

Opis raziskovalnega dela (Research work description)

1. Članica UL (UL member):

Veterinarska fakulteta UL (University of Ljubljana, Veterinary Faculty)

2. Ime, priimek in elektronski naslov mentorja/ice (Mentor's name, surname and email):

Urška Kuhar, urska.kuhar@vf.uni-lj.si

3. Raziskovalno področje (Research field):

4.04.02 Biotehnika, Veterina, Animalna patologija in epizootiologija

4. Opis raziskovalnega dela (Research work description):

Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce (It includes any additional conditions that the candidate for a young researcher must meet, which are not listed in the call to tender for young researchers.).

Slov.:

Na Enoti za virologijo na Inštitutu za mikrobiologijo in parazitologijo Veterinarske fakultete UL izvajamo različne diagnostične postopke za ugotavljanje prisotnosti virusov in prisotnosti protiteles proti virusom v živalskih vzorcih. Pri rutinski diagnostiki in raziskovalnem delu uporabljamo tako klasične virološke metode (izolacija virusa na celični kulturi), serološke metode (virus nevtralizacijski testi, ELISA) kot tudi molekularne tehnike (PCR, PCR v realnem času, sekvenciranje po Sangerju).

Metoda sekvenciranja naslednje generacije (angl. next-generation sequencing, NGS) je ena izmed najnovejših molekularnih tehnik, ki postaja vse bolj nepogrešljiva v mikrobioloških laboratorijih po vsem svetu. Pomembna prednost metode NGS je, da ni omejena s predhodno poznanim nukleotidnim zaporedjem nukleinske kisline mikroorganizmov in tako omogoča neposredno odkrivanje neznanih mikroorganizmov ter hkratno odkrivanje več mikroorganizmov v vzorcih.

Področje raziskav doktorskega študenta bo raziskovalni program P4-0092 - Zdravje živali, okolje in varna hrana. Raziskovalno delo bo predvidoma vezano na različne klasične in molekularne tehnike. Poudarek bo na metodi NGS, s katero imamo namen z metagenomskim pristopom proučevati prisotnost virusov in še posebej na bioinformatiki analizi rezultatov. V prvem letu usposabljanja se bo kandidat posvečal študijskim obveznostim, spoznavanju različnih metod in poteku dela v našem laboratoriju ter pričel z zbiranjem vzorcev za doktorsko nalogo.

Za kandidata je zaželeno, da ima:

- izobrazbo biomedicinske smeri
- dobro znanje angleškega jezika kot osnova za pisanje člankov in predstavljanje izsledkov na mednarodnih strokovnih in znanstvenih konferencah
- sposobnost samostojnega in skupinskega dela
- željo po znanstveno-raziskovalnem delu

Eng.:

In the Virology Unit, Institute of Microbiology and Parasitology of the Veterinary Faculty, University of Ljubljana, we perform various methods for detection of viruses and antibodies against viruses in animal samples. In routine diagnostics as well as in research work we use classical virological methods (cell culture isolation), serological methods (virus neutralization test, ELISA) and molecular methods (PCR, real time PCR, Sanger sequencing).

The next-generation sequencing (NGS) is one of the most recent molecular techniques. An important advantage of the NGS is that it is not limited to the previously known nucleotide sequence of the nucleic acid of a microorganism. This is the reason why NGS allows direct detection of unknown microorganisms and the

simultaneous detection of several microorganisms in the sample. With the rapid advances in NGS, microbiology laboratories are increasingly adopting this technology in their workflows for their existing diagnostic cycles and research field.

The young researcher will be working within the research program P4-0092 (Animal health, environment and food safety). His work will include various classical and molecular techniques. The focus will be on the NGS method and especially on bioinformatics analysis of results, with the aim of detecting viruses with a metagenomic approach.

Desires for candidates:

- a degree in biomedical sciences
- fluency in English as a basis for writing articles and presenting results at national and international professional and scientific conferences
- an ability to work independently as well as in a team
- a desire for scientific and research work

5. Priloge, ki jih je treba priložiti ob prijavi (*Documents required to be submitted with the application*):

☐ **potrdilo o doseženi izobrazbi (*proof of completed education*)**

- kandidat z zaključenim magistrskim študijskim programom (2. bolonjska stopnja) (*candidate who has completed a Master's degree (2nd Bologna level)*):
 - o diplomska listina / potrdilo o zaključku študijskega programa (*diploma certificate / certificate of completion of the study programme*)
 - o priloga k diplomi / potrdilo o opravljenih obveznostih (*diploma supplement / official transcript of records containing all grades obtained in the study programme*)
- kandidat, ki še ni zaključil študija na 2. stopnji (*candidate who has not yet completed a Master's degree*):
 - o potrdilo o do sedaj opravljenih obveznostih z ocenami magistrskega študijskega programa, s katerim se bo kandidat prijavil na doktorski študij (*official transcript of records listing all courses and grades obtained so far in the Master's degree programme on the basis of which the candidate will apply for enrollment in a doctoral degree programme.*)

☐ **nagrade** – univerzitetna Prešernova nagrada ali Prešernova nagrada članice Univerze v Ljubljani oz. druga enakovredna nagrada (*awards, e.g. Prešeren Prize of the University of Ljubljana, Prešeren Prize of a University of Ljubljana member and/or another equivalent award*)

☐ **bibliografija** (*bibliography*)

☐ **življenjepis** (*CV*)

☐ **motivacijsko pismo** (*motivation letter*)

☐ **opis dosedanjega sodelovanja pri raziskovalnem delu** (*description of the candidate's research work*)

☐ **osnutek idejne zasnove raziskovalnega dela** (*preliminary research proposal*)

☐ **priporočilno pismo** (*letter of recommendation*)

☐ **druge priloge** (*other attachments*):