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**Project title:** Identification of inhibitors against protease of Zika and other flaviviruses

**Project length:**  15 hp/cr  30hp/cr

**Subject area:**

*(Mark only one. If no alternative is eligible, mark "other".)*

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|---|--|
| <input type="radio"/> Drug development    | <input type="radio"/> Medicinal protein chemistry          |
| <input type="radio"/> Genomics            | <input type="radio"/> Molecular bacteriology               |
| <input type="radio"/> Glycobiology        | <input type="radio"/> Molecular virology                   |
| <input type="radio"/> Immunology          | <input type="radio"/> Tumor biology                        |
| <input type="radio"/> Infectious diseases | <input checked="" type="radio"/> Other: Antiviral research |

**Project description:**

*(maximum 250 words, omit references. Must include department, university or company name, should preferably mention methods used in the project.)*

Members of the Flaviviridae family (e.g. dengue virus, West Nile virus, tick-borne encephalitis virus, hepatitis C virus .etc) have always been a big threat to humans and animals alike. Flavivirus genus of this Flaviviridae family consists of >70 viruses and nearly half of them are human pathogens. Except for hepatitis C virus, currently, there are no approved direct acting antivirals for treating infections caused by viruses of this family.

Lately, Zika virus (ZIKV), an another member of Flavivirus, has become a big health issue due to its association with microcephaly and Guillain–Barré syndrome in the new-borns of ZIKV infected mothers. Using in silico and in vitro approaches, we have identified potential drugs against ZIKV. Our group works on interdisciplinary fields (both dry and wet labs). A manuscript by our group on in silico studies of potential inhibitors against protease of Zika virus is soon to be submitted.

For the master thesis, the student(s) will be involved in screening compounds using the in silico and the in vitro approaches. The advanced resources, necessary for the in silico studies, will be provided by UPPMAX. The in vitro cell culture labs are ongoing in collaboration with Åke Lundkvist, Zoonosis Science Center at BMC. Students with practical knowledge in cell culture assays, biophysics, molecular simulations, bioinformatics and computers (Linux, Python and using cloud servers) are preferred but not mandatory. The mandatory things we are looking for in students are the motivation, ideas, creativity and interest to learn new things in the computational biology field with application to infectious diseases.

Project schedule January – June 2018

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