

## **DESIGN OF NOVEL MATERIALS TO REGULATE STEM AND PROGENITOR CELL EXPANSION AND DIFFERENTIATION**

Kristi Anseth, University of Colorado, USA  
kristi.anseth@colorado.edu

Cues from a cell's microenvironment play a critical role in directing and maintaining cell fate in vivo. Misregulation within the extracellular space can cause cell death or other aberrant behaviors associated with developmental defects and diseases such as fibrosis and cancer. Thus, as one thinks about culturing stem cells or progenitor cells for functional studies or their delivery into patients for therapeutic purposes, it is prudent to consider the surrounding microenvironment, especially conditions that stimulate desired biological functions and/or integration with native tissue. In this regard, multicomponent biomaterials and their physicochemical manipulation can serve as in vitro platforms to decipher some of the complexities of dynamic cell-matrix signaling. This talk will focus on some of our recent efforts towards in situ hydrogel property manipulation with light, allowing intimate control of a cell's microenvironment in both time and space.