

Supplemental Table 1: Reported values of tissue stiffness

Tissue type	Young's modulus, kPa	Citation	Method
Bovine aortic endothelial cells	.1-2	Sato <i>et al.</i> ¹	AFM
Rabbit cardiac cells	100.3 ± 10.7	Mathur <i>et al.</i> ²	AFM
Murine skeletal muscle cells	24.7 ± 3.5	Mathur <i>et al.</i> ²	AFM
Human umbilical vein endothelial cells	1.4-6.8	Mathur <i>et al.</i> ²	AFM
Human umbilical vein endothelial cells	2.7-7.2	Kataoka <i>et al.</i> ³	AFM
Human breast tissue	15-30	Van Houtten <i>et al.</i> ⁴	MRE
Human breast tissue	5-25* (healthy tissue) 60-100* (carcinoma)	McKnight <i>et al.</i> ⁵	MRE
Human skeletal muscle	10-75*	Uffmann <i>et al.</i> ⁶	MRE
Atherosclerotic lesions of rabbit thoracic aortas	10-100 [†]	Matsumoto <i>et al.</i> ⁷	Pipette aspiration
Porcine liver	12.88 ± 2.53	Tay <i>et al.</i> ⁸	Indentation

AFM: Atomic Force Microscopy; MRE: Magnetic Resonance Elastography

*Values were reported as shear modulus (G), which is related to the Young's Modulus (E) by $E=3G$, for a poisson ratio of 0.5.

[†]Values have been adjusted by a correction factor of approximately 2-3 required for this technique⁹.

1. Sato M, Suzuki K, Ueki Y, Ohashi T. Microelastic mapping of living endothelial cells exposed to shear stress in relation to three-dimensional distribution of actin filaments. *Acta Biomater.* 2007;3:311-319.
2. Mathur AB, Collinsworth AM, Reichert WM, Kraus WE, Truskey GA. Endothelial, cardiac muscle and skeletal muscle exhibit different viscous and elastic properties as determined by atomic force microscopy. *J Biomech.* 2001;34:1545-1553.
3. Kataoka N, Iwaki K, Hashimoto K, et al. Measurements of endothelial cell-to-cell and cell-to-substrate gaps and micromechanical properties of endothelial cells during monocyte adhesion. *Proc Natl Acad Sci USA.* 2002;99:15638-15643.
4. Van Houten EE, Doyley MM, Kennedy FE, Weaver JB, Paulsen KD. Initial in vivo experience with steady-state subzone-based MR elastography of the human breast. *J Magn Reson Imaging.* 2003;17:72-85.
5. McKnight AL, Kugel JL, Rossman PJ, Manduca A, Hartmann LC, Ehman RL. MR elastography of breast cancer: preliminary results. *AJR Am J Roentgenol.* 2002;178:1411-1417.
6. Uffmann K, Maderwald S, Ajaj W, et al. In vivo elasticity measurements of extremity skeletal muscle with MR elastography. *NMR in Biomedicine.* 2004;17:181-190.
7. Matsumoto T, Abe H, Ohashi T, Kato Y, Sato M. Local elastic modulus of atherosclerotic lesions of rabbit thoracic aortas measured by pipette aspiration method. *Physiol Meas.* 2002;23:635-648.
8. Tay BK, Kim J, Srinivasan MA. In vivo mechanical behavior of intra-abdominal organs. *IEEE Trans Biomed Eng.* 2006;53:2129-2138.
9. Pajerowski JD, Dahl KN, Zhong FL, Sammak PJ, Discher DE. Physical plasticity of the nucleus in stem cell differentiation. *Proc Natl Acad Sci USA.* 2007;104:15619-15624.