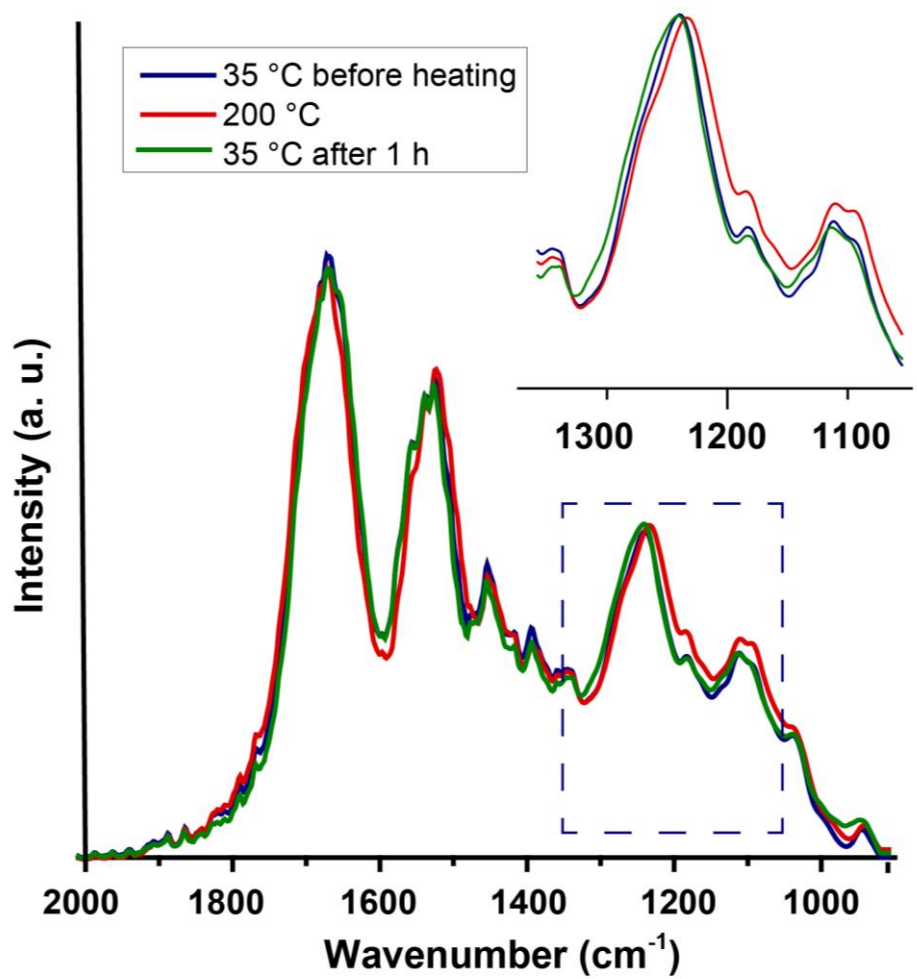
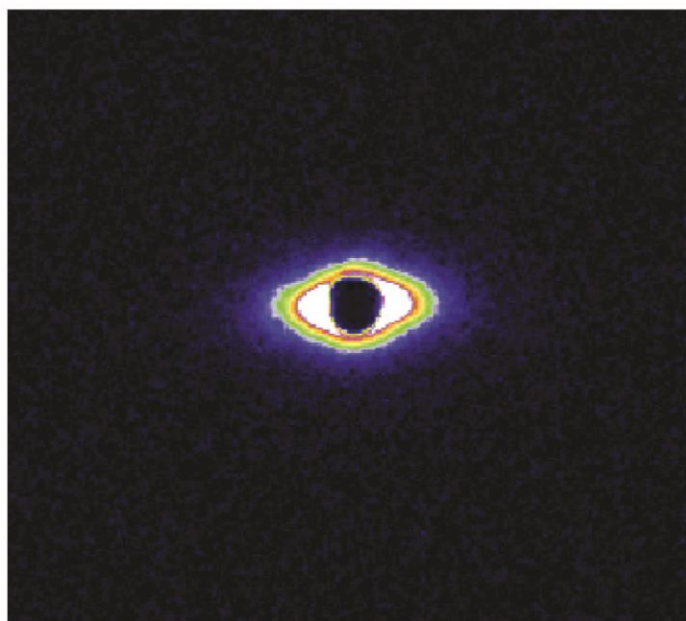


**Supplementary Figure 1.** Synchrotron-based wide-angle X-ray scattering (WAXS) of a native sucker ring tooth. Quantitative analysis of the azimuthal integration of the WAXS pattern in the  $q$ -range 13–15 nm<sup>-1</sup>.

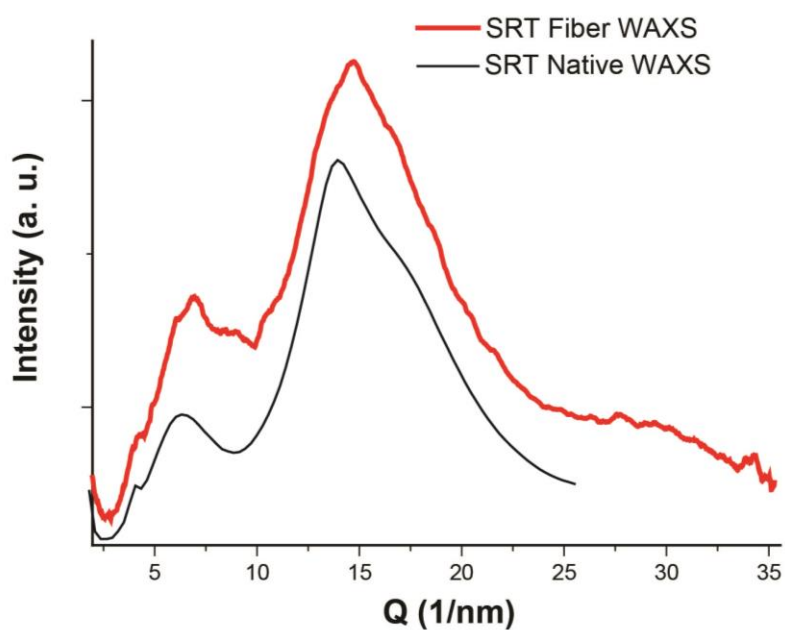


**Supplementary Figure 2.** Reversibility of the Fourier transform infrared (FTIR) spectral features of native sucker ring teeth (SRT) after heating to 200 °C followed by cooling for 1 h at 35 °C. Inset shows the magnified amide III spectral region.

## Fiber SAXS



## Fiber WAXS



**Supplementary Figure 3.** Small-angle X-ray scattering (SAXS) pattern (top) and wide-angle X-ray scattering (WAXS) pattern (bottom, red line) of a micro-scale fiber drawn from SRT powder that was initially heated under hydrated conditions in a microwave for 30 seconds. The resulting WAXS (red line) pattern is compared with the WAXS pattern of the native SRT (black line).