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# ULTRASTRUCTURAL ANALYSIS OF THE DROSOPHILA LARVAL CNS IN WILD-TYPE AND ADAMTS-A LOSS OF FUNCTION AND OVER-EXPRESSION MUTANTS

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The structures of organs and tissues often determine their function. The morphology of the central nervous system is important in increasing the efficacy of neuronal interactions. Various neurological disorders, such as ALD, arise due to structural defects in the CNS. Therefore it is important to understand the mechanisms that govern tissue structure. In all organisms, the structure of the CNS is regulated in part by the basement membrane or ECM. Understanding the genes and pathways that govern ECM formation and maintenance is essential to elucidate how tissues like the CNS maintain their stereotyped structure as they grow. In *Drosophila*, the CNS is covered by a thick ECM, the neural lamella, which immediately overlays two layers of surface glia. These three layers are essential to impose structure in the CNS. This research was focused on understanding the function of the metalloprotease AdamTS-A in surface glia. Prior work from the lab indicates that at the end of larval development AdamTS-A is expressed in surface glia, and that reduction of AdamTS-A function leads to massive distortion of the CNS structure. I looked at the expression of AdamTS-A in perineurial and subperineurial glia, the two types of surface glia, in order to determine when AdamTS-A turns on in each cell type and characterize its influence on the distribution of AdamTS-A expressing glia during larval life. Once I mapped the onset of AdamTS-A expression in surface glia and the distribution of AdamTS-A expressing glia as a function of time during development, I conducted a similar experiment in AdamTS-A mutant backgrounds to ascertain how alteration in surface glia function may lead to mass distortion of CNS structure.