

EXPERIENCE OF BS STUDIES 2017: MOLECULAR BIOLOGY MINI-PROJECTS

- Published on Published October 31, 2017



Reported by Z.G. Aytasheva, E.D. Dzhangalina, G.A. Shalakhmetova, L.P. Lebedeva, and B.A. Zhumabayeva

Mini-projects are being used in biology as powerful examination tools supplying the students with the opportunity to develop research projects to be also suitable for wider promotion of science known as its popularization. In 2017 students were invited to focus on the gene structure and function while acquiring the course of molecular biology taught at al-Farabi in English. It could be reached by drafting mini-projects related to specific items. The students suggested such topics as the immunoglobulin G gene (L. Dospayeva, M. Mukhsinova, and Ye. Mirasbek), SHH (Sonic Hedgehog) gene (D. Kurmanbai, T. Raike, D. Tastan, and O. Yessenkeldi), minimal genome of *Bacillus subtilis* (D. Aidarkhan, D. Alibekova, I. Zhekebatyrova, and R. Tursynbayev), RCO (reduced complexity) gene of leaves across *Brassicaceae* family (A. Kim, A. Aitynova, D. Rakisheva, and Zh. Orazalina), completed by overwiewing genomes of *E. coli* (N. Serikova, A. Baltabay, A. Alimzhan, and A. Kali), rice (S. Sabitova Sabina, Zh. Kazaliyeva Zhuldyz, M. Kozhakhmetova, and I. Kurmet), and fish (A. Sakenova, and A. Zhaksybayeva), and others. Such opportunity to run a mini-project based on reader's list of papers and databases allows each of the teams get tuned to independently acquired knowledge enhanced by special preferences along with getting basic skills of managing small-scale projects and handling useful databases. Maximal scoring is held around 30 grades per student. It is achievable only in case of substantial personal contribution besides team coordination or subordination. Under certain circumstances such project may be drafted by a couple of students concentrated on a specific field of research. One of the past-year mini-projects under the title: "From Dinosaurs to Birds" made a special impression due to few hypotheses as insights into evolutionary inter-relationships of ancient pangolins and modern birds to be subsequently used for museum exhibitions, lecturing on paleobiology, molecular biology, and developmental genetics. Therefore, both participants of the project were assessed equally high. Implication of mini-project is a proper approach to promote self- work, independence and the initiative. At the same time this approach may hide unexpected shortcomings. Because of informal networking among the circles of students of different years and those of different professional occupations, more experienced students may advise not to keep up to a new general topic proposed by the instructor. In our case, the analysis of whole genomes was supposed to be completed as general topic in 2016. New task of 2017 was to examine individual, functionally important genes. However, as seen from the list above, substantial part of undergraduates has carried out mini-projects by the task outdated. Nonetheless, the focus on mini-project is regarded as being useful for the in-depth acquisition of molecular biology, strengthening personal and team responsibility as ability to quickly imply the instructor-advised or self-discovered papers and databases, take miniature comparative studies in temporary groups, develop wittiness and sagacity.

Pls, visit kaznu.kz site!