*Supporting Information*

Fabrication of Gelatin-Poly(epichlorohydrin-co-ethylene oxide) Fiber Scaffolds by Forcespinning® For Tissue Engineering and Drug Release

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**S1.1. Characterizations of fibers**

GL:PECO fibers were analyzed using Fourier transform infrared (FTIR) spectroscopy (Perkin Elmer Universal ATR Sampling Accessory Frontier). The diameter and morphology of fibers were observed by SEM (ZEISS EVO® MA 25, Ostalbkreis, Baden-Württemberg, Germany). The size distribution and the pore size of fibers are measured by the ImageJ analyzer software (ImageJ, NIH, USA). The *in vitro* degradation of fibers was measured by immersing the fibers in DMEM at 37 °C. The samples were removed from the solutions and weighed at 10, 15, 20 and 25 days after being dried in a hot oven for 24 hours. The weight retention (WR %) of the fibers was calculated according to the following equation

WR % = W1/W0 x 100 ------------------------- (1)

Where, W0 is initial weight of fibers and W1 is weight of the fibers at different days.

The mechanical properties of fibers were measured by a mechanical testing machine (Instron 3365, Instron, Norwood, Massachusetts, USA). The surface wettability of fibers was measured using water contact angle (OCA 15EC).

**S1.2. In vitro drug release:**Diclofenac drug release was determined by suspending 50 mg of fibers in 20 mL of DMEM. The samples were incubated at 37 °C while shaking at 50 rpm in an incubator/shaker. At selected times; the supernatants were removed and replaced with fresh buffer. The amount of drug in each sample was summed with the amount at each previous time to obtain the cumulative drug release amount. The total drug amount was divided by the amount of drug in the fibers to calculate the cumulative drug release percentage. The concentration of diclofenac in the resulting supernatant was determined by UV-spectrophotometer (Agilent Technologies, 89090A) at wavelength of 282 nm and then subtracting the absorbance values from the blank fibers (fibers without diclofenac). Each release experiment was performed in triplicate.

**S1.3. Cell culture and cell behavior studies:** Fibers were cut into small films with the area of approximately 1.0 cm2 and sterilized by UV irradiation for 2 hours. Then, NIH/3T3fibroblast cells were seeded onto the fiber film at a density of 1.6 × 105 cells/cm2 in DMEM, supplemented with 5% (w/v) fetal bovine serum, 100 μg/mL penicillin and 100 μg/mL streptomycin. Then, the samples were incubated at 37 °C in 5% CO2. All experiments were run in triplicate. Hoechst 33258 nuclear staining dye was used to visualize the cell nuclei. Cells are prewashed with phosphate-buffered saline (PBS) solution and incubated for 10 minutes at room temperature after adding Carnoy’s fixative. Further, cells are treated with Hoechst 33258 stain, incubated for 15 minutes and observed by an epifluorescence microscope, (EVOS ® FLoid ® Cell Imaging Station) fitted with a filter having a wavelength of 460 to 490 nm. The images were captured using a Nikon CCD camera attached to the microscope.

In order to measure cell proliferation and metabolic activity of fibers, the CellTiter96®AQueous One Solution Cell Proliferation Assay (Promega, Madison, WI, USA) was performed. NIH/3T3 cells (1.6 x104 cells/cm2) were seeded on fibers. On the first day, second day and third day, the fibers were transferred into new wells and 20 µL of CellTiter was added to each well, then the plates were incubated in the dark at 37 ˚C for 1 hour. The absorbance of each well was measured by a microplate reader (Synergy HT, BioTek, Winooski, Vermont, USA). The absorbance of each well was compared against the control measurement (cells without fibers) to evaluate the percentage of viability. The experiments were run in triplicate.

The morphology of cells cultured on the fibers was studied by SEM. After growing for one and three days, the cellular constructs of the fibroblasts were harvested, washed with PBS and fixed with 2.5% glutaraldehyde for overnight at 4 ˚C. Then, the samples were dehydrated with ethanol and kept in vacuum desiccator for overnight. The fibers were gold coated prior to SEM analysis.