SUPPLEMENTARY FIGURES

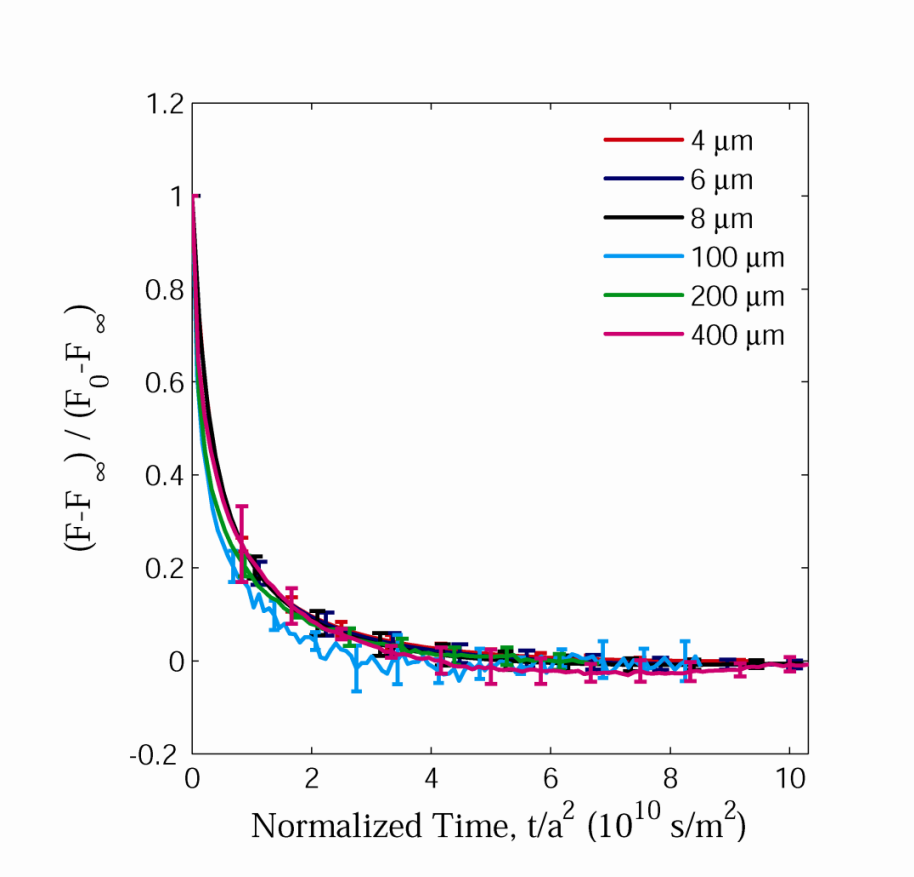

Fig. S1 Load relaxation responses for polyacrylamide gels at six different indentation depths - spanning two orders of magnitude- for which load is normalized in the form $[F(t)-F(\infty)]/[F_o-F(\infty)]$. Data are shown as mean ± standard deviation. Due to the high data density (see text), error bars are not displayed for all data points.These data collapse onto a single curve when time is normalized by a^2 as is expected for a poroelastic response.

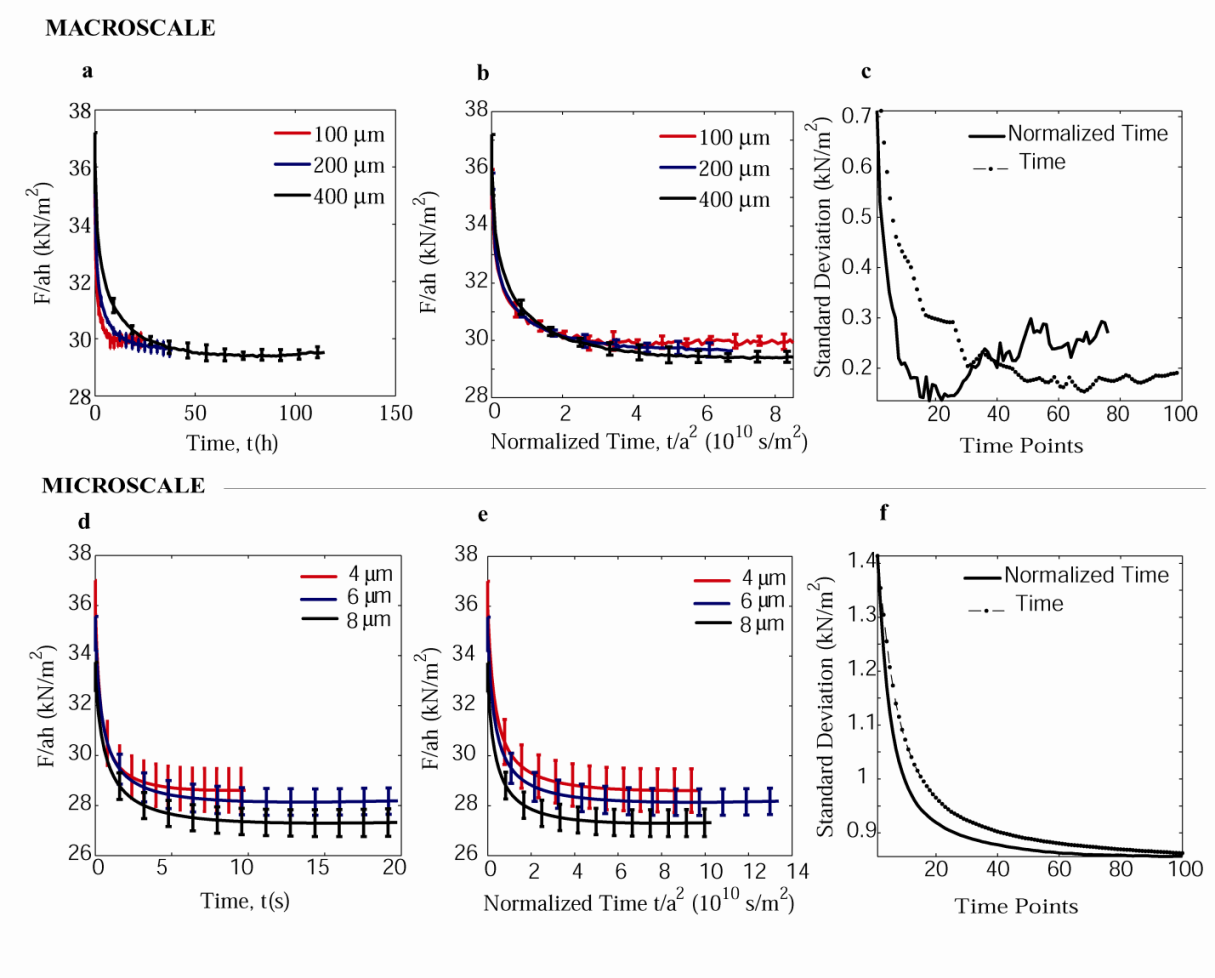

Fig. S2 Macroscale (a) and microscale (d) load relaxation data where force is normalized by *ah*, but time is not normalized. Macroscale (b) and microscale (e) load relaxation response when force is normalized by *ah* and time is normalized by a^2. Standard deviation among replicate curves for all indentation depths vs. time in macroscale (c) and microscale (f) tests when time is normalized vs. when time is not normalized. Data are shown as mean ± standard deviation. Due to the high data density (see text), error bars are not displayed for all data points.

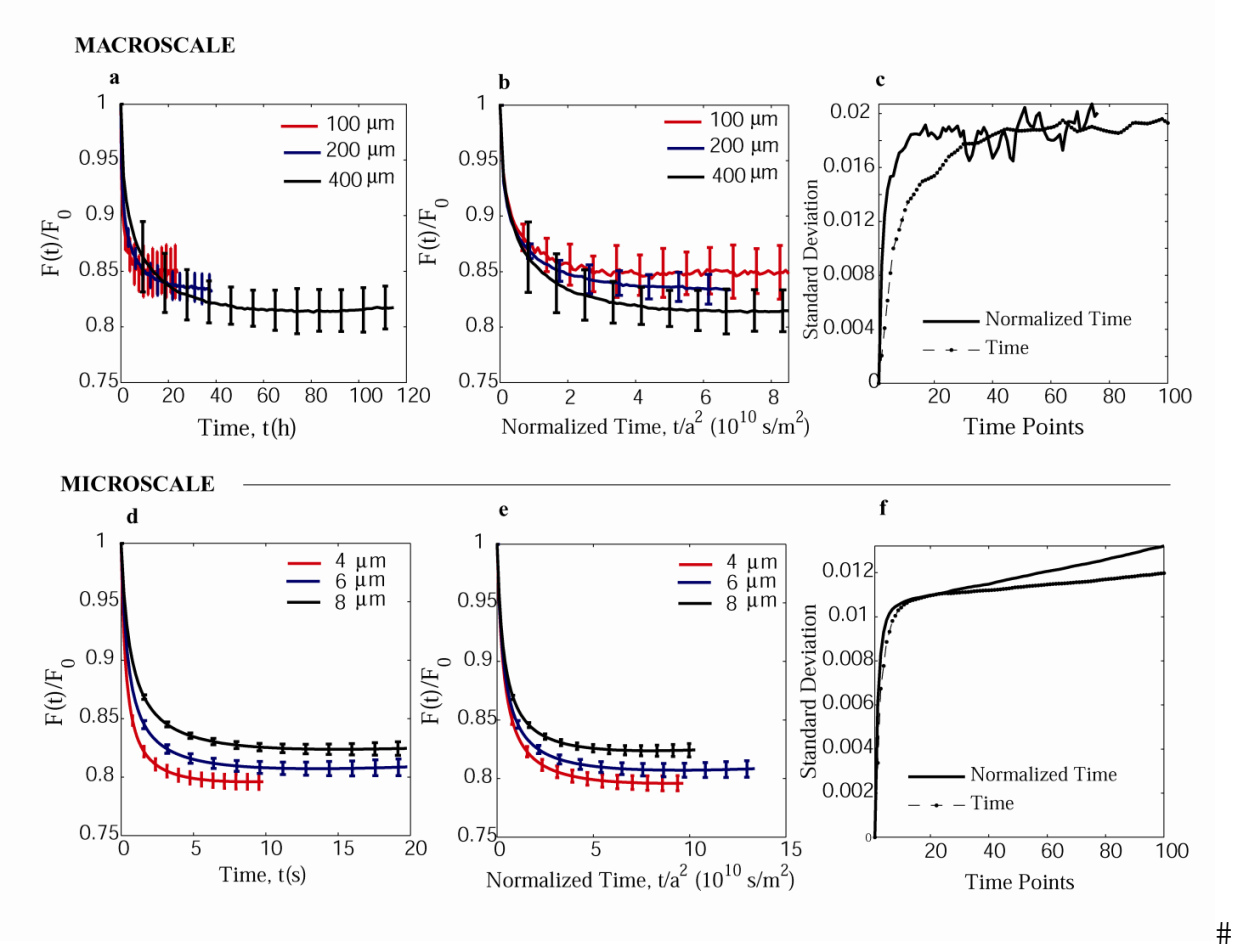

Fig.S3 Macroscale (a) and microscale (d) load relaxation data where time is not normalized. Macroscale (b) and microscale (e) load relaxation response where time is normalized by a^2. Force is normalized by $F_o$in call cases. Standard deviation among replicate curves for all indentation depths vs. time in macroscale (c) and microscale (f) experiments when time is normalized vs. when it is not normalized. Data are shown as mean ± standard deviation. Due to the high data density (see text), error bars are not displayed for all data points.