

ASSESSING THE BIOCOMPATIBILITY OF DIFFERENT SIZES AND
CONCENTRATIONS OF GOLD NANOPARTICLES CONJUGATED TO
DECELLULARIZED TISSUE SCAFFOLDS

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ABSTRACT

Gold nanoparticles conjugated to decellularized scaffolds have been studied previously within the fields of tissue engineering and biomaterials. They hold much potential for applications in soft tissue repair and improved wound healing. Although they are widely applied for their biocompatibility and cytotoxicity, varying conclusions about such properties have been reported. The primary differences between these studies have typically been the size and concentration of the gold nanoparticles. This project directly compares the biocompatibility and cytotoxicity responses of three sizes of gold nanoparticles (20nm, 50nm, and 100nm) at three different concentrations (1x, 4x, and 8x) conjugated to a decellularized tissue scaffold. SEM and NAA were performed to verify and quantify the attachment of gold. Thermal properties of scaffolds were assessed with DSC. To characterize the biocompatibility of each group WST-1, ROS, PicoGreen, and cell migration assays were performed. The assays were performed with L929 murine fibroblasts.