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WELCOME NOTE

Thanks to *Drosophila* in advancing biomedical research

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ABSTRACT

In 1910, no one could imagine that the small fly, *Drosophila* reared in Thomas Morgan Lab at Columbia University, USA will help us to understand genetics, developmental processes, innate immunity, complex behaviour and neural control of several functions in eukaryotes, including humans. The vinegar fly, *D. melanogaster* is a small insect which attracted scientists to answer several important questions and as a low-cost and valuable model for studying neurodegenerative, cardiovascular, kidney diseases, metabolic, respiratory and immune disorders, intestinal inflammation and pathogens, cancer and ageing (Allocca et al., 2018), because it is easy to be cultured to produce large numbers as well as its short life cycle; its mutant lines are available in several centers. Besides, its genome has been sequenced which showed approximately 75% similarity of the human disease-related genes. Research on *Drosophila has* resulted in seven Nobel prizes between 1933 and 2017.

Several international bodies, such as DrosAfrica, have been playing great efforts to help developing countries to use Drosophila as a model organism in biomedical research. DrosAfrica is one of the prominent charity in UK that has been founded with the aim "Building an African biomedical research community using drosophila" (Allocca et al., 2018). During the last decade, DrosAfrica succeeded to organize several workshops in Uganda, Kenya, Nigeria and Tunisia to train African researchers and students on Drosophila. Because of the current COVID-19 lockdown, DrosAfrica is organizing a free international online workshop for students and researchers on 12-14 October 2020. With the help of our European collaborators, we were able to establish a laboratory of *Drosophila* at Zoology Department, Faculty of Science, Tanta University, Egypt, focusing on several the interaction between nutrition and infection on population fitness and immunity, Parkinson's disease genes and drug discovery for diabetes type II (Meshrif et al., 2016). Now, we have plans to mechanistically dicepher the pathways underlying tumor progression using *Drosophila*. Given that genetic and developmental studies on *Drosophila* have identified novel oncogenes and tumor suppressors and related pathways, this fly is an outstanding model that can explore exciting observation in a short time before to move into preclinical and clinical studies. We do believe that using *Drosophila* as a model for human diseases will advance and foster our understanding of human diseases.

References

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