Supporting Information

Biocompatibility and In Vivo Operation of Implantable Mesoporous PVDF-Based Nanogenerators

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**Figure S1.** SEM image of the mesoporous PVDF film with pore sizes ranging from 30-500 nm.

**Figure S2.** Fourier transform infrared (FTIR) spectrum of the mesoporous PVDF film, where representative peaks of the piezoelectric $\beta$-phase at 840 and 1280 cm$^{-1}$ could be clearly identified.
Figure S3. The voltage output of the PDMS NG responding to a 20 Hz periodical deflection in a cantilever mode.
**Figure S4.** The surgery process of NG implantation into mouse’s right leg. Enlarged pictures of 1-4 present a closer look of the surgical incision (1), NG device (2), NG inside the body (3) and incision suturing step (4), respectively.

**Video 1.** In vivo and instantaneous electrical output of the implanted PVDF NG responding to movement of the rat’s leg.