Universität Basel

Research Project

Regulatory evolution of vertebrate skeletogenesis

Project funded by own resources

Project title Regulatory evolution of vertebrate skeletogenesis
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Organisation / **Research unit**
Departement Umweltwissenschaften / Regulatory Evolution (Tschopp)
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Embryonic skeletogenesis occurs through the initial condensation of mesenchymal progenitors, followed by differentiation into the various skeletal cell types. These include chondrocytes, the bone-forming osteoblasts and joint progenitors that build the connections between mature skeletal elements. Depending on anatomical location, three distinct mesenchymal progenitor pools contribute to the different parts of the vertebrate skeleton: the somitic mesoderm forms the axial skeleton, whereas the lateral plate mesoderm and the neural crest give rise to the appendicular skeleton and parts of the cranial skeleton, respectively.

We are studying the gene regulatory mechanisms underlying the generation of these cell types, originating from distinct embryonic sources and in different species. We use next-generation sequencing techniques to interrogate the transcriptional output, chromatin state and transcription factor binding profiles of these cells during maturation, both in vivo and in vitro.

Keywords Regulatory Evolution, Vertebrate Skeletogenesis
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