

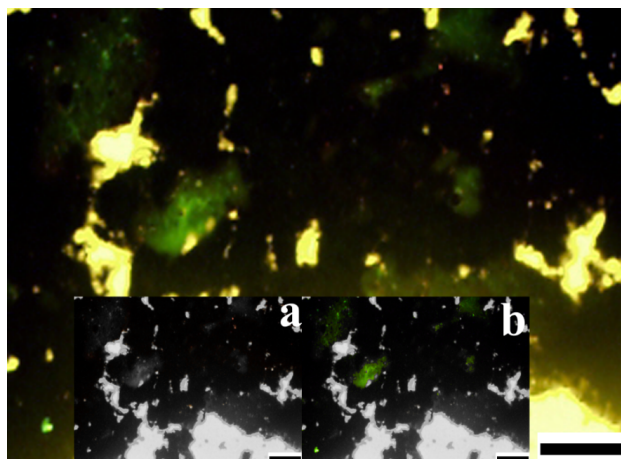
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Electronic Supporting Information

**Bio-applicable and electroactive near-infrared laser-triggered self-healing hydrogels  
based on graphene networks**

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**Figure S1** Fluorescence microscopy image of acridine orange/ethidium bromide double stained PC-12 cells cultured on graphene-PDMAA hydrogels. Insets show the fluorescence image in red (a) and green (b) channel. Scale bar is 200  $\mu\text{m}$ .

After being cultured on graphene-PDMAA hydrogels, PC-12 cells were stained with acridine orange (AO)/ethidium bromide (EB). AO is cleaved to yield a green fluorescent product by metabolically active cells; on the contrary, EB is cleaved to yield a red fluorescent product by metabolically inactive cells. The fluorescence microscopy image of AO/EB double stained PC-12 cells cultured on graphene-PDMAA hydrogels is shown in Figure S1. The black substrates are graphene-PDMAA fragments. The cell culture fluid spewed from the hydrogel shows bright yellow color but no color in both red and green fluorescent channels (see insets), indicating that cells were attached to graphene-PDMAA fragments. In addition, active cells with a green fluorescent could be visualized (green areas in Figure S1 and the inset b) and only a few inactive cells with a red fluorescent are visualized (red points in Figure S1 and the inset a), indicating good biocompatibility of the graphene-PDMAA.