



## JOEL BOERCKEL

*Assistant Professor*  
*Department of Orthopaedic Surgery & Bioengineering*  
**UNIVERSITY OF PENNSYLVANIA**

### **TRANSCRIPTIONAL FEEDBACK CONTROL OF MOBILITY AND MORPHOGENESIS**

We sometimes tend to think of mechanotransduction as a one-way street: mechanical cues activate the cytoskeleton, which in turn activates transcription factors that produce some outcome, like differentiation. Here, we'll ask whether new gene expression, induced by a mechanical or migratory stimulus, can feedback to influence how the cell perceives that same signal over time. First, we'll discuss one mechanism by which this sort of feedback is mediated. Second, we'll discuss how this pathway influences development and homeostasis in the skeletal system.

### **BIOGRAPHY**

The Boerckel laboratory is interested in the mechanobiology of development and regeneration. The lab studies how mechanical cues influence morphogenesis, growth, adaptation, and repair, and how these developmental programs can be recapitulated to engineer functional tissues through physical cues.

Joel Boerckel did his undergraduate studies in Mechanical Engineering at Grove City College, and received his PhD degree, also in Mechanical Engineering, from Georgia Tech in 2011. Following postdoctoral training in vascular biology at the Cleveland Clinic and a first faculty position at Notre Dame, he arrived at UPenn in 2017, where Joel is jointly appointed as Assistant Professor in the departments of Orthopaedic Surgery and Bioengineering.

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