Mimicking the extracellular matrix by incorporating functionalized graphene into hybrid hydrogels

Josué M. Galindo,a Irene San-Millán,a Carlos A. Castillo-Sarmiento,b Inmaculada Ballesteros-Yáñez,c M. Antonia Herrero,*a Sonia Merino,*a and Ester Vázquez *a

Figure S1. TGA analysis of FLG.

Figure S2. Raman spectra of FLG.

CALCULATION OF FLG LAYERS:

To obtain the number of layers in the graphene, the next equation is used:

\[ N_G = 10^{0.84M+0.45M^2} \quad \text{(Eq. 1)} \]

Where \( M \) is equal to:

\[ M = \frac{I_{G\text{ene}}(\omega = \omega_{p,G\text{ite}})/I_{G\text{ene}}(\omega = \omega_{s,G\text{ite}})}{I_{G\text{ite}}(\omega = \omega_{p,G\text{ite}})/I_{G\text{ite}}(\omega = \omega_{s,G\text{ite}})} \quad \text{(Eq. 2)} \]
Where $I_{G'\text{ene}}$ and $I_{G'\text{ite}}$ correspond with the intensity of $G'$ band for graphene and for graphene and graphite, respectively.

Thus, in our sample:

$$M = \frac{0.4196/0.3772}{0.46658/0.24872} = 0.5929914 \rightarrow N_G = 10^{0.84 \cdot 0.5929914 + 0.45 \cdot 0.5929914^2} = 4$$

**Figure S3.** Z-potential of (a) FLG and (b) f-FLG.