

# Generation of PDK-1 Constructs to Develop Transgenic *Drosophila Melanogaster*

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It was recently discovered that mutating two amino acids residues within the nuclear export sequence (NES) of 3'-phosphoinositide-dependent kinase-1 (PDK1) retains this protein within the nucleus (6). The function of PDK1 in the nucleus has not yet been determined and will be an important area of investigation within the upcoming years. Many current researchers believe that nuclear PDK1 may have an important role in aging and development. A few substrates of PDK1 have been found to be localized in the nucleus, but the purpose and function of these substrates is still unclear (4). In the past, PDK1 was thought of as a cytoplasmic protein (7). In the cytoplasm, PDK1 responds to growth factor signaling, such as the insulin signaling pathway, and activates members of the AGC kinase family. These downstream substrates play an important role in many cellular processes such as glucose metabolism, cell survival, and cell growth and proliferation (6,8). The purpose of this study is to develop *Drosophila melanogaster* over expressing wild type and nuclear PDK1. As a first step of the process, I have subcloned PDK1 into the pUAST vector so that this DNA can successfully be injected into *Drosophila* embryos in order to study the roles of nuclear PDK1.