Supporting Information

AUXILIARY BIOMEMBRANES AS A DIRECTIONAL DELIVERY SYSTEM TO CONTROL BIOLOGICAL EVENTS IN CELL-LADEN TISSUE ENGINEERING SCAFFOLDS

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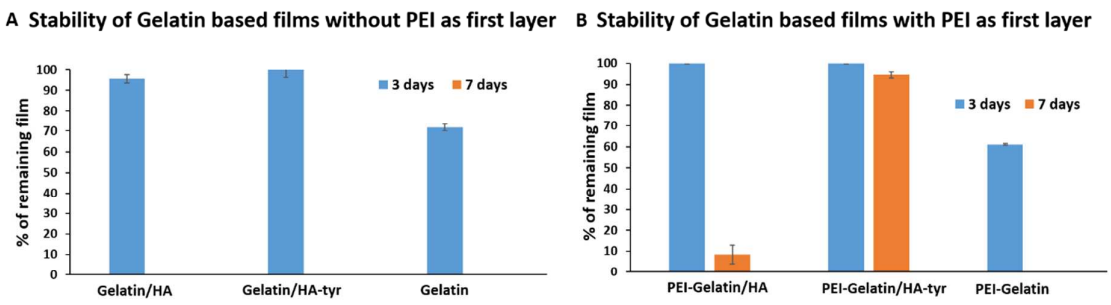

Figure S1. Stability of gelatin, gelatin/unmodified HA, gelatin/HA-tyr films without (A) and with (B) PEI as first layer in PBS at 37°C after 3 and 7 days. The analysis was performed on three different samples for each condition.

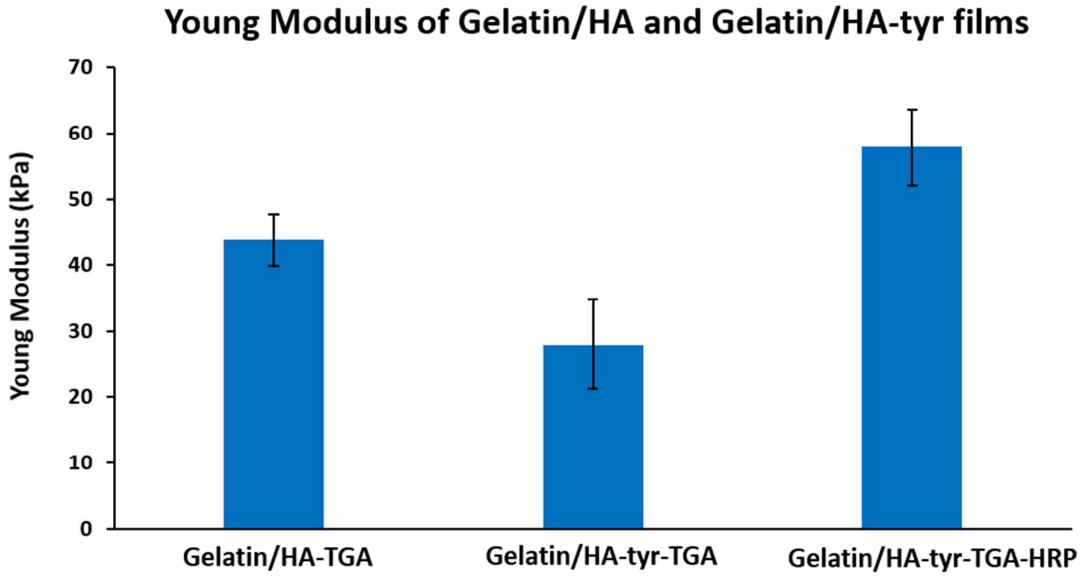

Figure S2. Young modulus determination of gelatin/HA and gelatin/HA-tyr (with and without TGA crosslinking step) films by AFM nanoindentation experiment in dry condition. The analysis was performed on three different samples for each condition.

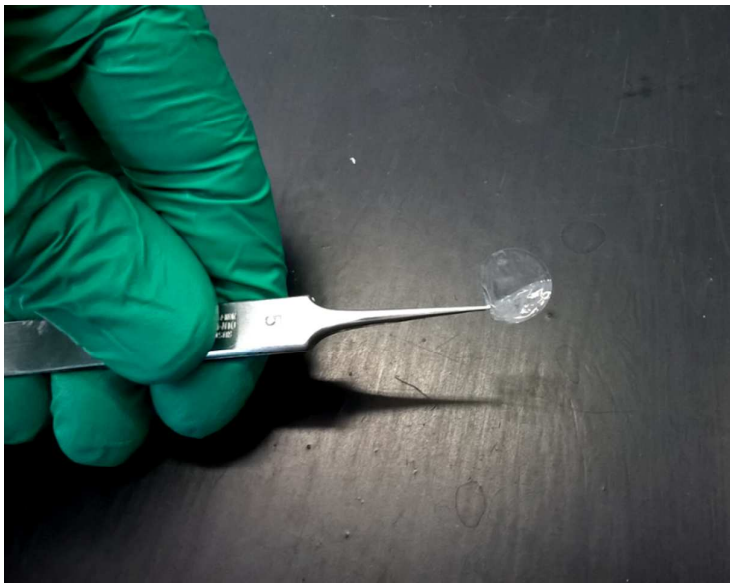

Figure S3. Picture of self-standing gelatin/HA-tyr membrane.

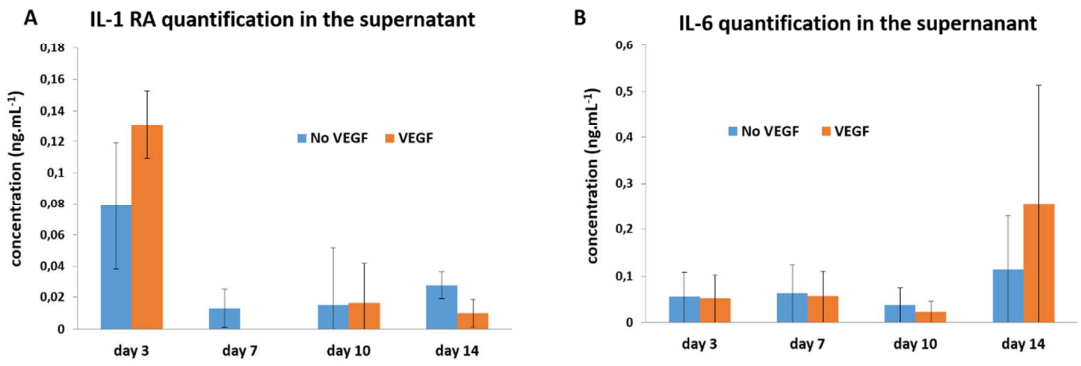

Figure S4. Cytokines quantification with Elisa test in the supernatant for encapsulated HUVECs in hydrogel with and without VEGF release from the gelatin/HA-tyr film until day 14. A) IL-8 quantification and B) IL-6 quantification. The quantification was performed on three different samples for each condition.

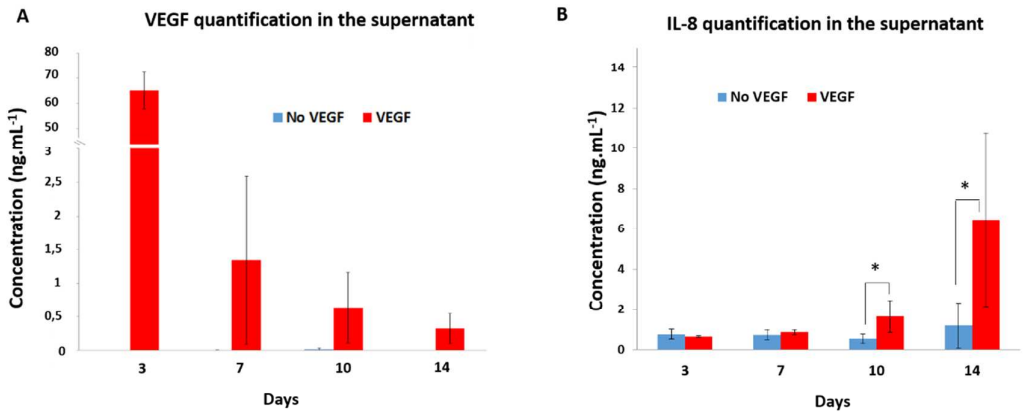

Figure S5. Cytokines quantification with Elisa test in the supernanant for encapsulated HUVECs in hydrogel with and without VEGF release from the film until day 14. A) VEGF quantification. VEGF release kept high level of VEGF in the microenvironment. B) IL-8 quantification. VEGF release significantly increases IL-8 secretion at day 10 and 14. The quantification was performed on three different samples for each condition ($p \leq 0,05$).

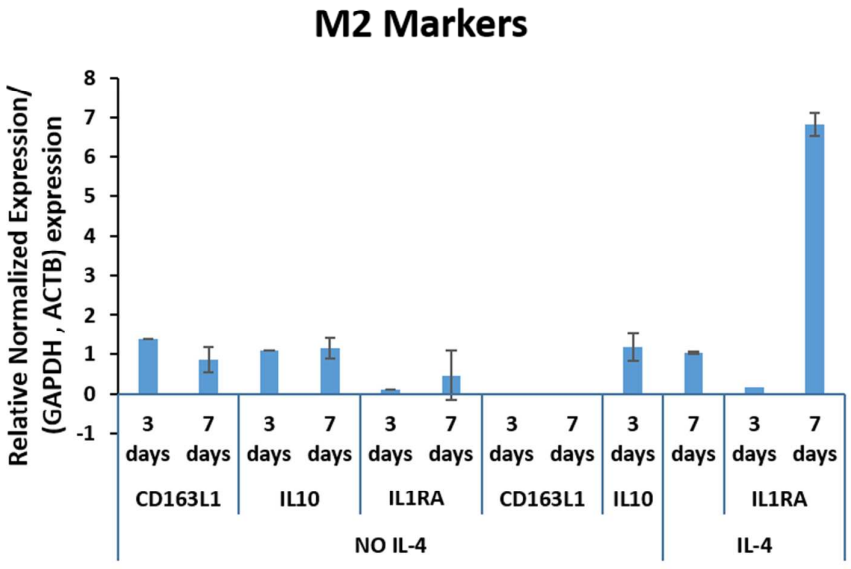

Figure S6. Results of Real-Time PCR analysis of M2 markers for 3D encapsulated THP-1 cells without or with IL-4 release. The M2 markers genes are: CD163L1, IL-10, IL1-RA.

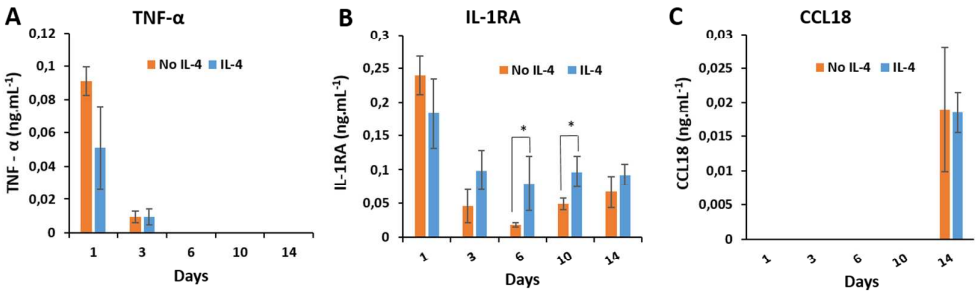

Figure S7. Cytokines quantification with Elisa test in the supernatant for encapsulated THP-1 in hydrogel with and without IL-4 release from the film until day 21. A) TNF-α quantification. IL-4 release significantly decreases initial TNF-α secretion. B) IL-1 RA quantification. IL-4 release significantly increases IL1-RA secretion at day 6 and 10. C) CCL18 quantification. The quantification was performed with 3 different samples for each condition ($p \leq 0,05$).