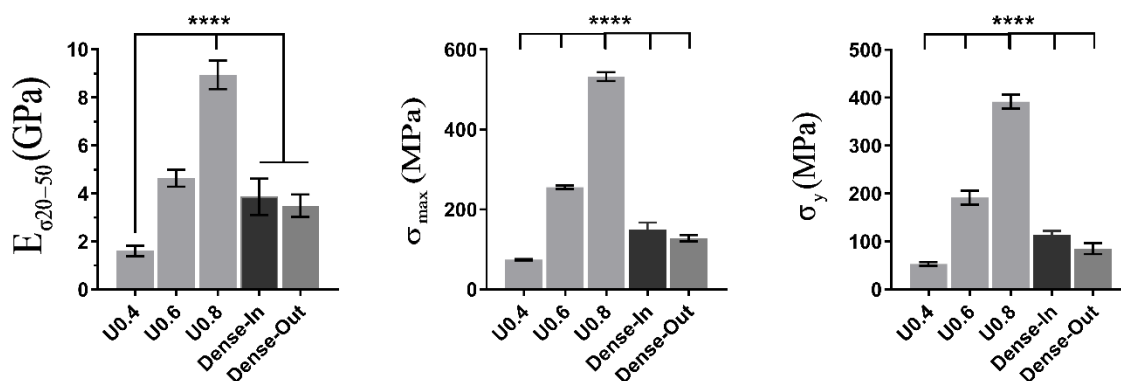


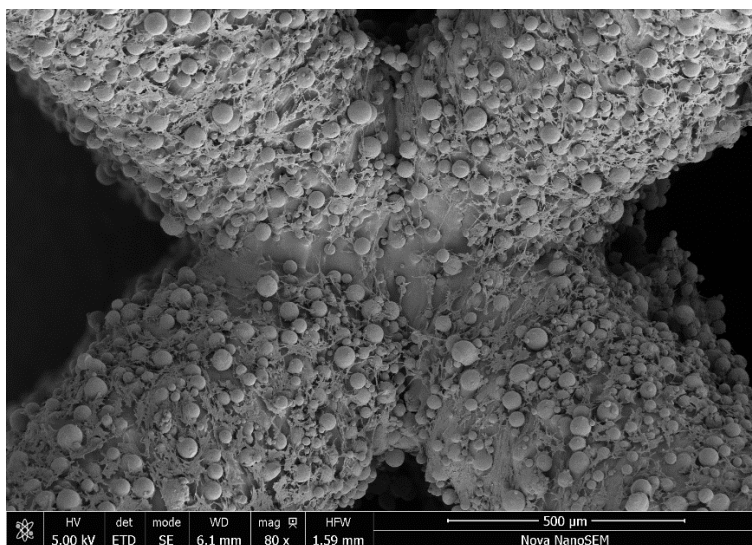
## Supplementary Document

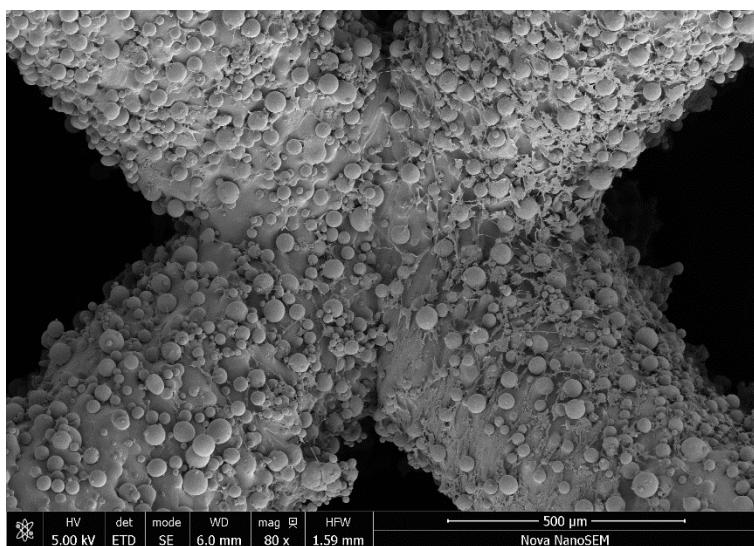
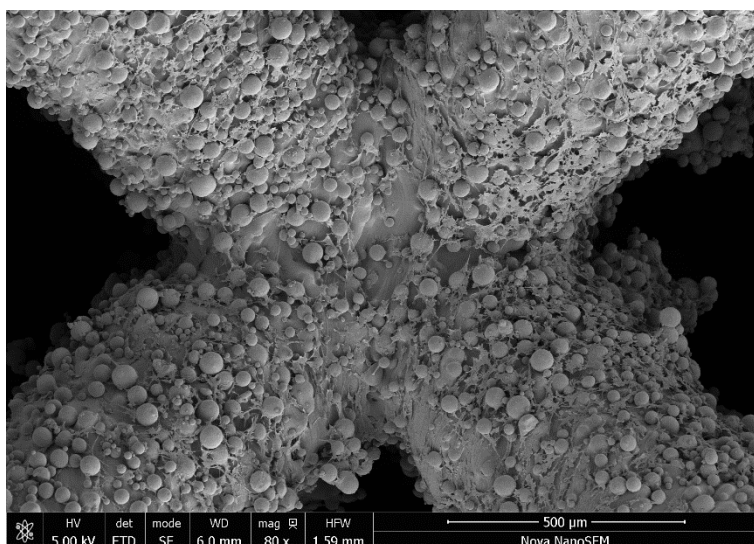
### Mechanical Properties of the Scaffolds



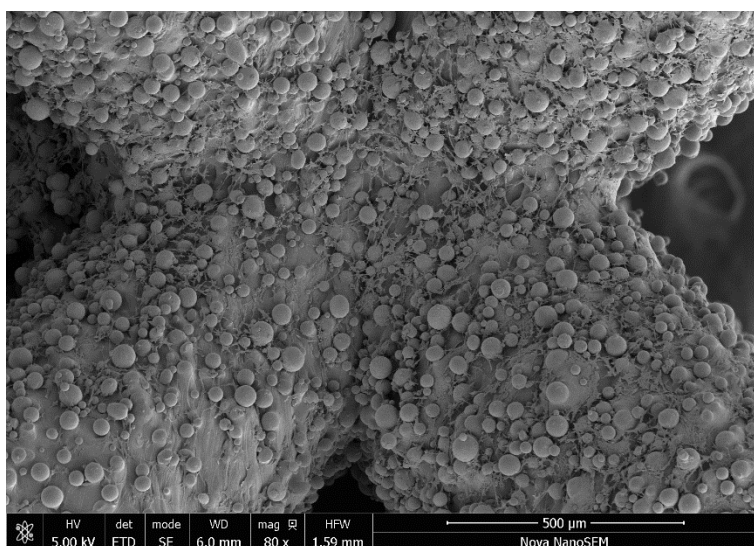
**Figure S1.** Compressive mechanical properties of uniform and gradient BCC structures. Data were presented as mean  $\pm$  SD ( $n = 5$ ). (\*\*\*\*  $p < 0.0001$  when compared using ANOVA Tukey-Kramer Post-Hoc).

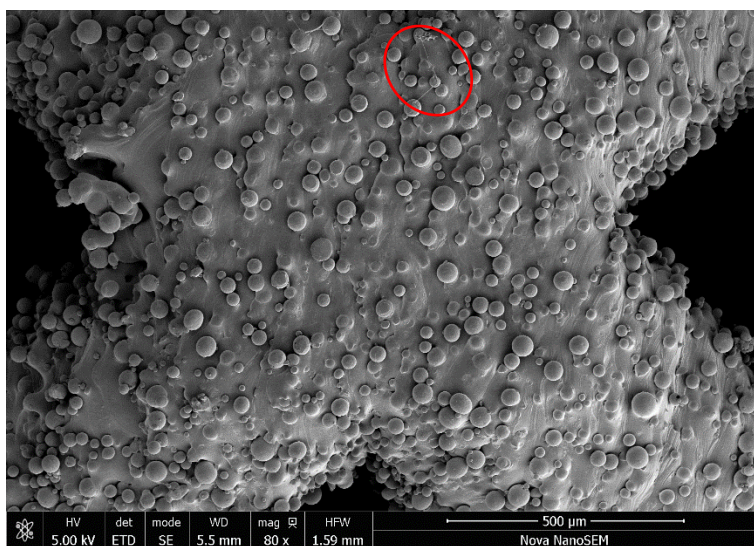
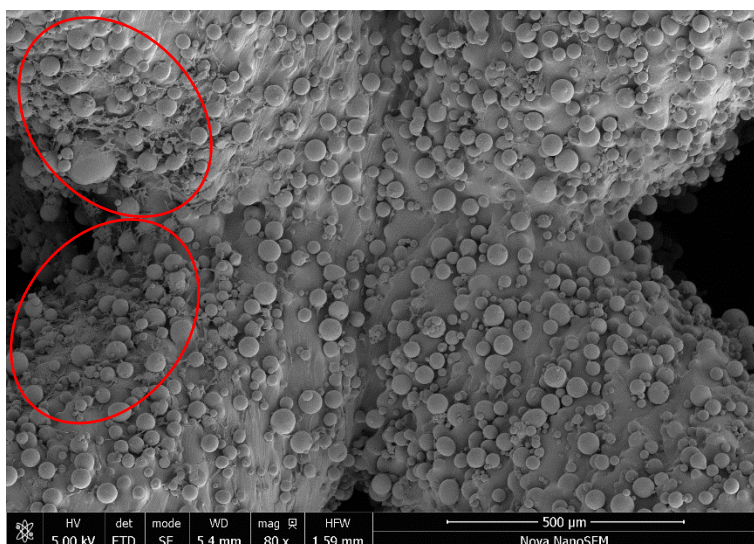
### Cell Morphology and Distribution along the Scaffolds



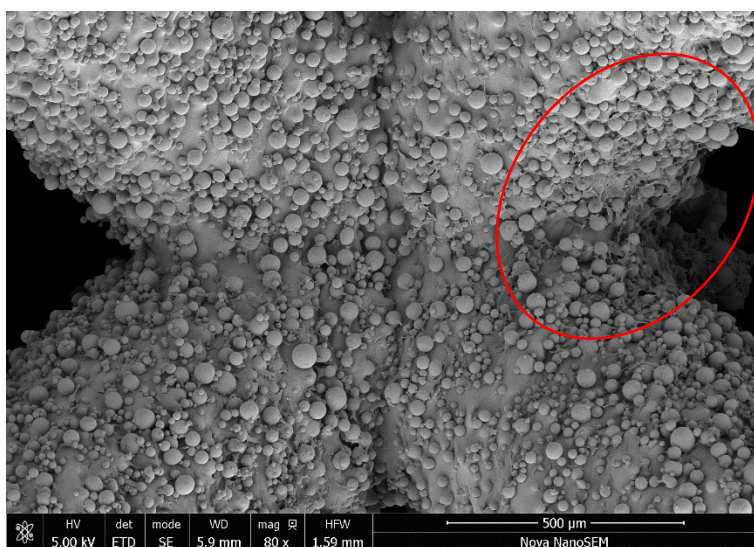


**Figure S2.** SEM images of U0.4 scaffold incubated with MC3T3-E1 cells for 7 days. Images from top to bottom refers to respectively the top, middle and bottom surface of the scaffold along the vertical plane. Sells were seeded from the top surface. Cells were observed in all surfaces.

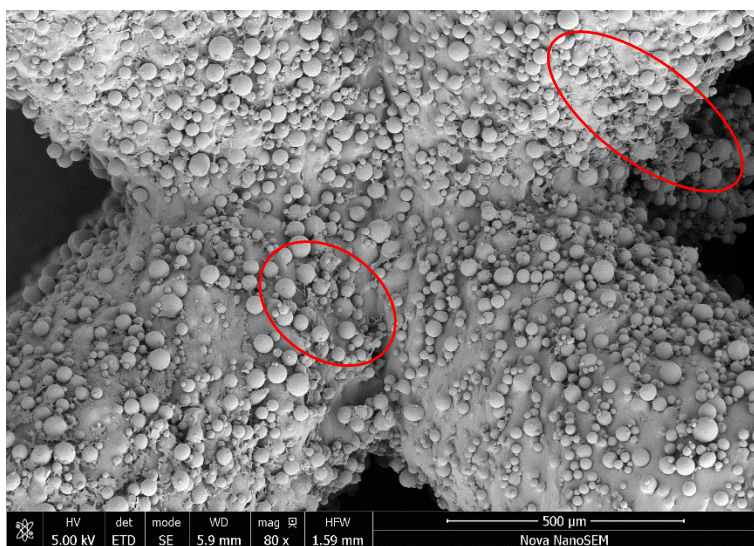
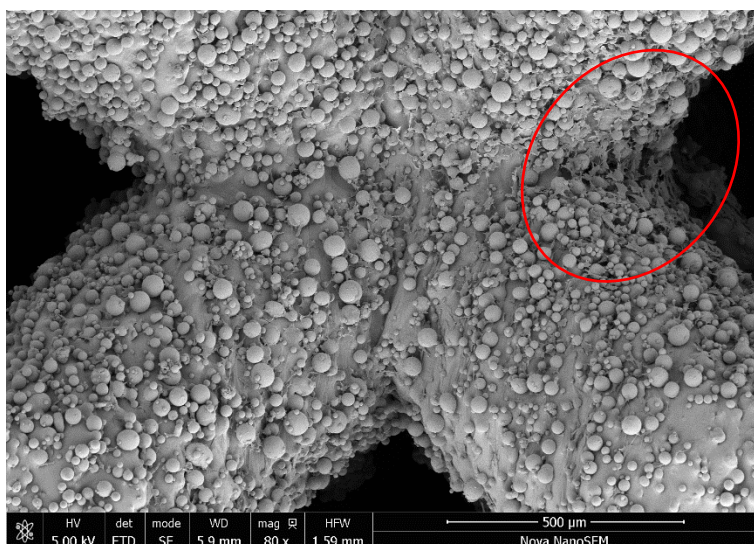




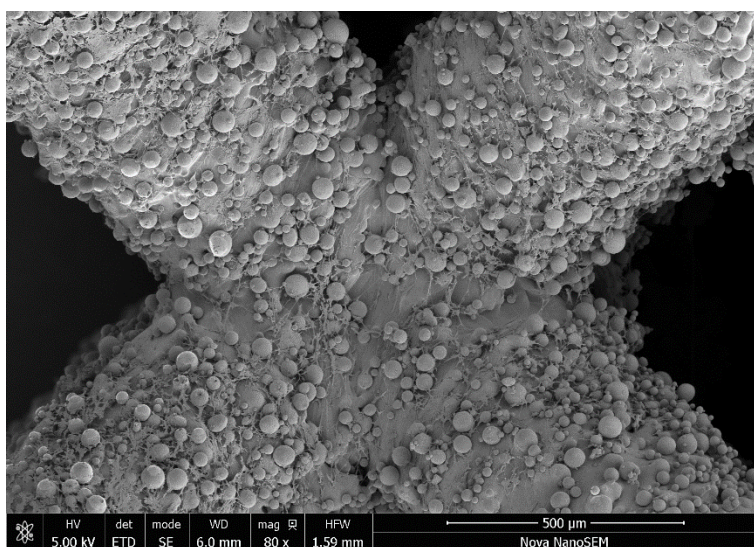
**Figure S3.** SEM images of U0.6 scaffold incubated with MC3T3-E1 cells for 7 days. Images from top to bottom refers to respectively the top, middle and bottom surface of the scaffold along the vertical plane. Sells were seeded from the top surface. The number of cells decreased towards to the bottom surface. Highlights were used to point out cells when they are not visible.



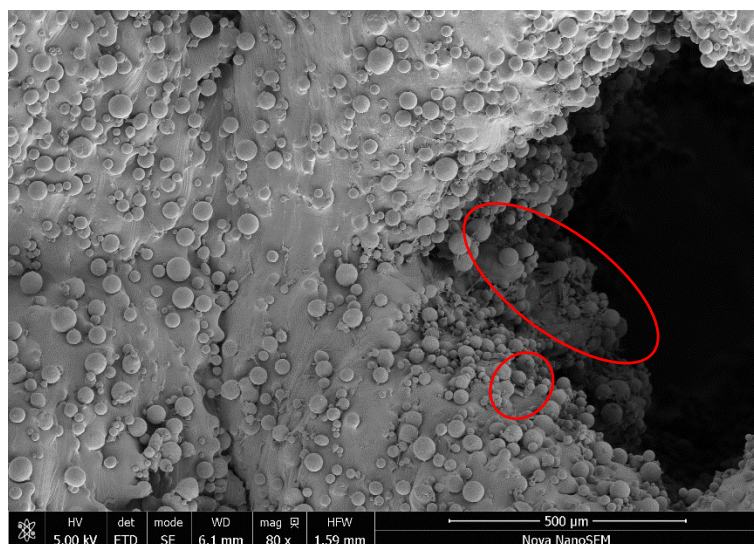
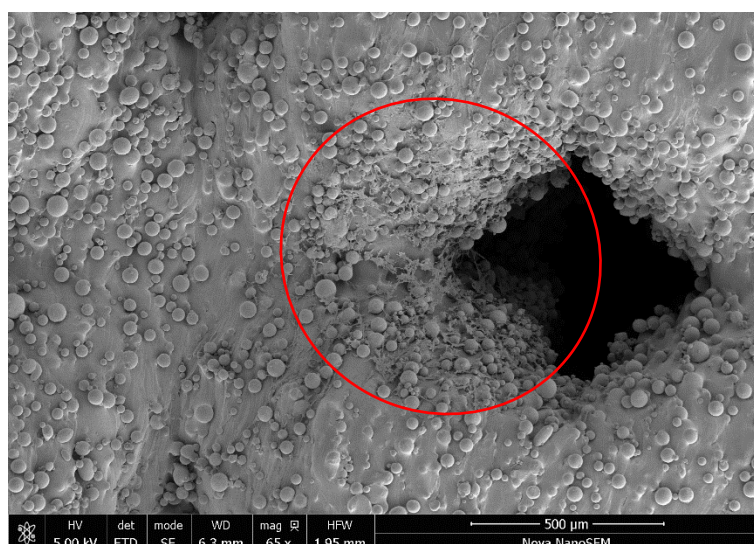




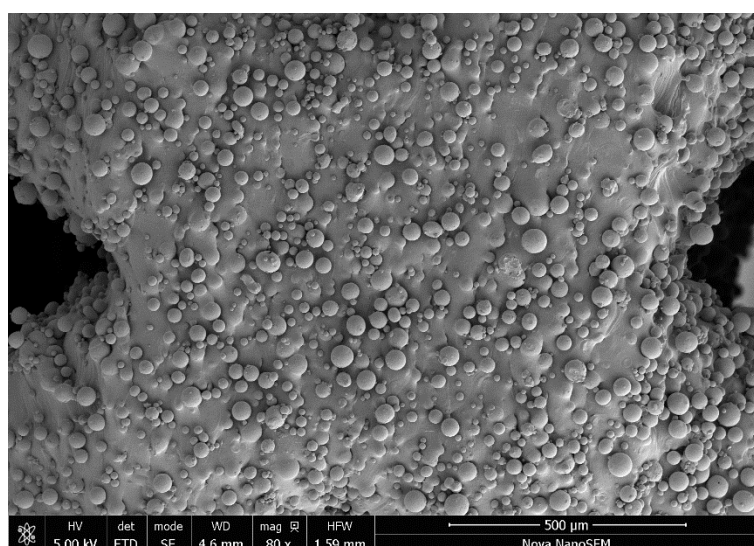
**Figure S4.** SEM images of U0.8 scaffold incubated with MC3T3-E1 cells for 7 days. Images from top to bottom refers to respectively the top, middle and bottom surface of the scaffold along the vertical plane. Sells were seeded from the top surface. The cell distribution was non-uniform in all surfaces and there were less number of observed cells throughout the scaffold.

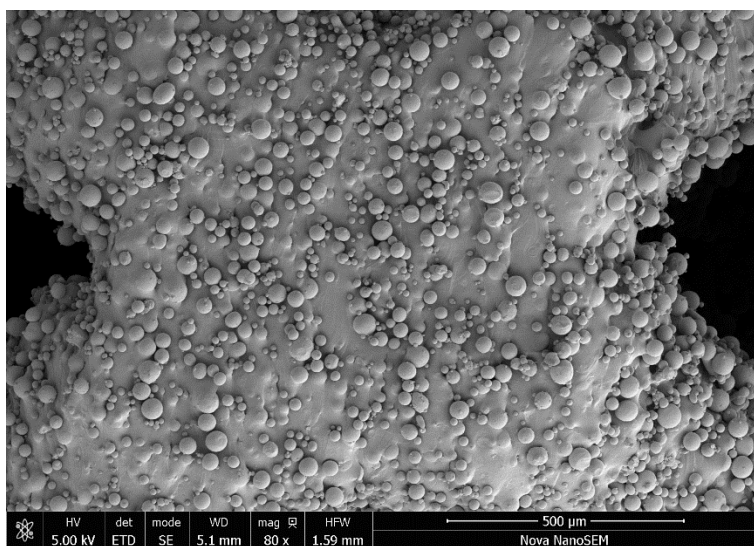
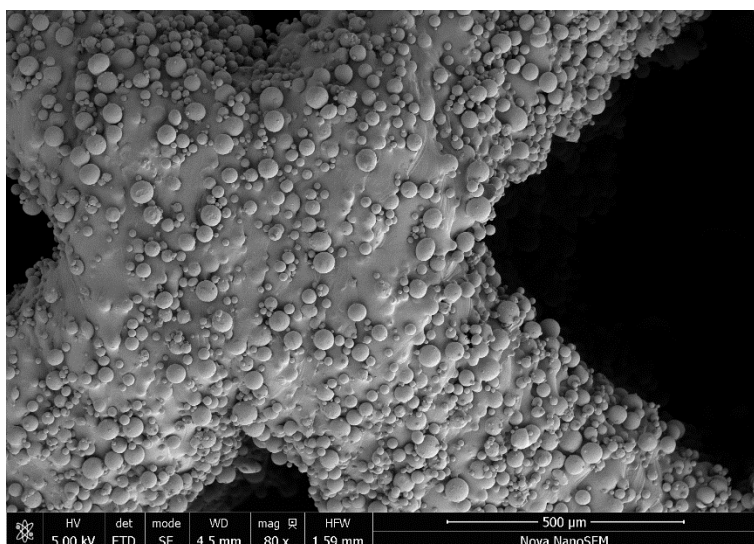






**Figure S5.** SEM images of Dense-In scaffold incubated with MC3T3-E1 cells for 7 days. Images from top to bottom refers to respectively the top, middle and bottom surface of the scaffold along the vertical plane. Sells were seeded from the top surface. Cells were observed in all surfaces, but the distribution of cells was non-uniform on the bottom surface.





**Figure S6.** SEM images of Dense-Out scaffolds incubated with MC3T3-E1 cells for 7 days. Images from top to bottom refers to respectively the top, middle and bottom surface of the scaffold along the vertical plane. Sells were seeded from the top surface. There were no visible cells in the scanned regions.