



**Figure 1.** **A)** Schematic of the in-foam bioprinting process with pectin stabilizer **B)** Foam rheology **i)** time sweep **ii)** shear thinning **iii)** recovery **C)** Liquid drainage of foam **i)** Alb8 **ii)** Alb8Pec1 **iii)** Alb8Pec2 **D)** Quantification of liquid drainage over time **E)** Bubble coalescence **i)** Alb8 **ii)** Alb8Pec1 **iii)** Alb8Pec2. Scale bars are 1 mm. **F)** Bubble size distribution immediately after foaming **G)** In-foam bioprinting setup and printability with chitosan. Scale bars are 1 cm. **H)** Quantification of live/dead assays for L929 cells embedded in a chitosan hydrogel 24 hours after printing. Control A: bioink was printed outside of foam then DMEM was added immediately. Control B: bioink was printed outside of foam and DMEM was added after 1 hour. The bioink was then printed in Alb8, Alb8Pec1 and Alb8Pec2. The foam was substituted with DMEM 30 minutes later (mean  $\pm$  SD, \* $p < 0.05$ ) **I)** Comparison of foam support baths to FRESH DMEM and FRESH PBS. L929 cells embedded into a chitosan hydrogel were printed and left in Alb8, Alb8Pec1, Alb8Pec2, and a FRESH support bath prepared with either DMEM or PBS 1X and left for 3 hours and 5 hours before replacing the support bath with cell media. Quantification of live/dead assays completed after 24 hours (mean  $\pm$  SD, \* $p < 0.05$ ) **J)** Dissolved oxygen levels of the supports over time after printing a chitosan bioink with encapsulated L929 cells