Research Statement: My long-term vision is to contribute to the development of innovative, impactful biomaterials for fundamental and translational tissue engineering applications and to contribute to the development of the next generation of biomaterial scientists. In particular, as an independent researcher, I will lead a research team in the development and evaluation of cutting-edge biomaterials in the context of novel disease modifying agents as well as for organ replacement using Adult Stem Cells (ASCs). My doctoral and post-doctoral studies have given me strong training in polymeric biomaterial development and characterization, molecular biology techniques, and the culture of primary and stem cells (adult and embryonic). In addition, as a young researcher I understand the relevance of interdisciplinary collaboration, which in my case has resulted in 20 peer-reviewed manuscripts in the area of tissue engineering, biomaterials and regenerative medicine. This expertise will serve as a basis for me to build my own research program. My research will initially be focused on the design of mechanically tunable substrates of varying geometries, chemical and biochemical composition capable of supporting prolonged *in vitro* expansion of ASCs while maintaining their multipotency and therapeutic capabilities. This initial research work will contribute to our understanding of the cellular mechanisms that maintain "stemness" while directly contributing to the improved design of *in vitro* culture environments that enhance the clinical utility of ASCs.

Education:

- PhD, Chemical Engineering; Texas A&M University, College Station TX, May 2011. Advisor: Dr. Mariah Hahn, PhD
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Research/Work Experience:

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  Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Advisor: Dr. Mariah Hahn
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  Department of Chemical Engineering, Texas A&M University, College Station, TX
- Lecturer, 10/04-01/06
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- Undergraduate Research Assistant, 01/04-04/05
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Selected Publications (from a total of 20 peer-reviewed publications):

- A.C Jimenez-Vergara, **D.J. Munoz-Pinto**, M.S Hahn. Influence of pressurized cyclic stretch and endothelial cell presence on multipotent stem cell osteogenic commitment. Integr Biol. 5 (7): 983-92, 2013.
- **D. Munoz-Pinto**, X. Qu, L. Bansal, HN. Hayenga, J. Hahn J, MS. Hahn. Relative impact of form-induced stress vs. uniaxial alignment on multipotent stem cell myogenesis. Acta Biomateralia. 8 (11): 3974-81, 2012.

- **D. Munoz-Pinto**, A.C. Jimenez-Vergara, Y. Hou, H.N. Hayenga, A. Rivas, M. Grunlan, M.S. Hahn. Osteogenic potential of poly(ethylene glycol)-poly(dimethylsiloxane) hybrid hydrogels. Tissue Eng A, 18(15-16):1710-9, 2012.
- **D. Munoz-Pinto**, B. Grigoryan, J. Long, M. Grunlan, M.S. Hahn. An Approach for Assessing Hydrogel Hydrophobicity. J Biomed Mater Res A. 100(10):2855-60, 2012.
- **D. Munoz-Pinto**, R. McMahon, M. Kanzelberger, A.C. Jimenez-Vergara, Y. Hou, M. Grunlan, M.S. Hahn. Inorganic-organic hybrid scaffolds for osteochondral regeneration. J of Biomed Mater Res A. 94 (1): 112-21, 2010.