



PhD Program between the Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

Open PhD position at FUB for CSC scholarship candidates 2018

Please note: the PhD position is only offered to Chinese PhD candidates for application in the framework of the FUB-CSC PhD Program.

<u>Department/Institute:</u>	Department of Biology, Chemistry, Pharmacy / Institute of Chemistry and Biochemistry (FUB) and Leibniz Research Institute for Molecular Pharmacology (FMP) / Department Molecular Pharmacology and Cell Biology
<u>Subject area:</u>	Molecular Cell Biology; Signaling; Cancer & Metabolism
<u>Name of Supervisor:</u>	Prof. Dr. Volker Haucke
<u>Number of open PhD positions:</u>	1
<u>Type of the PhD Study:</u>	Full-time
<u>Project title:</u>	Analysis of the role of the lipid kinase PI3KC2B in cancer and metabolism

PhD Project description:

The focus of research in the Haucke laboratory is the dissection of the molecular mechanisms of endocytosis and endolysosomal membrane dynamics and its regulation by membrane lipids to regulate cell signaling processes. Our research is highly relevant for the development of new treatments against cancer, neurological disorders, and neurodegeneration. We use a wide range of technologies that include biochemical and molecular biological approaches in vitro, chemical biology and screening technology, super-resolution and electron microscopy as well as genetic manipulations in mice in vivo.

The PhD project deals with the genetic and biochemical analysis of the function of the lipid kinase PI3KC2B in knockout mice and by pharmacological means. We have most recently identified PI3KC2B as a novel suppressor of the mTOR nutrient signaling pathway (Marat et al Science 2017; ref. 1 below). The goal of the project is twofold: First, to identify small molecules that can activate or inhibit PI3KC2B in vitro and in cells. Second, to characterize knockout mice lacking PI3KC2B expression in metabolic tissues with respect to nutrient signaling and metabolic alterations at the tissue and cellular level. The project is of high relevance for diabetes, cancer, and for the treatment of inherited forms of muscle disease in humans.

Language requirements:

PhD study in English: IELTS: 6.5 or TOEFL: 95 ibt.

Academic requirements:

BSc and ideally also an MSc degree in biochemistry, molecular biology, cell biology, or molecular medicine including practical experience as part of an experimental thesis.

Information of the professor or research group leader:

Note that the supervisor holds a professorship at the FU Berlin but the laboratory is located at the Leibniz Research Institute for Molecular Pharmacology in Berlin.

See our website for further information: www.leibniz-fmp.de/haucke

Selected recent publications:

1. Marat, A.L.; Wallroth, A.; Lo, W.; Müller, R.; Norata, G.D.; Falsaca, M.; Schultz, C.; **Haucke, V. (2017)** mTORC1 activity repression by late endosomal phosphatidylinositol 3, 4-bisphosphate. *Science*, **356**, 968-972 (see commentary by Raiborg & Stenmark (2017) *EMBO J.* [doi: 10.15252/embj.201797469])
2. Ketel, K.; Krauss, M.; Nicot, A.S.; Puchkov, D.; Wieffer, M.; Müller, R.; Subramanian, D.; Schultz, C.; Laporte, J.; **Haucke, V. (2016)** A phosphoinositide conversion mechanism for exit from endosomes. *Nature*, **529**, 408-412 (see commentary by Balla (2016) *Nature* [doi: 10.1038/nature16868])

3. Schöneberg, J.#; Lehmann, M.#; Ullrich, A.#; Lo, W.T.; Posor, Y.; Lichtner, G.; Schmoranzer, J.; **Haucke, V.***; Noe, F.* **(2017)** Lipid-mediated PX-BAR domain recruitment couples local membrane constriction to endocytic vesicle fission. (*co- corresponding authors) *Nature Communications*, 8:15873 [doi: 10.1038/ncomms15873]
4. Posor, Y.; Eichhorn-Grünig, M.; Puchkov, D.; Schöneberg, J.; Ullrich, A.; Lampe, A.; Müller, R.; Zerbakhsh; Gulluni, F.; Hirsch, E.; Krauss, M.; Schultz, C.; Schmoranzer, J.; Noe, F.; **Haucke, V. (2013)** Spatiotemporal Control of Endocytosis by Phosphatidylinositol 3,4-Bisphosphate. *Nature*, **499**, 233-237 (see commentary by Schmid & Mettlen (2013) *Nature* [doi: 10.1038/nature12408])
5. von Kleist, L.; Stahlschmidt, W.; Bulut, H.; Gromova, K.; Puchkov, D.; Robertson, M.; MacGregor, K.A.; Tomlin, N.; Pechstein, A.; Chau, N.; Chircop, M.; Sakoff, J.; von Kries, J.; Saenger, W.; Kräusslich, H.-G.; Shupliakov, O.; Robinson, P.; McCluskey, A.; **Haucke, V. (2011)** Role of the clathrin terminal domain in regulating coated pit dynamics revealed by small molecule inhibition. *Cell*, **146**, 471-484

Selected awards of the supervisor:

- | | |
|-------------|--|
| 2017 | Elected Member of The German National Academy of Sciences, Leopoldina |
| 2017 | Avanti Award of the American Society for Biochemistry & Molecular Biology (ASBMB) 2017 |
| 2016 | Reinhart-Koselleck-Award of the Deutsche Forschungsgemeinschaft (DFG) |
| 2014 | Elected Member of the European Molecular Biology Organization (EMBO) |
| 2003 | Young Investigator Award (YIP), European Molecular Biology Organization |
| 1998 | Long-Term Fellowship Award, Human Frontier Science Program |
| 1997 | Long-Term Fellowship Award, European Molecular Biology Organization |
| 1994 | Boehringer Ingelheim Fellow |
| 1990 - 1994 | Scholarship Holder of the Studienstiftung des deutschen Volkes |

Please note: In a first step, the complete application must be submitted to the Beijing Office for evaluation by January 4th, 2018. Please do not contact the professor before. He/She will get in contact with you after having received the complete application via the Beijing Office in January.