EMBL-EBI

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To whom it may concern.

Vitalii Kleshchevnikov is a second year Master's student in the Department of biochemistry at ESC "Institute of biology and medicine" at Taras Shevchenko National University of Kyiv and successfully completed his research internship (from 19 June until 14 December 2017) in my group the EMBL-EBI in Hinxton, UK.

Vitalii was working on the identification of novel functional linear motifs in human protein interaction networks using host-viral interaction networks the principle of convergent evolution. Specifically, Vitalii completed a number of tasks:

1) Extract from public databases a comprehensive host-viral protein interaction network

2) Extract known viral linear motif-host relationships to be used as a benchmark from the ELM database and the literature

3) Develop a method to identify domains that are enriched in interactions with viral proteins

4) Search for instances of linear motifs in viral proteins using a number of protein interaction datasets and motif search settings

5) Evaluate the method against the benchmark from the task 2 and assess whether the identified domains in task 3 mediate interactions with the benchmark motifs.

In this project we showed that by limiting the search space to the sequences of viral proteins we can increase the sensitivity of motif prediction. We can recover known linear motif occurrences in viral proteins. By estimating recognition domain identities and utilising alternative human-human interaction datasets we can further improve our ability to recover these motifs. We plan to experimentally validate candidate human recognition domain - viral motif pairs using phage display. This work contributes to our understanding of the domain-linear motif code and how viruses exploit this mechanism.

From the very beginning Vitalii impressed me by his constant scientific curiosity, enthusiasm for his project but also everything science related. He enjoys going to conferences, seminars and meetings (with my permission) and always comes back excited and fascinated with the new technologies or findings presented. He has already presented his preliminary findings as a poster at a conference at the MRC in Cambridge the past summer. It is always a pleasure to have scientific discussions with Vitalii and he comes up with new ideas for projects on a regular basis. I would say that this passion for science and wide knowledge in a variety of topics is one of his strongest points.

He has been very efficient with learning both the biological background required for his project and the tools and methodologies that are optimal to complete it, with very minimal guidance from me. He is now nearing completion of the project and depending on the final findings he will most likely be able to write a first author publication with his analysis and data. Despite being efficient, he has never taken any shortcuts. He has always

ensured that his approaches are statistically sound and has always approached each step from multiple angles to make sure his results are robust and there are no hidden artifacts. Wherever he was not certain he would make sure to ask me, his colleagues and did not hesitate to contact experts from nearby labs to put his mind at ease regarding the approach he was taking. This is very impressive work ethic for a scientist at his level and in combination with this motivation, enthusiasm and scientific curiosity makes me certain that he will be an excellent scientist in the future.

Because of his scientific merits as mentioned above, but also his personality traits, he was an invaluable member of my lab during his internship. He has been the main driver of our journal club meetings, has always brought back from seminars and meetings information that he feels is useful for other projects in the lab and has helped my undergraduate summer student Greg Nos with his project, throughout his stay in the lab. He is also a very pleasant personality and has contributed greatly to the friendly and collegial atmosphere in my lab both scientifically speaking and also personally, e.g. by bringing cake to the lab and other such gestures. He also presents a good example for the rest of the lab members by keeping good track of his work through a comprehensive lab book.

I therefore recommend to give him a grade of 90/100 – Excellent.

Sincerely,

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