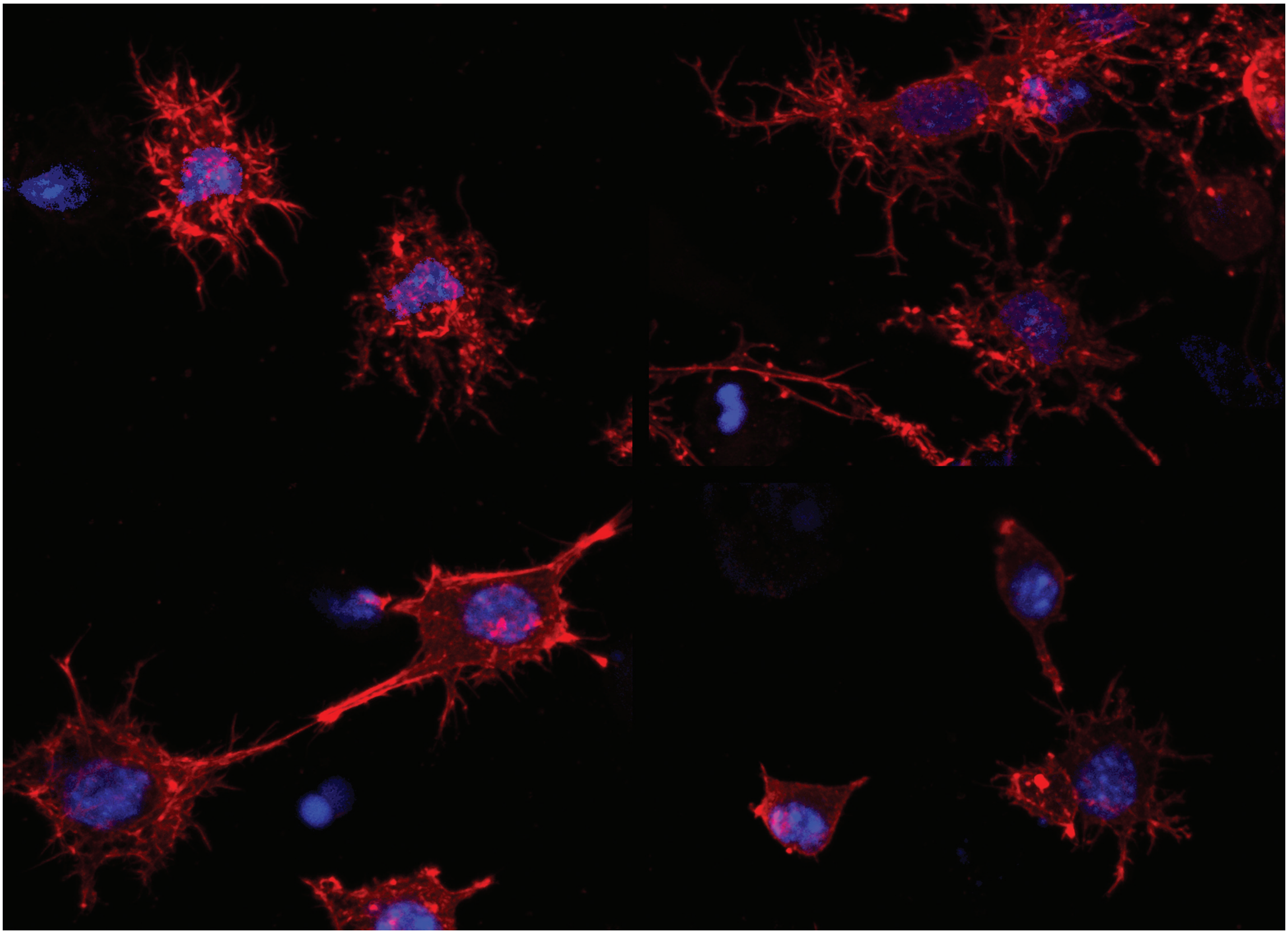

Showcasing research from Professor Xiao-Hua Qin's Biomaterials Engineering Laboratory, Institute for Biomechanics, ETH Zurich, Zurich, Switzerland.

Interpenetrating network hydrogels for studying the role of matrix viscoelasticity in 3D osteocyte morphogenesis

Interpenetrating alginate–collagen hydrogels of different stress relaxation speeds enable mechanobiological investigations of 3D cell cultures. Here, these hydrogels were used to mimic the osteoid tissue during early bone development. Murine IDG-SW3 osteocytes were cultured in fast- and slow-relaxing compositions for 14 days. Fast-relaxing hydrogels promoted early cell spreading and morphogenesis in 3D, whereas slow-relaxing hydrogels favored osteogenic differentiation over time, highlighting the sensitivity of osteocytes to matrix mechanics during *in vitro* bone development.

As featured in:

See Xiao-Hua Qin *et al.*, *Biomater. Sci.*, 2024, **12**, 919.

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