different analyses methods (LC-MS/MS with iTRAQ-labeling, GC-MS/MS)
- visualization of the metabolic flux in PBMC using ¹³C-glucose
- *in vitro* stimulation of PBMC
- FACS analyses of surface markers and intracellular proteins
- measurement of markers for metabolic and inflammatory activation in PBMC (qRT-PCR and western blot)

The positions are open for students of life sciences (biology, biochemistry, biotechnology, nutrition, or related) who are interested in lab work in a translational setting at the border between molecular biology and human studies.

Contact:

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