Universität Basel

Research Project

The role of muscle and motor neuron patterning in constraining digit number

Third-party funded project

Project title The role of muscle and motor neuron patterning in constraining digit number
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During development, the musculoskeletal apparatus of the vertebrate limb integrates and patterns diverse tissue types with distinct embryonic origins. Namely, the bones of the appendicular skeleton originate from the lateral plate mesoderm, while the musculature and its innervating motor neurons derive from the somatic mesoderm and the neural tube, respectively. How is the patterning of such distinct embryonic progenitor populations coordinated, in order to give rise to a fully functional, moveable limb? Moreover, what are the potential developmental constraints originating from such patterning interdependency between different tissue types?

We are studying the patterning of these three tissue types in vertebrate autopods, hands and feet, where the appendicular skeleton shows the highest degree of morphological diversity and functional specialization. We are using chicken experimental embryology as well as genetic mouse models (in collaboration with Rolf Zeller's group, Department of Biomedicine, Uni Basel) to address these questions.

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Add publication

Published results

4522513, Luxey, Maëva; Berki, Bianka; Heusermann, Wolf; Fischer, Sabrina; Tschopp, Patrick, Development of the chick wing and leg neuromuscular systems and their plasticity in response to changes in digit numbers, 0012-1606 ; 1095-564X, Developmental Biology, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

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