



Institute for Biochemistry II
Nonnenplan 2-4
D-07743 Jena
Germany

Prof. Dr. Karlheinz Friedrich

Telephone +49 3641 9396405
Telefax +49 3641 9396402
E-Mail: karlheinz.friedrich@med.uni-
jena.de

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Master Thesis Announcement

The family of cytokine receptors regulates numerous essential activities within the mammalian organism, e.g. in development, immune defense and haematopoiesis. Malfunctions of cytokine receptors are involved in various diseases such as immune disorders, inflammation and cancer, making them attractive targets for drug development.

Cytokine receptors become activated by their ligands (e.g. interleukins, interferons and various growth factors) by homo- or heterodimerisation of two membrane-spanning subunits. This process, which is not fully understood results in triggering of cytoplasmic JAK/STAT signal transduction pathways.

We found evidence that interactions of the transmembrane domains (TMs) play important roles in receptor complex formation and may be essential for the selective activation of specific receptors through ligand binding. We want to study the contributions of TMs to receptor activation by use of a bacterial assay system (toxR). TMs from cytokine receptors will be transplanted into a bacterial transmembrane protein that induces lacZ expression upon dimerization. Measuring lacZ activity in *E. coli* strains carrying these engineered proteins then allows to quantify the influence of TMs on dimerization.

An opportunity for a Master Thesis is offered to a highly motivated student interested in exploring the potential of this approach to obtain novel insights into the mechanism of cytokine receptor function.

Please contact the above show E-mail address for applications and further information.

Bachstraße 18 · 07743 Jena · Telefon 03641 93 00
Internet: www.uniklinikum-jena.de
Gerichtsstand Jena
USt.-IdNr. DE 150545777
Bankverbindung: Sparkasse Jena · BLZ 830 530 30
Konto 221 IBAN: DE97 8305 3030 0000 0002 21
BIC: HELADEF1JEN

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