

From strain stiffening to softening - Rheological characterization of keratin networks crosslinked via electron irradiation

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Time sweep test

The time sweep test captures the time evolution of the elasticity during polymerization. In this test, the amplitude of the oscillatory strain was fixed at $\gamma = 2\%$, predetermined to be in the linear viscoelastic region, and deformation frequency at $\omega = 1$ Hz. Since all keratin samples have been polymerized prior to the rheological measurements, the elastic moduli of the networks remain unchanged over time (figure S1).

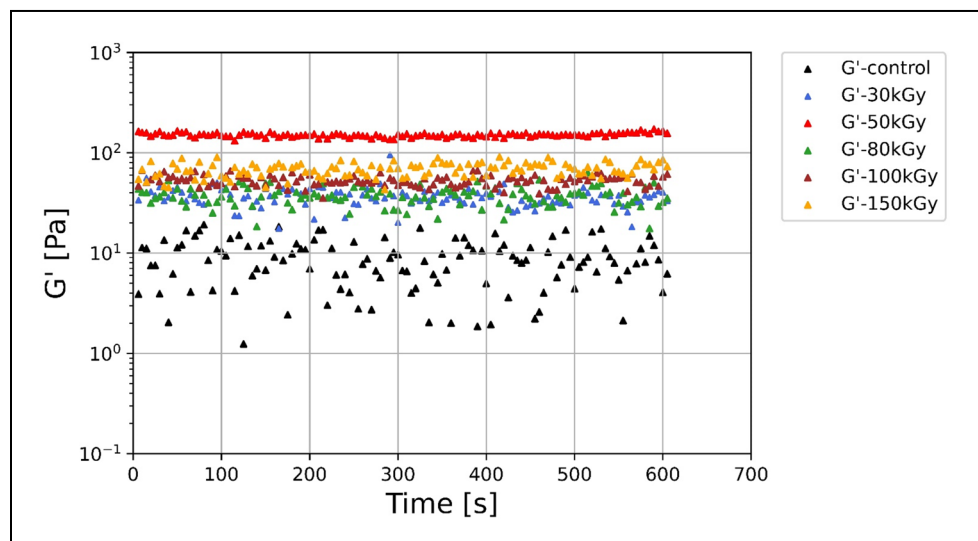


Figure S1. The time sweep test shows a very weak to no time dependency of the elastic modulus (G') for both irradiated and control keratin gels.

Influence of irradiation on loss factor

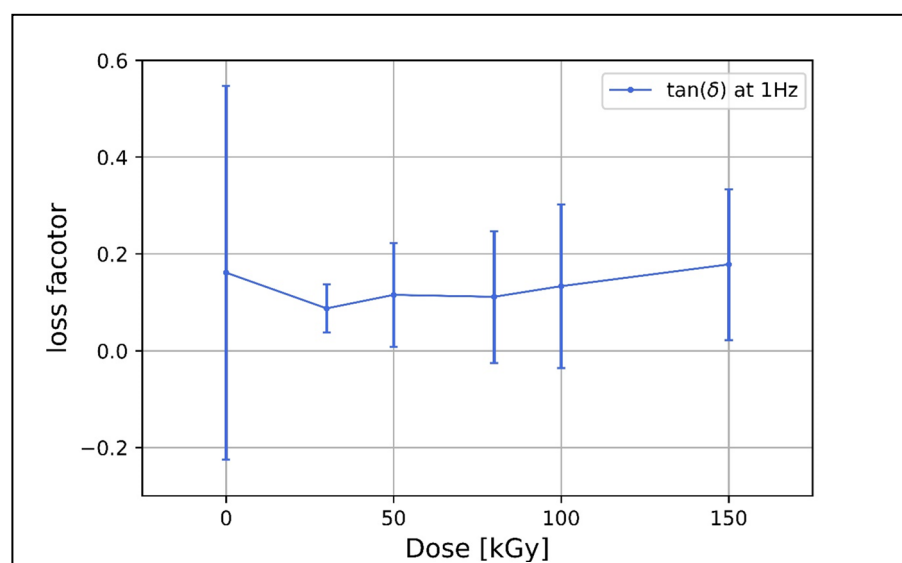


Figure S2. Mean values of the loss factor $\tan(\phi)$ at $f = 1$ Hz of keratin gels at different doses show only minor variation in comparison to the control.