Title:	Molecular Genetic Dissection of the Mechanism Underlying Cellular Plasticity in Drosophila
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Keywords:	Molecular Genetic Plasticity in Drosophila Neurogenesis in Drosophila Primary antibodies used
Issue Date:	8-Sep-2018
Publisher:	IISERM
Abstract:	Cellular plasticity is apparent during various developmental processes like gastrulation, organogenesis and tissue repair. Cellular plasticity includes all kind of cellular transitions like Epithelial to Mesenchymal Transition (EMT), Mesenchymal to Epithelial Transition (MET), transdifferentiation, dedifferentiation, and interconversion of different stem cell pools. Any aberrations in these biological conversions can result in disease conditions like cancer, heart failure. So it is vital to understand the mechanistic basis of these cellular transitions. For our study, we focused on understanding the molecular and genetic mechanism in Mesodermal to Ectodermal Transition using Drosophila as the model organism. We chose a tissue of mesodermal origin, the hematopoietic organ in Drosophila larvae- Lymph Gland. Overexpression of proneural gene scute in Posterior Signaling Center (PSC) resulted in fate change of a subset of mesodermal cells to ectodermal neurons. Furthermore, mesodermal cells undergoing cell fate change to neurons exhibit significant drop in PSC specific marker hedgehog and knot. Our results suggest that we were successful in establishing a model system to understand the mechanistic basis of mesodermal to ectodermal transition as well as epigenetic modifications and signaling pathways which prevent other cells in PSC to undergo fate change.
URI:	http://hdl.handle.net/123456789/1027 (http://hdl.handle.net/123456789/1027)
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