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Project Name(s): Targeting Tension Transmission in Smooth Muscle Contraction

General Topic (Keywords): asthma, smooth muscle contraction, extracellular matrix, molecular biology

Project Description(s): Exaggerated airway smooth muscle contraction is one of the hallmarks of asthma. Tension generated by actin-myosin cross bridging in smooth muscle cells is transmitted via complex cellular interactions with the extracellular matrix. My laboratory focuses on the role of the integrins and extracellular matrix ligands in tension transmission. We have shown that inhibition of integrin alpha-5 beta-1 significantly inhibits tension transmission in smooth muscle, and are now seeking to identify and investigate other transmembrane proteins and ligands involved in tension transmission and how they are modulated by cytokine treatment, with the goal of identifying new targets for the treatment of asthma.

Desired Skills or Experience: cell culture, PCR, flow cytometry

Time Commitment: minimum ~20 hrs per week

Preferred Starting Date: ~6/1/2016