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Expression of *GFP* can influence aging and climbing ability in *Drosophila*

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ABSTRACT. *Green fluorescent protein* (*GFP*) is widely used as a reporter transgene in a variety of organisms. Some of the advantages of using *GFP* include non-invasive visualization of biological events and/or tissues in live specimens and its benign nature. When *GFP* is expressed throughout the organism, in neurons and eyes, lifespan and climbing ability of flies are significantly decreased compared to similar crosses with a *lacZ* reporter. Also, *GFP* expression can have subtle effects on eye morphology, with neural and ubiquitous expression. Since *GAL4/UAS* expression of *GFP* can influence aging and climbing ability in the *Drosophila* system of directed gene expression, we found that the latter of these advantages, namely its harmless, non-toxic nature, can be conditional, depending upon the mode of expression and the biological endpoint. We suggest that caution should be used when using *GFP* to visualize cellular events, especially in long-term assays.

Key words: *Drosophila melanogaster*; Green fluorescent protein (GFP); Longevity; Climbing

