Electronic Supplementary Material (ESI) for Biomaterials Science. This journal is © The Royal Society of Chemistry 2023

## **Supplementary Data**

## Engineering orthotopic tumor spheroids with organ-specific vasculatures for local chemoembolization evaluation

Yanan Gao<sup>#</sup>, Jingyu Xiao<sup>#</sup>, Zijian Chen, Yutao Ma, Xiaoya Liu, Dishuang Yang, Hwa Liang Leo, Hanry Yu, Jian Kong<sup>\*</sup>, Qiongyu Guo<sup>\*</sup>



**Figure S1.** Immunofluorescence staining of native liver (NL) and recellularized liver matrix (RLM): collagen I (green), collagen IV (red), fibronectin (red), laminin (red). The nuclei were counterstained with DAPI (blue). Scale bar: 50 µm.



**Figure S2.** Histological staining of native liver sections: H&E staining (**A**), TUNEL staining (**B**), and immunofluorescence stainings (**C**) of albumin (ALB) (**i**), Ki-67 (**ii**),  $\beta$ -catenin (**iii**) and  $\alpha$ -FP (**iv**). Comparison of native liver and recellularized liver matrix (RLM): ALB (**D**), Ki-67 (**E**),  $\beta$ -catenin (**F**) and  $\alpha$ -FP (**G**). Scale bar: 200 µm (**A-B**), and 100 µm (**C**). Data are shown as means  $\pm$  SD (n=3 replicates). NS, not significant (p > 0.05). \*\*\* p < 0.001.



**Figure S3.** Chemoembolization effective zone of distally embolized vessel. (**A-I**) Nine selected regions surrounding the embolized PV lumen (indicated by red asterisk) with a cell apoptosis rate around 40-50% were highlighted. The cell apoptosis rate was illustrated in the right corner of each image (**A-I**). Blue asterisk indicates HV lumens with nutrient supply. Solid yellow coils illustrate apoptotic cells while solid green coils illustrate normal cells. Scale bar: 100  $\mu$ m (top image), 20  $\mu$ m (**A-I**).



**Figure S4.** H&E staining of recellularized liver matrix (RLM) control without drug treatment. (**B-E**) highlight four selected regions in (**A**). Scale bar: 200  $\mu$ m (**A-B**), and 50  $\mu$ m (**C**).