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Supervisor's Assessment of Bulah Chia-hsiang Wu: " Comparative Analysis of Silk Proteins and Discovery of Novel Sericin Gene in Lepidopteran Moths"

Bulah Chia-hsiang Wu's doctoral thesis is part of our long-term project on silk structure. He focused his work on the characterization of silk genes in *Ephestia kuehniella*, *Galleria mellonella* and *Bombyx mori*. Based on synteny between related moth species, Bulah discovered extensive duplication of sericin genes in *G. mellonella*, which does not occur in other species of the Pyraloidea family. In *B. mori*, he found a new sericin similar to the sericins of more primitive moth species, and unlike in *G. mellonella*, for example, where its homolog is the most abundant sericin, it is only present in small amounts in the silk of *B. mori*. These studies have contributed significantly to the understanding of adaptive changes associated with silk development in Lepidoptera. An article on this work was published in *Front. Mol. Biosci* (2022) and in a manuscript submitted to *Scientific Reports*. Bulah also presented his data at the conference “Molecular biology and genetics of the lepidoptera” (2022).

Bulah is also a co-author of six other publications, not covered in the thesis, including:

I. Pivarciova, L., (2016). *Unexpected Geographic Variability of the Free Running Period in the Linden Bug Pyrrhocoris apterus*. *J. Biol. Rhythms* 31, 568–576. doi: 10.1177/0748730416671213.

II. Kotwica-Rolinska, J., (2019). *CRISPR/Cas9 Genome Editing Introduction and Optimization in the Non-model Insect Pyrrhocoris apterus*. *Front. Physiol.* 10, 1–15. doi: 10.3389/fphys.2019.00891.

III. Kotwica-Rolinska, et al. (2022). *Loss of Timeless Underlies an Evolutionary Transition within the Circadian Clock*. *Mol. Biol. Evol.* 39, 1–10. doi: 10.1093/molbev/msab346.

IV. Maaroufi, et al. (2022). *Mutation in Drosophila concentrative nucleoside transporter 1 alters spermatid maturation and mating behavior*. *Front. Cell Dev. Biol.* 10, 1–17. doi: 10.3389/fcell.2022.945572.

V. Kmet, et al. (2023). *Identification of silk components in the bombycoid moth Andraca theae (Endromidae) reveals three fibroin subunits resembling those of Bombycidae and Sphingidae*. *J. Insect Physiol.* 147, 104523. doi: 10.1016/j.jinsphys.2023.104523.

VI. Smykal, et al. (2023). *Steroid receptor coactivator TAIMAN is a new modulator of insect circadian clock*. *PLOS Genet.* 19, e1010924. doi: 10.1371/journal.pgen.1010924.

Bulah is a smart and experienced student who can quickly generate a lot of bioinformatics data. He is also a hardworking person who is able to spend entire days at the computer. During his

study he has also isolated RNA and performed qPCR analysis. He also knows the literature and is able to write articles. Moreover, he spent part of his time during his Ph.D. studying the circadian rhythm of insects.

Bulah is a very quiet and honest person who has a sense of humor. He always maintained a friendly spirit and a good working atmosphere in the lab. His experience in the lab, determination and stable character make him a valuable member of any research team.

Michal Žurovec