Genetics Day Poster Submission

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Title: AN IMMUNGLOBULIN CELL ADHESION JUNCTION MODULE MAINTAINS EPITHELIAL INTEGRITY

Abstract: Epithelial cells can be born protruding from an epithelial tissue layer - without a connection to the basement membrane - then reincorporate into it. This process, called cell reintegration, appears to be a general property of epithelia. In flies, reintegration relies on a suite of adhesion proteins - Neuroglian, Fasciclin II, and Fasciclin II - that are distinct from the classical adhesion and occluding junctions. These proteins are not only found in proliferating epithelia but also in neurons, where they help drive axon fasciculation. Our model is that both fasciculation and reintegration are haptotactic, meaning that cell shape/movement is driven by adhesion. This raises the obvious question of why multiple factors are necessary. Does reintegration A) utilize a multivalent reintegration machinery that includes Nrg, Fas2, and Fas3, or does it B) depend on an amount of adhesion to which each of these proteins contribute? We are answering this question with a combination of structure-function analysis, genetic rescue experiments, and advanced imaging techniques.