Video Article

Visualization of the embryonic nervous system in whole-mount Drosophila embryos

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Abstract

The Drosophila embryo is an attractive model system for investigating the cellular and molecular basis of neuronal development. Here we describe the procedure for the visualization of Drosophila embryonic nervous system using antibodies to neuronal proteins. Since the entire embryonic peripheral nervous and central nervous systems are well characterized at the level of individual cells (Ghysen et al., 1986; Bodmer and Jan, 1987; Bodmer et al., 1989), any aberrations to these systems can be easily identified using antibodies to different neuronal proteins. The developing embryos are collected at certain times to ensure that the embryos are in the proper developmental stages for visualization. After collection, the outer layers of the embryo, the chorion membrane and the vitelline envelope that surrounds the embryo, are removed before fixation. Embryos are then incubated with neuronal antibodies and visualized using fluorescently labeled secondary antibodies. Embryos at stages 12-17 are visualized to access the embryonic nervous system. At stage 12 the CNS germ band starts shortening and by stage 15 the definitive pattern of the commissure has been achieved. By stage 17 the CNS contracts and the PNS is fully developed (Campos-Ortega et al 1985). Thus changes in the pattern of the PNS and CNS can be easily observed during these developmental stages.

Disclosures

No conflicts of interest declared.