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LES SÉMINAIRES DE L'INMG

Heterogeneous precursor populations underlie developmental plasticity of the dorsal root ganglia

Par

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Although a variety of primary sensory neurons are implicated in the detection and transmission of different sensory modalities, how they arise during development remains poorly understood. The process of neuronal specification is the acquisition of definitive phenotypic characteristics for a given subclass of neurons during embryonic development. This acquisition can be divided into several interdependent and sequential phases, from the time point when progenitor cells exit the cell cycle toward the newly formed and perfectly differentiated neuron. Using mouse genetics, Alexandre demonstrated that transcriptions factors of Maf and Zeb families control the specification and differentiation of specific sensory neuron sub-types. His work contributed to uncover the complex developmental sequence ensuring the formation of the peripheral sensory system and to highlight the progenitor diversity that underlies the developmental plasticity of sensory neuron generation.

Selected publications:

1. Ventéo, S., Laffray, S., Wetzel, C., Rivat, C., Scamps, F., Méchaly, I., Bauchet, L., Raoul, C., Bourinet, E., Lewin, G.R., *et al.* (**2016**). Fxyd2 regulates Aδ- and C-fiber mechanosensitivity and is required for the maintenance of neuropathic pain. Sci. Rep. *6*, 36407.

2. Ohayon, D., Garcès, A., Joly, W., Soukkarieh, C., Takagi, T., Sabourin, J.-C., Agius, E., Darling, D.S., De Santa Barbara, P., Higashi, Y., *et al.* (**2016**). Onset of Spinal Cord Astrocyte Precursor Emigration from the Ventricular Zone Involves the Zeb1 Transcription Factor. Cell Rep. *17*, 1473–1481.

3. Ohayon, D., Ventéo, S., Sonrier, C., Lafon, P.-A., Garcès, A., Valmier, J., Rivat, C., Topilko, P., Carroll, P., and Pattyn, A. (**2015**). Zeb family members and boundary cap cells underlie developmental plasticity of sensory nociceptive neurons. Dev. Cell *33*, 343–350.

4. Wende, H., Lechner, S.G., Cheret, C., Bourane, S., Kolanczyk, M.E., Pattyn, A., Reuter, K., Munier, F.L., Carroll, P., Lewin, G.R., *et al.* (**2012**). The transcription factor c-Maf controls touch receptor development and function. Science *335*, 1373–1376.

5. Bachy, I., Franck, M.C.M., Li, L., Abdo, H., Pattyn, A., and Ernfors, P. (**2011**). The transcription factor Cux2 marks development of an A-delta sublineage of TrkA sensory neurons. Dev. Biol. *360*, 77–86.

6. Bourane, S., Garces, A., Venteo, S., Pattyn, A., Hubert, T., Fichard, A., Puech, S., Boukhaddaoui, H., Baudet, C., Takahashi, S., *et al.* (**2009**). Low-threshold mechanoreceptor subtypes selectively express MafA and are specified by Ret signaling. Neuron *64*, 857–870.