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PAI-1 and t-PA mRNAs are expressed by vascular smooth muscle in vivo.

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We previously reported that cultured rat aortic smooth muscle (SM) cells produce large amounts of free PAI-1 activity and express the mRNA for both PAI-1 and t-PA. In the study described in this abstract immunoblotting combined with the use of appropriate standards has allowed us 1) to confirm the presence of immunoreactive PAI-1 in the medium conditioned by the rat aortic SM cells and 2) to detect the presence of PAI-1 complexed with t-PA. These findings raise the possibility that vascular SM cells could contribute to the fibrinolytic balance of the arterial wall in vivo. To answer this question we have extracted total RNA from a variety of rat tissues. In particular, rat thoracic aortas were carefully cleaned of the adventitial layer and the endothelium rubbed off using the blunt end of a scalpel. RNA was then extracted only from the media which contains an homogenous population of SM cells. RNA samples were then blotted and hybridized with a 2.5 kb fragment of a PAI-1 cDNA from the coding region of the rat gene and with a 1.2 kb fragment of a human t-PA cDNA. Hybridization signals were as follows:

	aorta	brain	liver	heart
PAI-1	++	+	+/-	+
t-PA	+	+	+	+

A positive signal was observed for both t-PA and PAI-1 in the RNAs obtained from the aortas. SM cells represent the most abundant cell type in the arterial wall. The fact that they are likely to be involved in the regulation of plasminogen activation in the vessel wall has important implications for the evolution of arterial wall thrombi, the genesis of atherosclerotic lesions and the ability of inflammatory and neoplastic cells to penetrate the vessel wall.