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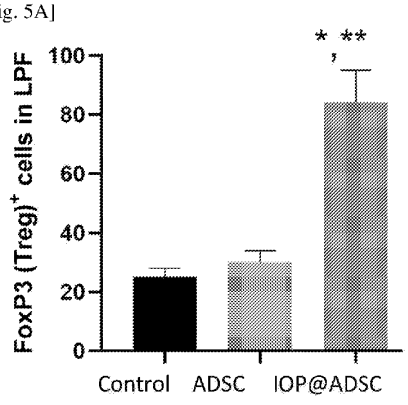
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(54) Title: IRON-OXIDE NANOPARTICLE-LOADED MESENCHYMAL STEM CELLS AND USES THEREOF

[Fig. 5A]



(57) Abstract: A composition that includes a stem cell and a coated iron oxide nanoparticle. The coated iron oxide nanoparticle, being present in the cytoplasm of the stem cell, contains a superparamagnetic iron oxide core that is coated with one or more biocompatible polymers, each of which has a polyethylene glycol group, a silane group, and a linker covalently linking the polyethylene glycol group and the silane group. Also provided is a method for treating an inflammatory disorder in which stem cells are cultured in the presence of coated iron oxide nanoparticles and the cultured stem cells are administered to a subject suffering from an inflammatory disorder. Further disclosed is a method for tracking stem cells in vivo by labeling stem cells with coated iron oxide nanoparticles, administering the labeled stem cell to an individual, and obtaining one or more T2 weighted magnetic resonance images of the individual to track the stem cells.