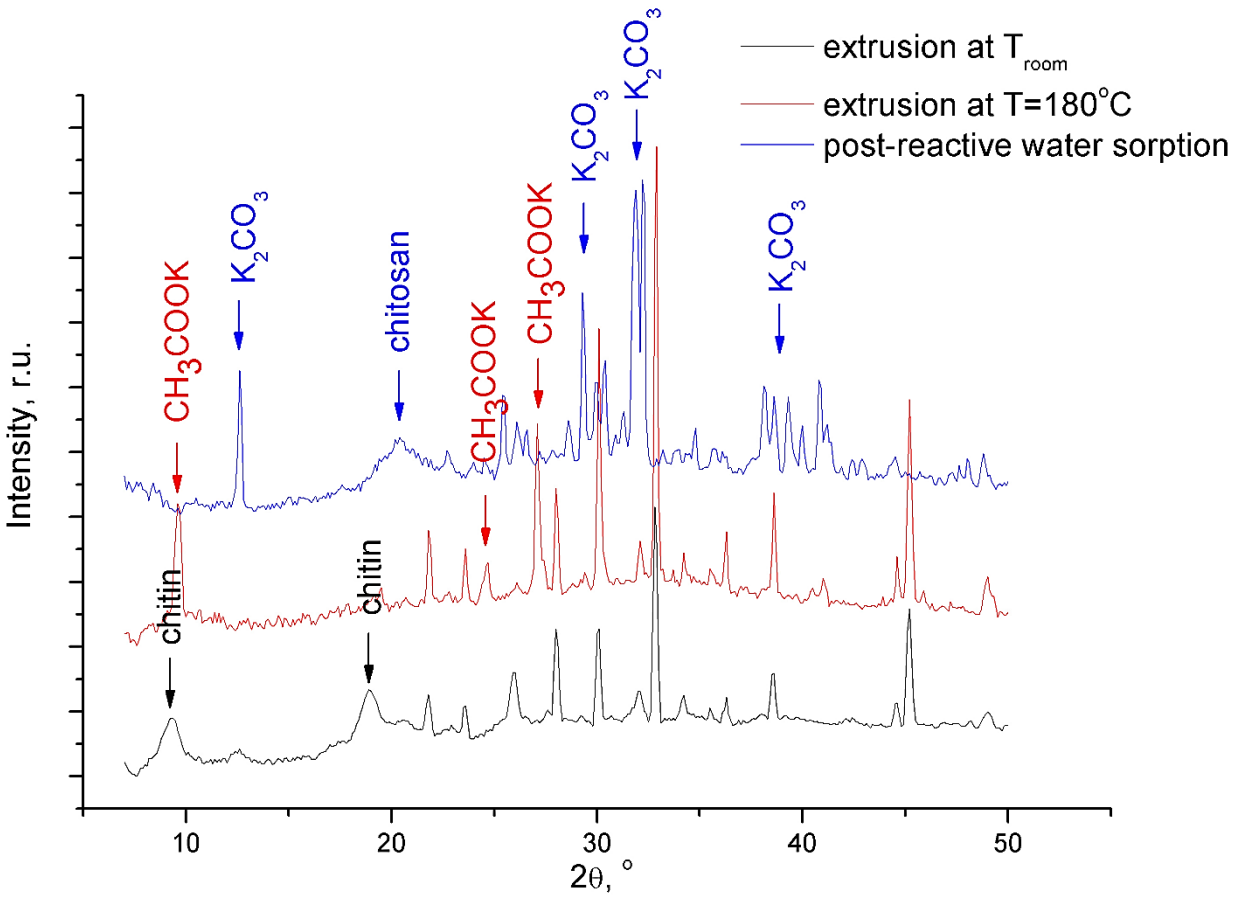

Figure S1 WAXS curves showing structural evolution of chitin/alkali reactive mixture during solid-state co-extrusion

Wide-angle X-ray scattering (WAXS) analysis of reactive blends was performed in order to reveal structural transformations that take place during the processing of solid chitin with alkali in an extruder. The data were recorded in transmission mode (CuKα radiation, wavelength λ = 0.1542 nm). It can be seen from Figure that the reactive mixtures do not contain a crystal phase neither polymers nor alkali after treatment at conditions of synthesis of chitosan (180 °C), whereas a side product of chitin deacetylation – potassium acetate, is observed. These data lead us to conclude that the formed chitosan exists in the most disordered nonequilibrium state, which can increase the reactivity of its functional groups in the processes of further modification under conditions of solid-state synthesis.

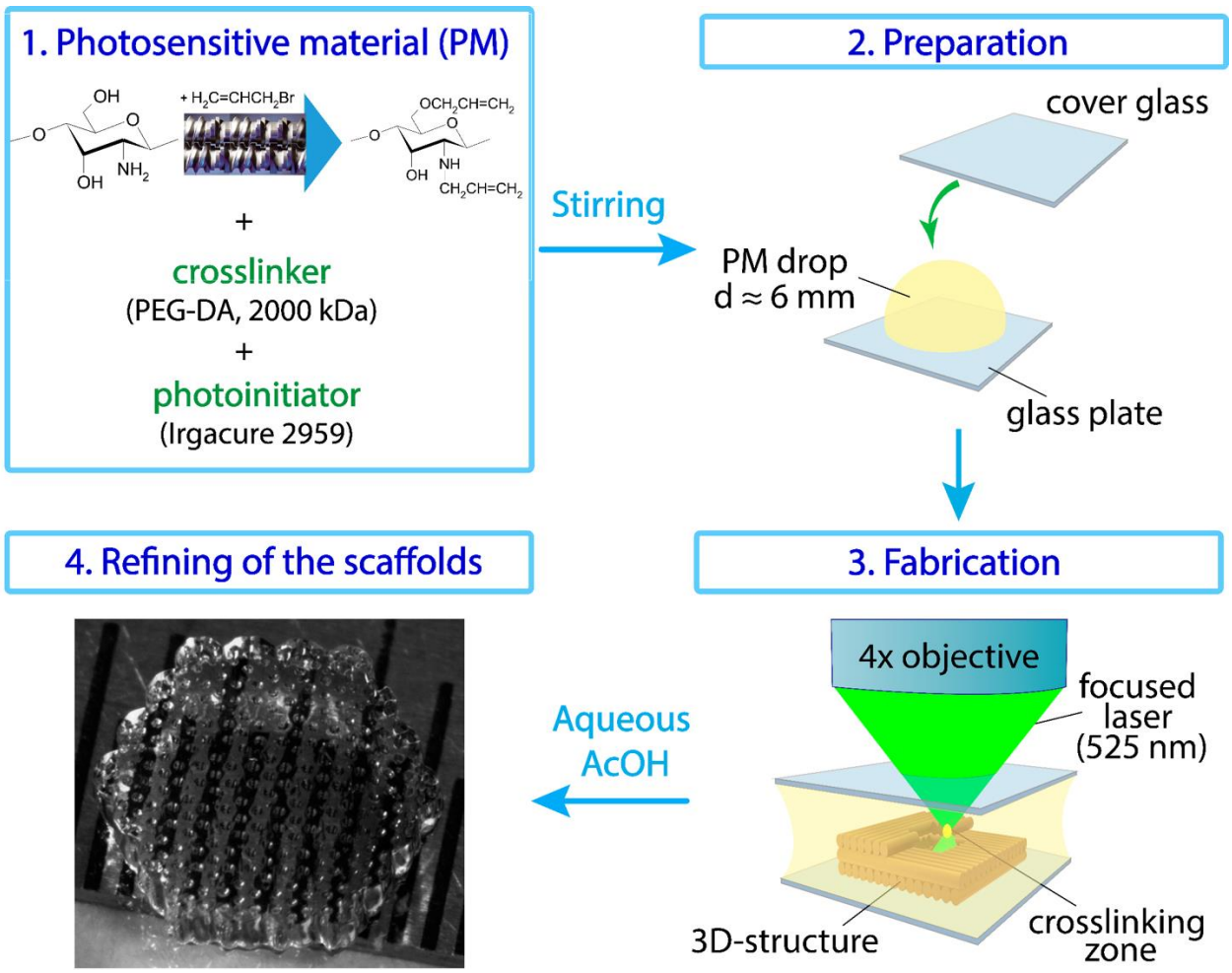

Figure S2 Fabrication of polymer scaffolds based on allyl chitosan derivatives by laser stereolithography