Nature Reviews Rheumatology **8**, 3 (2012); published online 6 December 2011; doi:10.1038/nrrheum.2011.185

CONNECTIVE TISSUE DISEASES

VSMC CONTRACTION IN SYSTEMIC SCLEROSIS

An investigation into the factors that cause vascular pathology in patients with systemic sclerosis (SSc) and/or pulmonary arterial hypertension (PAH) has identified antibodies that bind to vascular smooth muscle cells (VSMCs) as modulators of VSMC contraction. This new research, published in *Annals of the Rheumatic Diseases,* has also found putative targets of these antibodies, including STIP1 and α-enolase.

PAH can be idiopathic in nature or a vascular complication of SSc. Moreover, PAH can be a major cause of premature death. Although the close links between autoimmunity and PAH are well established, exactly how autoimmune mechanisms contribute to the pathogenesis of PAH is not clear. "As constriction, migration and proliferation of VSMCs are key phenomena in vascular remodeling, we hypothesized that patients with SSc and/or PAH may develop an immune response to VMSCs," write the study authors.

First, the investigators collected sera from patients with SSc (with or without PAH), those with idiopathic PAH and healthy individuals as controls ($n = 15$ for each group). These sera were then screened for antibodies that could bind human aortic VSMCs. When added to collagen–cell matrices, patient sera containing these antibodies were found to induce VSMC contraction, in constrast to sera from the healthy individuals.

Using 2D immunoblotting and mass spectrometry, target antigens of the anti-VSMC antibodies were identified; among these, STIP1 and α-enolase cross-reacted with sera from patients but not that of healthy controls. Moreover, serum antibodies against STIP1 were detected in the majority of patients with SSc (with or without PAH; 76% and 84%, respectively) and 24% of those with idiopathic PAH, compared with only 3% of controls.

"These anti-VSMC antibodies exert a functional role in increasing contraction of VSMCs," says author Luc Mouthon. "We are currently analyzing the prognostic value of these antibodies, their association with vascular manifestations of SSc and their specificity to SSc," he adds.

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Original article Bussone, G. *et al.* IgG from patients with pulmonary arterial hypertension and/or systemic sclerosis binds to vascular smooth muscle cells and induces cell contraction. *Ann. Rheum. Dis.* doi:10.1136/annrheumdis-2011-200195