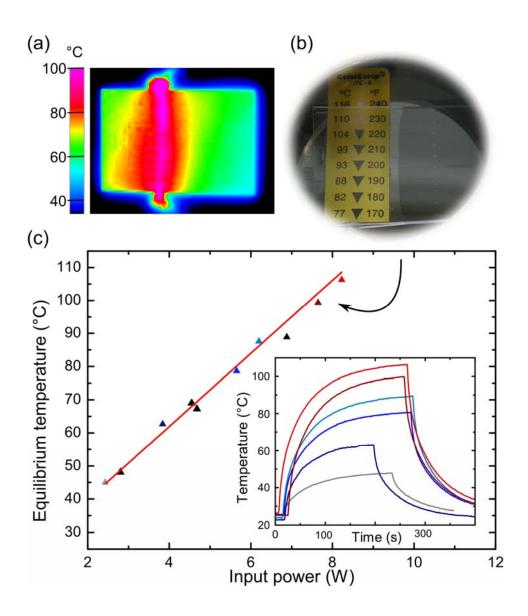
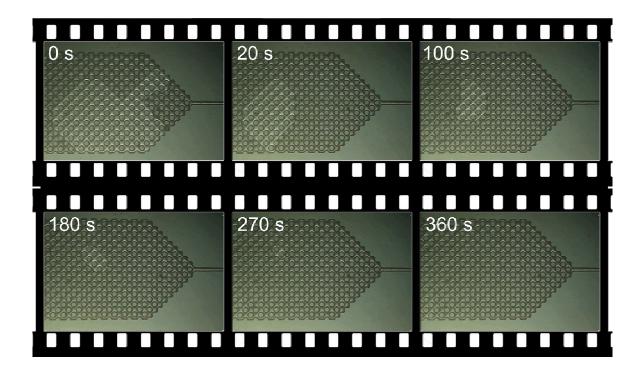
## **SUPPLEMENTARY INFORMATION**



**Fig. S1** Heating of the microfluidic chip inside the pressure chamber. (a) Infrared picture of the chip placed on a heating wire showing the temperature distribution on the surface of the chip. (b) Absolute temperatures are verified using Celsistrips®. (c) Equilibrium temperatures for different heating powers used to heat the chip in the reagent zone. Inset: Kinetics of Joules heating and passive cooling for increasing input power (grey to red lines).



**Fig. S2** Optical microscope images of the reagent zone during pressurization at room temperature. Even large volumes of air enclosed in the chip due to incomplete filling of the reagent zone with sample can be compressed and adsorbed in the PDMS layer covering the chip.