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Supplementary Material to:

"Tensile properties of human collagen fibrils and fascicles are insensitive to environmental salts"

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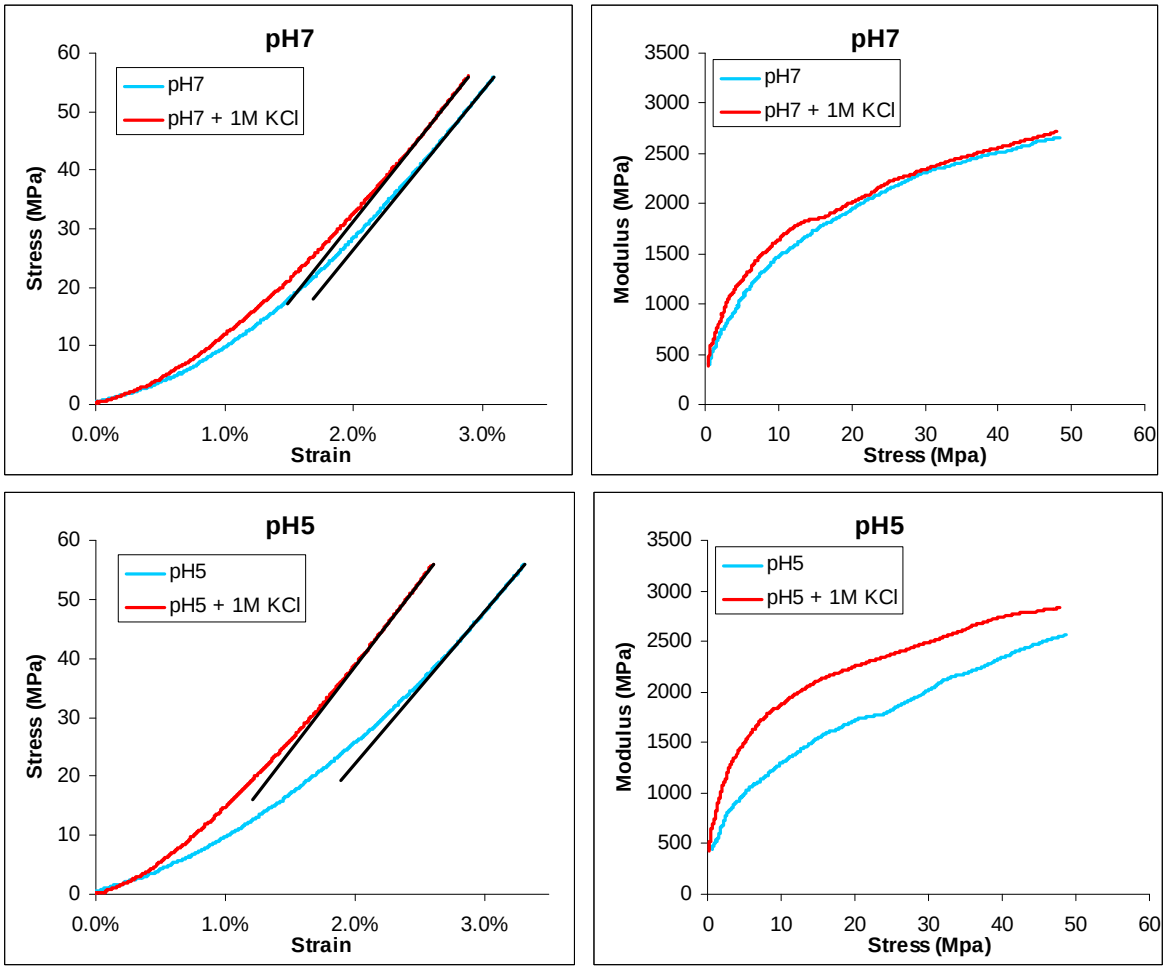
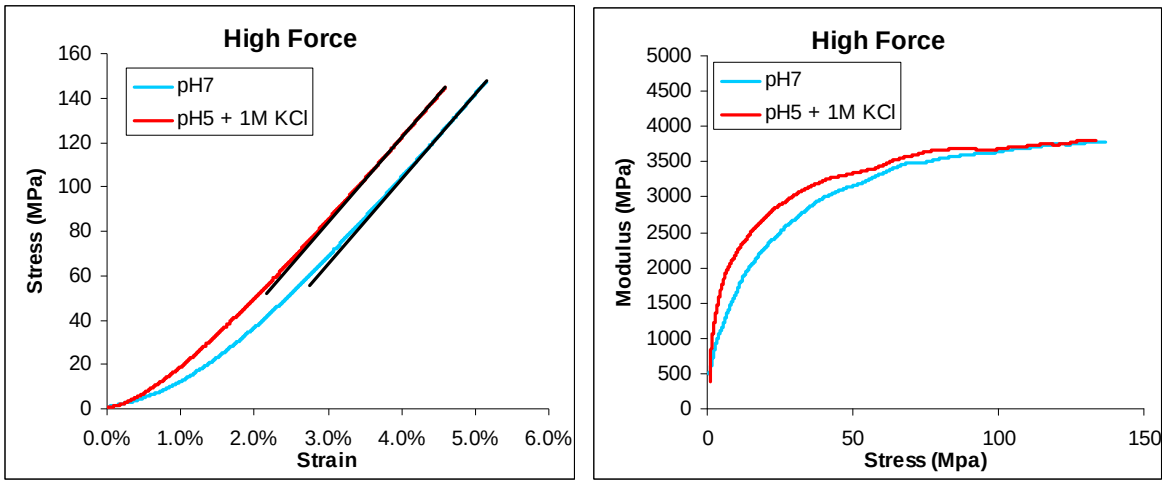
Effect of low pH on single fibril tensile modulus



	Modulus (GPa)
pH7	2.69
pH7 + 1M KCl	2.80
pH5	2.57
pH5 + 1M KCl	2.89

FIGURE S1 Tensile tests on a single fibril in pH7 (sodium phosphate) and pH5 (potassium acetate) buffers, showing the effect of 1 M KCl in each of these buffers. The figures in the left column show stress-strain curves, and the figures in the right column display how the modulus increases along the curve. Black lines are linear fits used to determine modulus. The modulus values are shown in the table.

Reduced effect of pH and salt at higher force



	Modulus (GPa)
pH7 *High Force*	3.82
pH5 + 1M KCl *High Force*	3.81

FIGURE S2 In the same experiment as shown in Fig. S1, measurements were also made to a greater force in the pH7 sodium phosphate buffer and pH5 potassium acetate buffer containing 1M KCl, which were the two conditions differing most in compressive modulus on reconstituted fibrils (1). It can be seen that the difference in modulus is greatest at low stress and drops off at greater stress values. The black lines indicate linear fits used to determine the modulus values in the table.

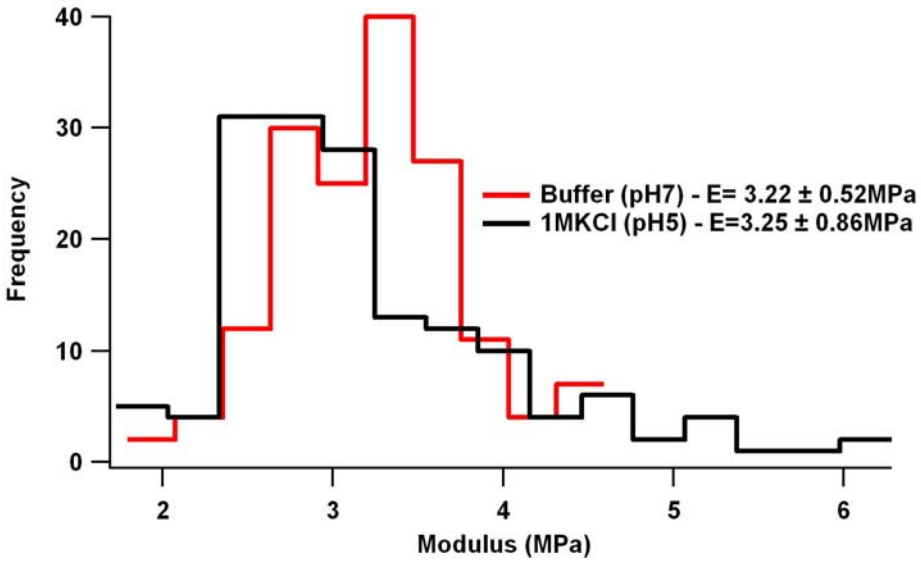


FIGURE S3 Histogram of compressive moduli from a large number of indentations on fibrils from mature human tendon. Measurements were made in pH7 sodium phosphate buffer (red) and pH5 potassium acetate buffer containing 1M KCl (black), which were the two conditions differing most in modulus on reconstituted fibrils (1). As can be seen, the 1M KCl at pH5 did not lead to increased modulus.

SUPPLEMENTARY REFERENCES

1. Grant, C. A., D. J. Brockwell, S. E. Radford, and N. H. Thomson. 2009. Tuning the elastic modulus of hydrated collagen fibrils. Biophys. J. 97:2985-2992.