



Post-Doctoral Position

Development of nano-drug delivery system against CNS invading pathogens

One post-doctoral position is available in the laboratory of biomedical microbiology and immunology, University of veterinary medicine and pharmacy in Kosice. The duration of post-doctoral fellowship is 24 months and can be extended till 2029 If candidate proves good experimental skill and ability to work independently.

Area of research

The position is linked to the project entitled “**Development of strategic therapeutics against neuroinfections**”. Infectious diseases of the central nervous system (CNS) continue to be a significant cause of morbidity and mortality. A major obstacle for treating brain diseases is the blood-brain barrier (BBB), which impedes reaching of therapeutic agents to the brain and target the pathogens. Therefore, effective and targeted drug delivery systems reaching the CNS are desperately needed. We aim to develop nanotechnology-based targeted drug delivery systems (nDDs) to fight against neuroinvasive pathogens. The nDDs will be made up of radially symmetric polyamidoamine (PAMAM) dendrimers coated with cyclic peptides (C7C peptides or CDR3 domain derived from the llama heavy chain antibody) that have specific and high binding affinity to the pathogen. Dendrimers with the inherent antiborrelial or antiviral activity will be chosen from an existing collection of dendrimers available in our laboratory, while C7C and CDR3 will be created using phage display technology. To enhance the distribution of nDDs across the BBB, angiopep2 (a BBB-homing peptide) will also be conjugated on dendrimer surface. The so-obtained nDDs will be characterized for their antimicrobial property, pharmacological safety and ability to cross BBB. The success of the project will validate the proof-of-concept study to combine the pathogen-specific peptide synthesis display technology with the nanotechnology based drug delivery to effectively overcome BBB restrictions and targeting pathogens in brain. We expect clinically useful pilot results for future translation of the best performing nDDs, and at the same time, research data of general scientific interest useful to the broad scientific community. more details of our work and publications can be seen on <http://lbmi.uvlf.sk/>

The project is focused to:

1. the Post-doc will work on construction of nDD to transport antiviral peptides to brain via BBB (e.g. flaviviral infections like dengue and west Nile virus).

Qualifications and personal qualities

The applicant must hold a PhD degree in life sciences, microbiology or biotechnology or relevant field. Applicant who have submitted their doctoral thesis can also apply if the defence is expected before **1st dec. 2024**.

- Experience from experimental techniques in molecular biology is necessary
- Good communicative skills (written and oral English) are necessary.

Main duties and responsibilities

- To start line of research with in the framework of the project.
- Supporting other research projects within the group;
- Delivering output in the form of reports/publications, etc.

This job description is only an outline of the tasks, responsibilities and outcomes required of the role. The job description may be reviewed on an ongoing basis in accordance with the changing needs of the project.

Your application should include:

1. Complete CV,
2. List of publications (in peer reviewed journals and conferences)
3. two reference contact.
4. Send you application to bhidemangesh@gmail.com and mangesh.bhide@uvlf.sk