

Publication

A developmental switch in the response of DRG neurons to ETS transcription factor signaling

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 156091**Author(s)** Hippenmeyer, Simon; Vrieseling, Eline; Sigrist, Markus; Portmann, Thomas; Laengle, Celia; Ladle, David R; Arber, Silvia**Author(s) at UniBasel** [Arber, Silvia](#) ; [Pecho-Vrieseling, Eline](#) ;**Year** 2005**Title** A developmental switch in the response of DRG neurons to ETS transcription factor signaling**Journal** PLoS Biology**Volume** 3**Number** 5**Pages / Article-Number** e159**Keywords** Animals; Base Sequence; Cell Differentiation; DNA Primers; DNA-Binding Proteins/genetics/metabolism; Exons; Ganglia; Spinal/growth & development/*physiology; Genes; Reporter; Green Fluorescent Proteins/analysis/genetics; Humans; Mice; Transgenic; Motor Neurons/physiology; Muscle; Skeletal/innervation; Neurons/cytology/*physiology; Neurons; Afferent/physiology; Proto-Oncogene Proteins c-ets/*physiology; Recombinant Proteins/metabolism; Signal Transduction/*physiology; Spinal Cord/physiology; Transcription Factors/genetics/metabolism

Two ETS transcription factors of the Pea3 subfamily are induced in subpopulations of dorsal root ganglion (DRG) sensory and spinal motor neurons by target-derived factors. Their expression controls late aspects of neuronal differentiation such as target invasion and branching. Here, we show that the late onset of ETS gene expression is an essential requirement for normal sensory neuron differentiation. We provide genetic evidence in the mouse that precocious ETS expression in DRG sensory neurons perturbs axonal projections, the acquisition of terminal differentiation markers, and their dependence on neurotrophic support. Together, our findings indicate that DRG sensory neurons exhibit a temporal developmental switch that can be revealed by distinct responses to ETS transcription factor signaling at sequential steps of neuronal maturation.

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