ABSTRACT

Skeletal muscle injuries and diseases are pervasively common in patients of many backgrounds ranging from elite athletes and soldiers to the elderly. Despite the ability of skeletal muscle to repair itself following smaller injuries, there are a variety of injuries and trauma that result in an irrecoverable loss of muscle mass and function, including volumetric muscle loss. My group engineers instructive biomaterials with tailored biophysical and biochemical properties to combat this serious human health challenge. In this talk I will discuss our progress on two biomaterials approaches we are taking: 1) Designing hydrogels mimicking the mechanical environment of developmental muscle niches, and 2) Engineering of electrically conductive 3D collagen-based scaffolds with highly aligned, anisotropic pores.