Supplementary Information

A Biomimetic Renal Fibrosis Progression Model On-chip Evaluates Anti-Fibrotic Effects Longitudinally in a Dynamic Fibrogenic Niche

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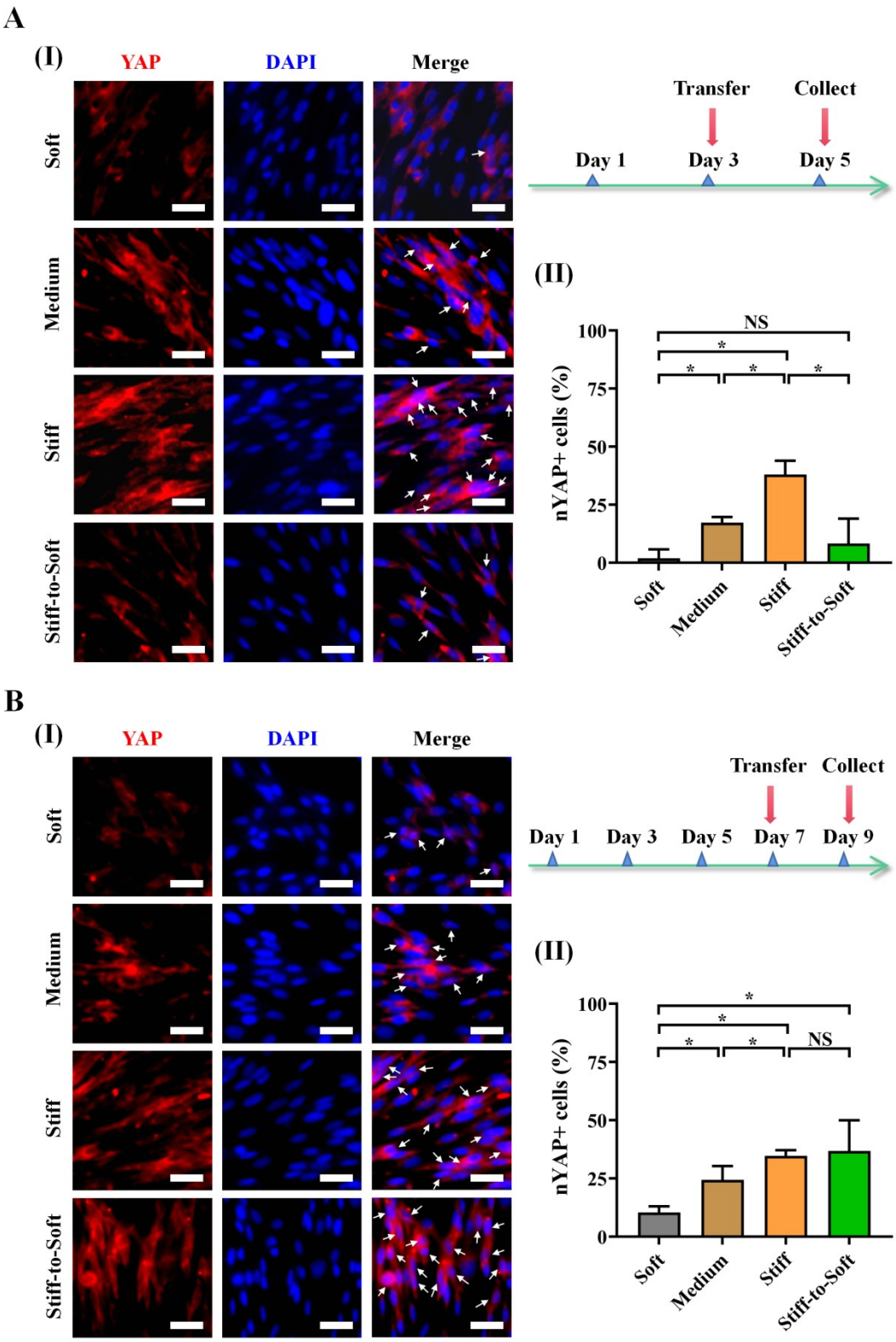

Fig. S1 The percentage of NRK-49F cells with nuclear-localized YAP (nYAP^{+} cells) indicates the extent of myofibroblast activation. **(A)** NRK-49F cells were cultured in Soft, Medium, and Stiff DKM-GelMA hydrogels for 3 days and then transferred to Stiff-to-Soft DKM-GelMA for 2 days. **(B)** NRK-49F cells were cultured in Soft, Medium, and Stiff DKM-GelMA hydrogels for 7 days and then transferred to Stiff-to-

Soft DKM-GelMA for 2 days. YAP was immunostained in red and nuclei were stained in blue. NRK-49F cells with nuclear-localized YAP (nYAP^{+} cells) were identified in merged fluorescence images with white arrows indicated (I). The percentage of nYAP+ cells cultured in different matrix stiffness was calculated from 4 individual fluorescence images (n = 4) with a minimum of 8 cells in each image. (Avg ± SD, * stands for $p < 0.05$, NS indicates $p > 0.05$). Scale bar: 100 μm.

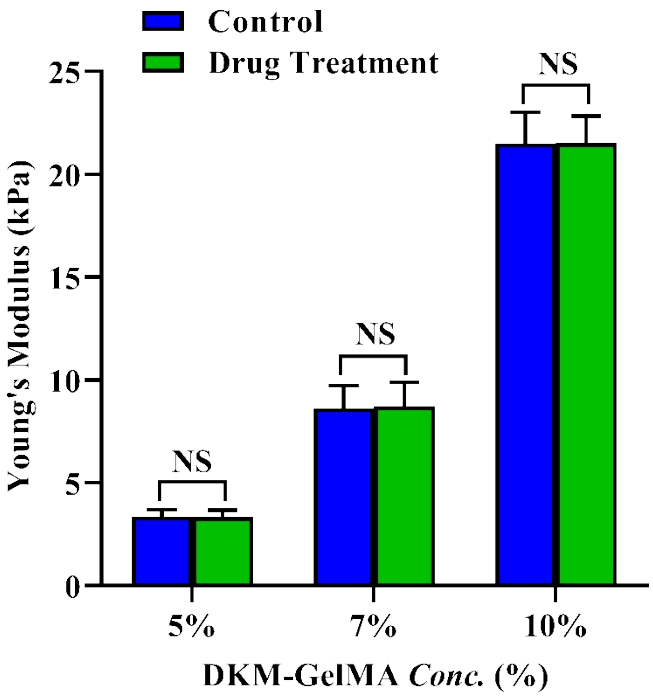

Fig. S2 Effect of drug treatment on ECM stiffness evaluated by measuring Young's modulus. The control group did not receive drug treatment, and the experimental group was treated with 0.5 mg/mL PFD for 48 hours. (n = 3). (Avg ± SD, * stands for $p < 0.05$, NS indicates $p > 0.05$).

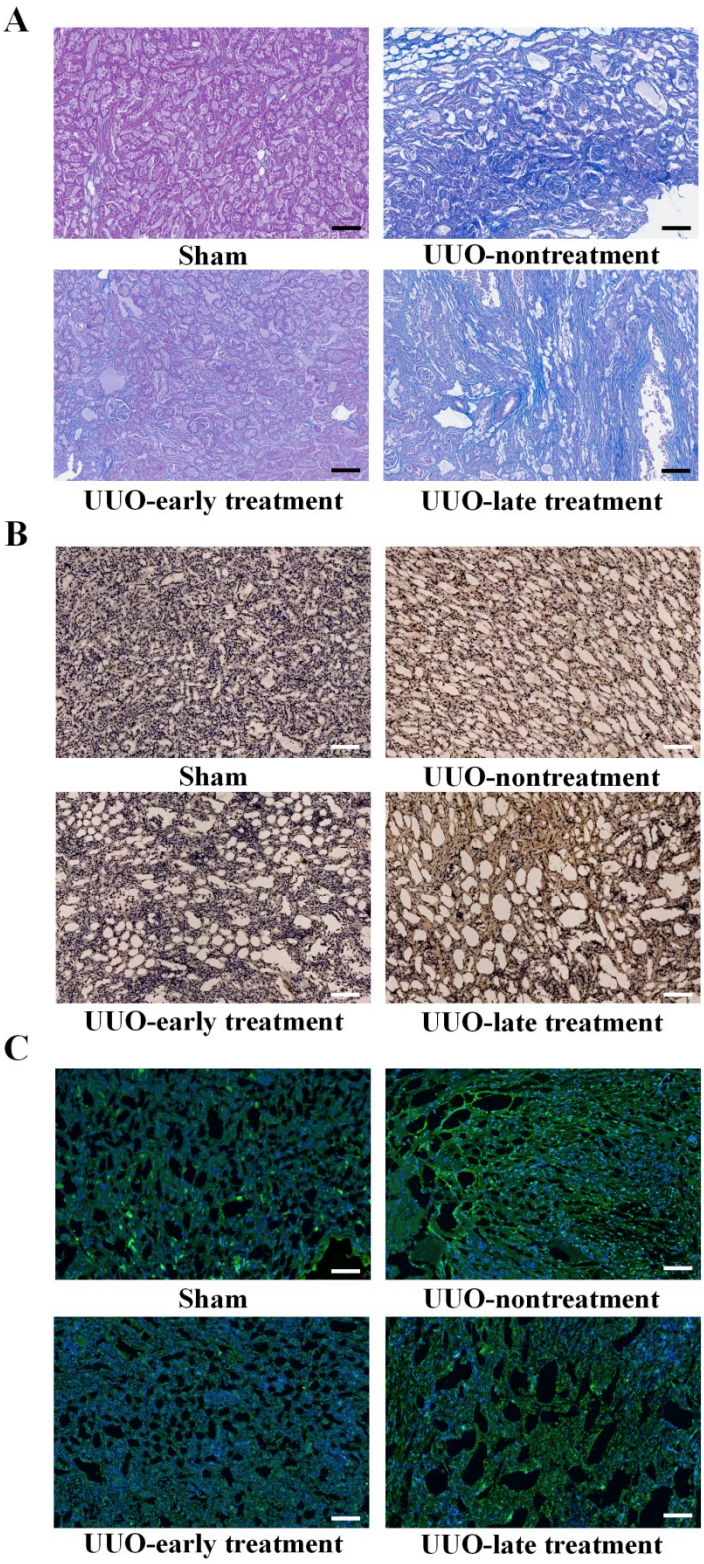

Fig. S3 Characterization of tissue fibrosis phenotype in rat UUO model. **(A)** Masson's trichrome staining representative images indicate fibrotic activation in UUO models. **(B)** and **(C)** Immunohistochemical representative images and immunofluorescence representative images of fibronectin (Green) protein in left kidney (n = 4). Scale bar: 100 μm.