

# The circadian rhythm testing with flies essay sample

[Science](#), [Genetics](#)



Circadian Rhythm is like an internal body clock (biological clock) of an animal. And results obtained from experiment conducted with transgenic glowing fly, allowed one to come up with a few hypotheses, firstly, circadian rhythm repeats every 24 hours. When the glowing flies were placed in a dark environment for several days, they still glowed periodically for several days at the same night time, this proved that the above hypothesis is accurate. In addition, this showed that Circadian rhythm is endogenous, since the flies glowed at persistent timing despite the fact that there was no external factor, like exposure to daylight. Circadian rhythm is also shown to be entrainable, able to be affected by external factors. In the second experiment that was conducted, whereby flies were kept in a dark/light environment for five days, and then light/dark environment. Results obtained showed that shifting timings of external light source gradually shifts timings for when the fly shows per-luc gene expressions as well.

The point above allows us to infer that organisms like humans which contain an intrinsic body clock can maintain a 24 hour period, however certain mechanisms in the body like sleep-wake pattern can be influenced by some factors like the changes in light and darkness. My Experience After going through this e-tutorial dry lab work, I have gotten a better understanding of how Circadian Rhythm works. Also, I have learnt how tedious it is for a lab technician or researcher to breed model organisms and incorporate genes in them to turn them into transgenic organisms. In the website that we were made to go through, I have learnt that in order to obtain fly progeny with desirable traits takes quite a while, like a month despite the fact that flies have short lifespan.

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Moreover, we may not have successfully inserted the desirable gene into the fly and it would take a month to find out. Procedures for producing genetically engineered fly offspring are arduous as well, like constructing the DNA such that it contains the right domain, for instance in this experiment, Pelements, luc gene, promoter gene and mini-white gene. One other discomfort for trying to breed flies is that the process requires much haste yet accuracy and tenderness, since embryo must be inserted with DNA within 30-60minutes of being born otherwise when it starts to mature and differentiates, it may not express the recombinant DNA gene. Even so, there is still room for error as DNA may not enter precursor of germ cells, which determines the success of experiment. Another inevitable obstacle that is present is that despite needle being sharp and fine, penetration to posterior of embryo can result in membrane damage, and survival of embryo depends on recovery rate of membrane.

To make things worse, DNA inserted must be controlled because too little means lesser chance of DNA recombining and too much may cause embryo to explode. Furthermore, even if the procedures are done very precisely and with skill, in a typical experiment, only 10% of injected specimens would transform. These shows how tough collecting progeny with desirable phenotype is, and that a scientist should have perseverance in what he/she is doing and not back down from challenges. Like in this experiment, chances of obtaining offsprings with desirable traits is 10%, and if failure to obtain any transgenic offsprings for the first time round of breeding does not mean the experiment is impossible.