Supporting Information

Influence of topography of nanofibrous scaffolds on functionality of engineered neural tissue

Hadi Hajiali, Andrea Contestabile, Elisa Mele, Athanassia Athanassiou**

Dr. H. Hajiali
Smart Materials, Istituto Italiano di Tecnologia, via Morego 30, 16163 Genoa, Italy.
DIBRIS, University of Genoa, via Opera Pia 13, 16145, Genoa, Italy.
*E-mail: hadi.hajiali@edu.unige.it

Dr. A. Contestabile
Department of Neuroscience and Brain Technologies, Istituto Italiano di Tecnologia (IIT), via Morego 30, 16163 Genoa, Italy.

Dr. E. Mele
Department of Materials, Loughborough University, Loughborough, LE11 3TU, United Kingdom.

Dr. A. Athanassiou
Smart Materials, Istituto Italiano di Tecnologia, via Morego 30, 16163 Genoa, Italy.
*E-mail: athanassia.athanassiou@iit.it

Table S1. Solubility of PPSU in the different concentration of Toluene and TFA in the combined solvent system (X: insoluble).

Concentration of PPSU / Solvent	10 wt%	15 wt%	20 wt%	25 wt%
Toluene: 100 %	X	X	X	X
Toluene-TFA: 90-10	150 min	300 min	X	X
Toluene-TFA: 80-20	90 min	210 min	210 min	360 min
Toluene-TFA: 70-30	90 min	150 min	180 min	300 min
Toluene-TFA: 60-40	90 min	90 min	90 min	210 min
Toluene-TFA: 50-50	90 min	180 min	180 min	330 min
Toluene-TFA: 40-60	120 min	240 min	360 min	360 min
Toluene-TFA: 30-70	X	X	X	X
Toluene-TFA: 20-80	X	X	X	X
Toluene-TFA: 10-90	X	X	X	X
TFA: 100 %	X	X	X	X

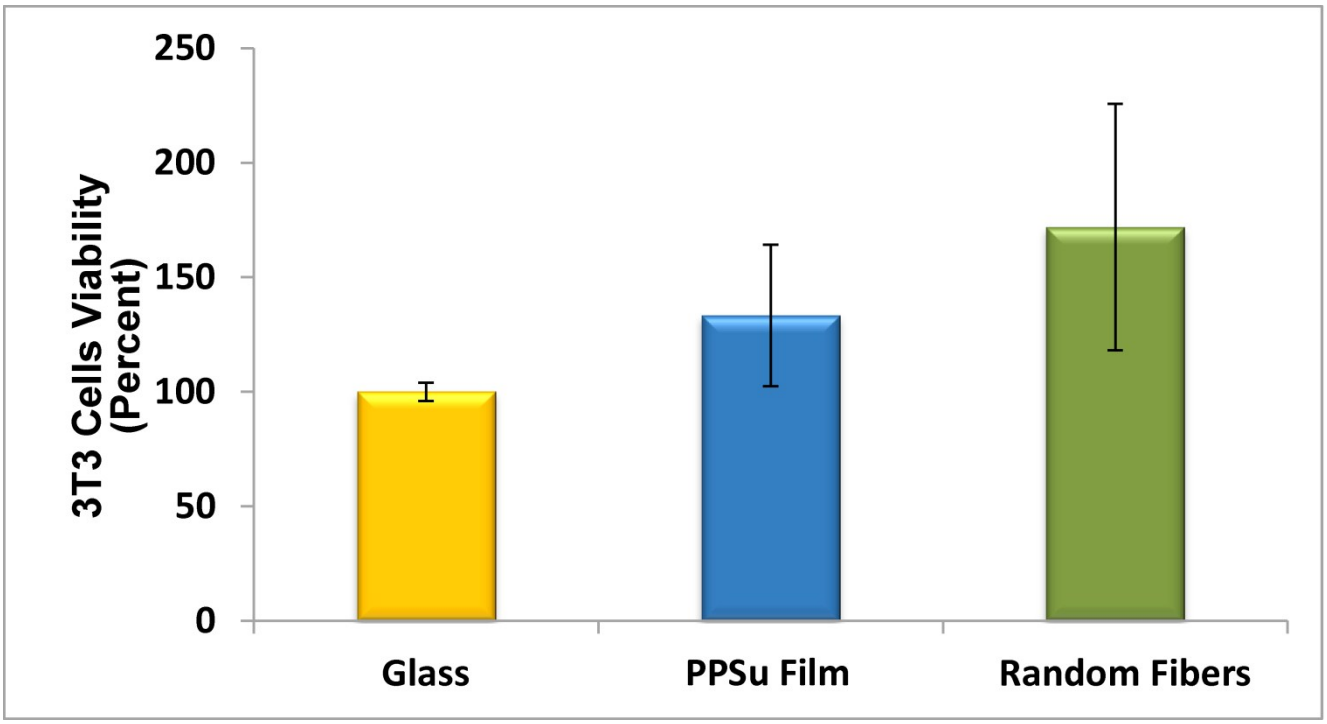


Figure S1. 3T3 cells viability on different substrates by MTT assay

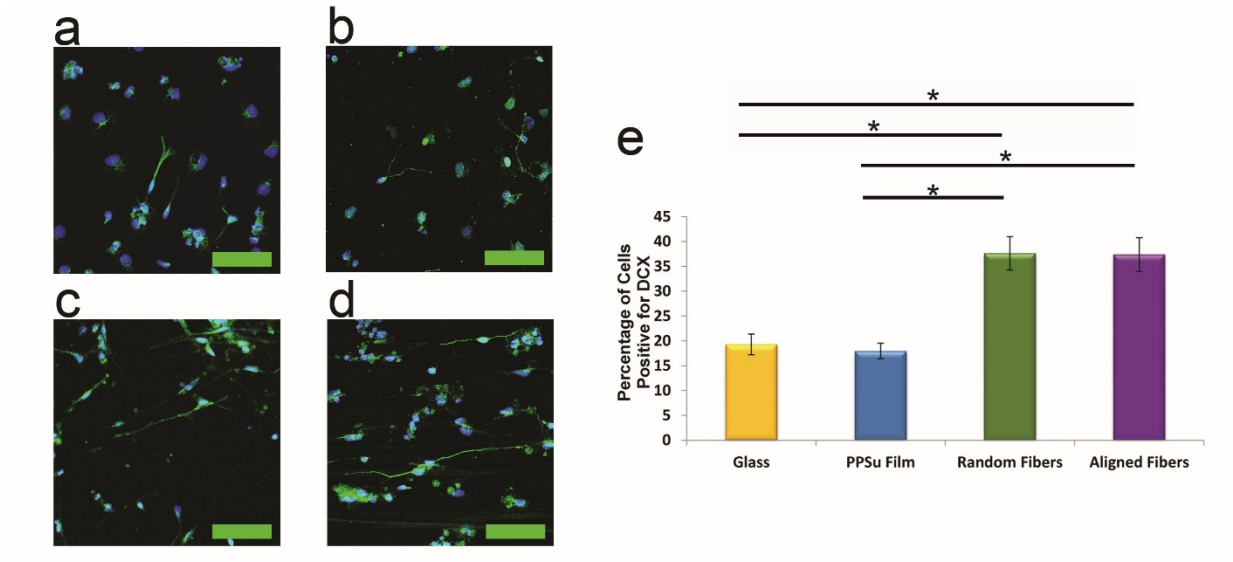
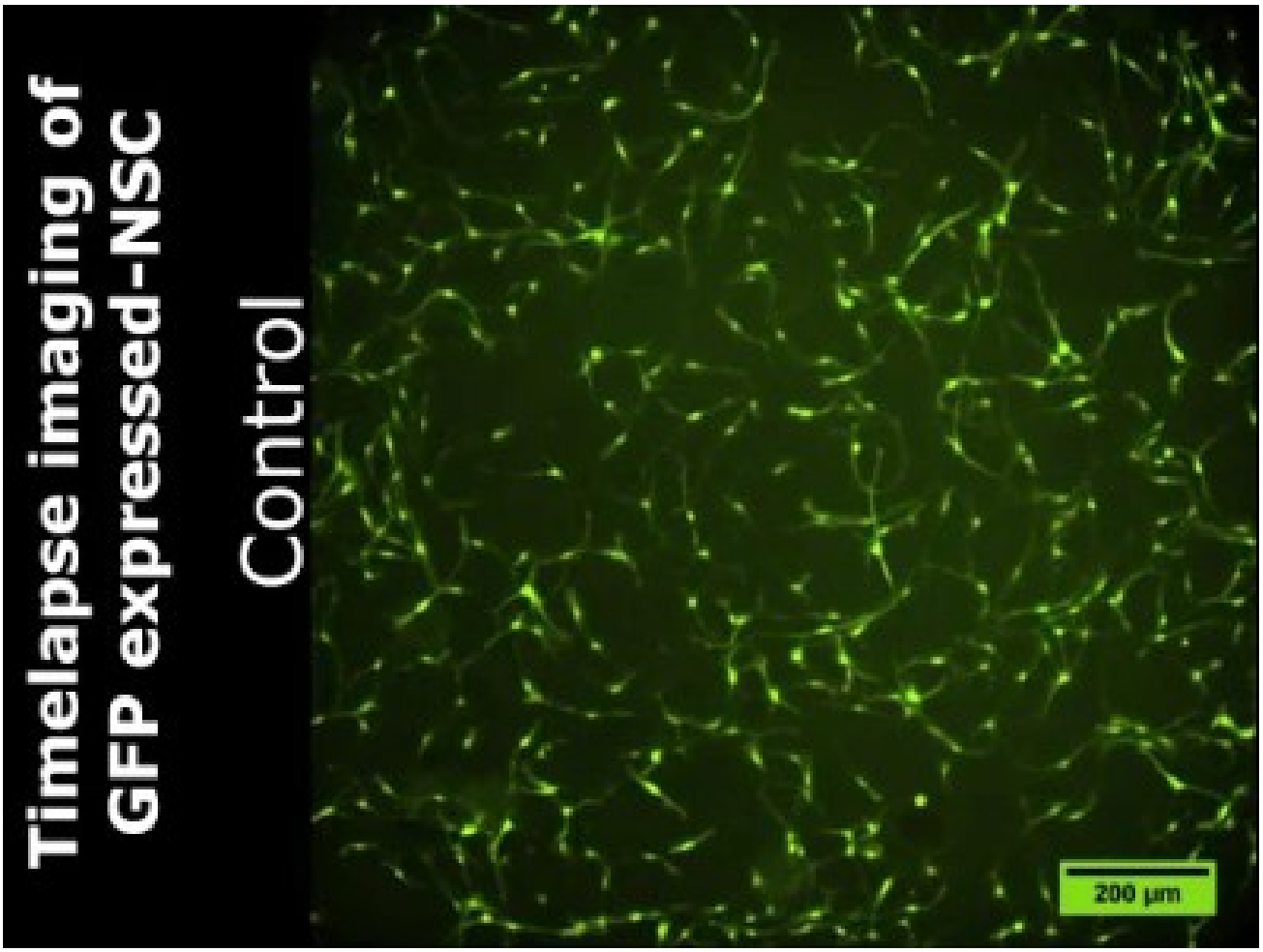
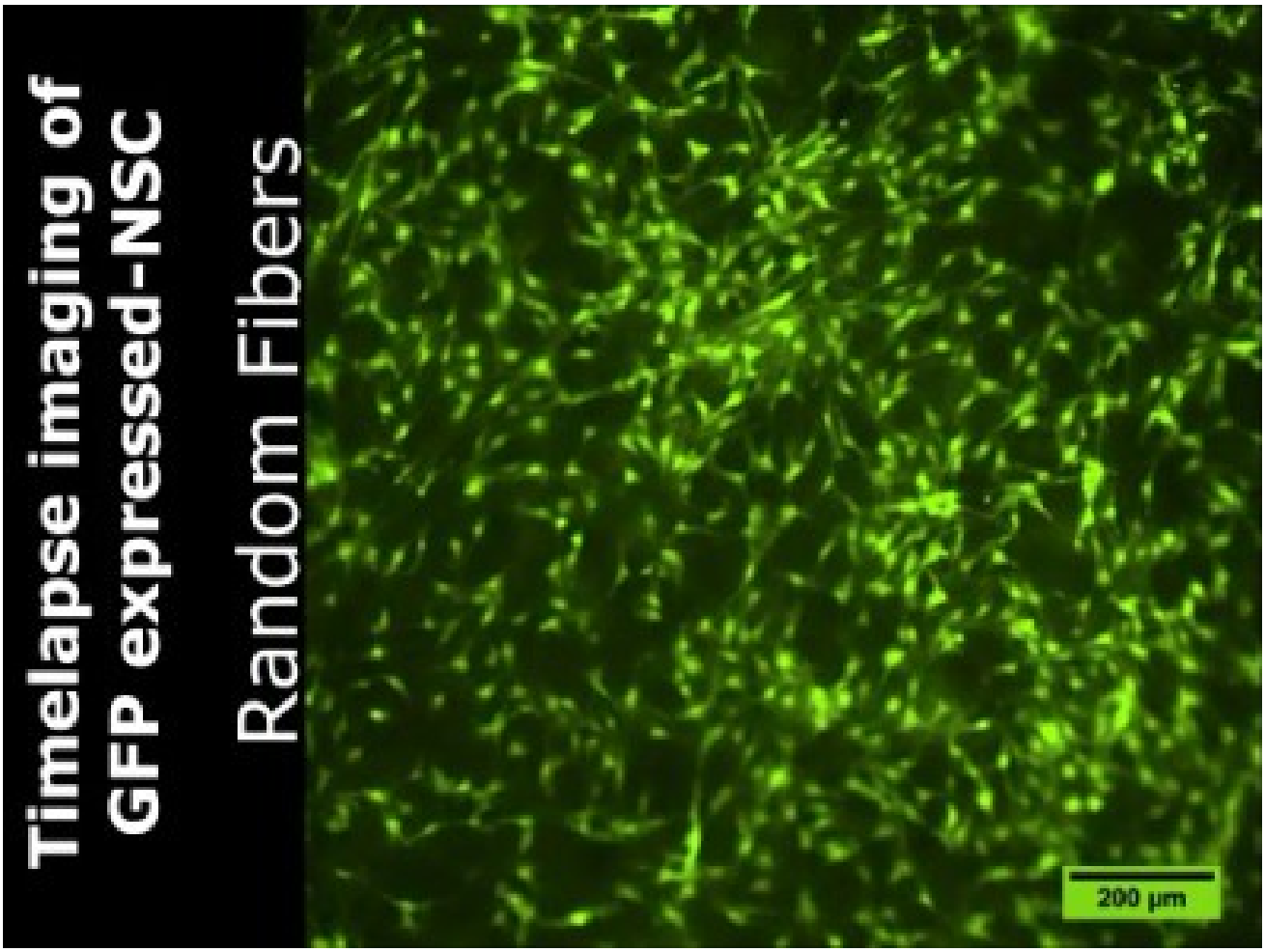


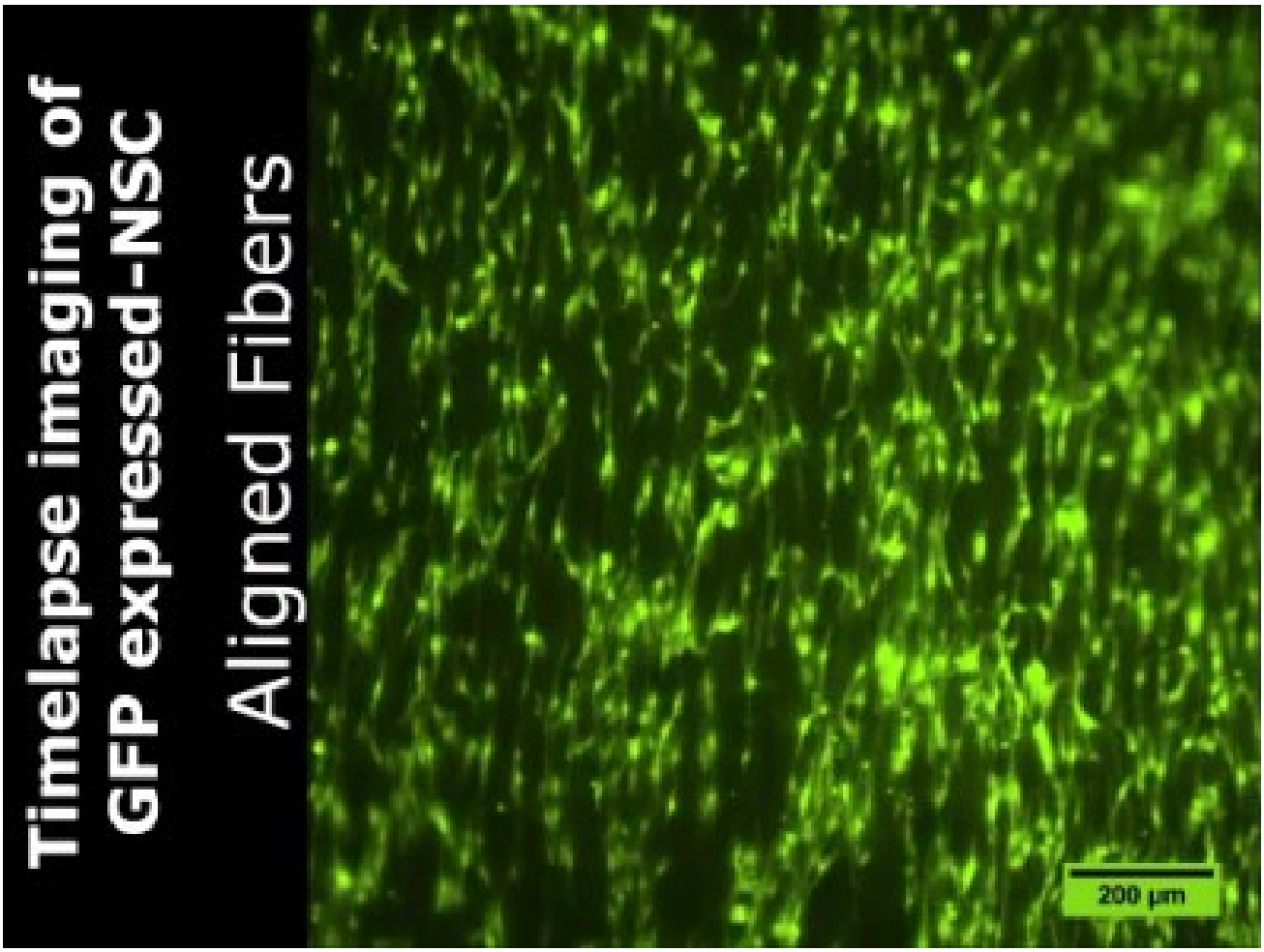
Figure S2. Confocal image of differentiated neural stem cells (s) expressed the marker DCX(green) on a) glass, b) PPSu film, c) random fibers, d) aligned fibers; Scale bar, 50 μm; e) Percentage of cells positive for DCX marker (*: $p < 0.05$).



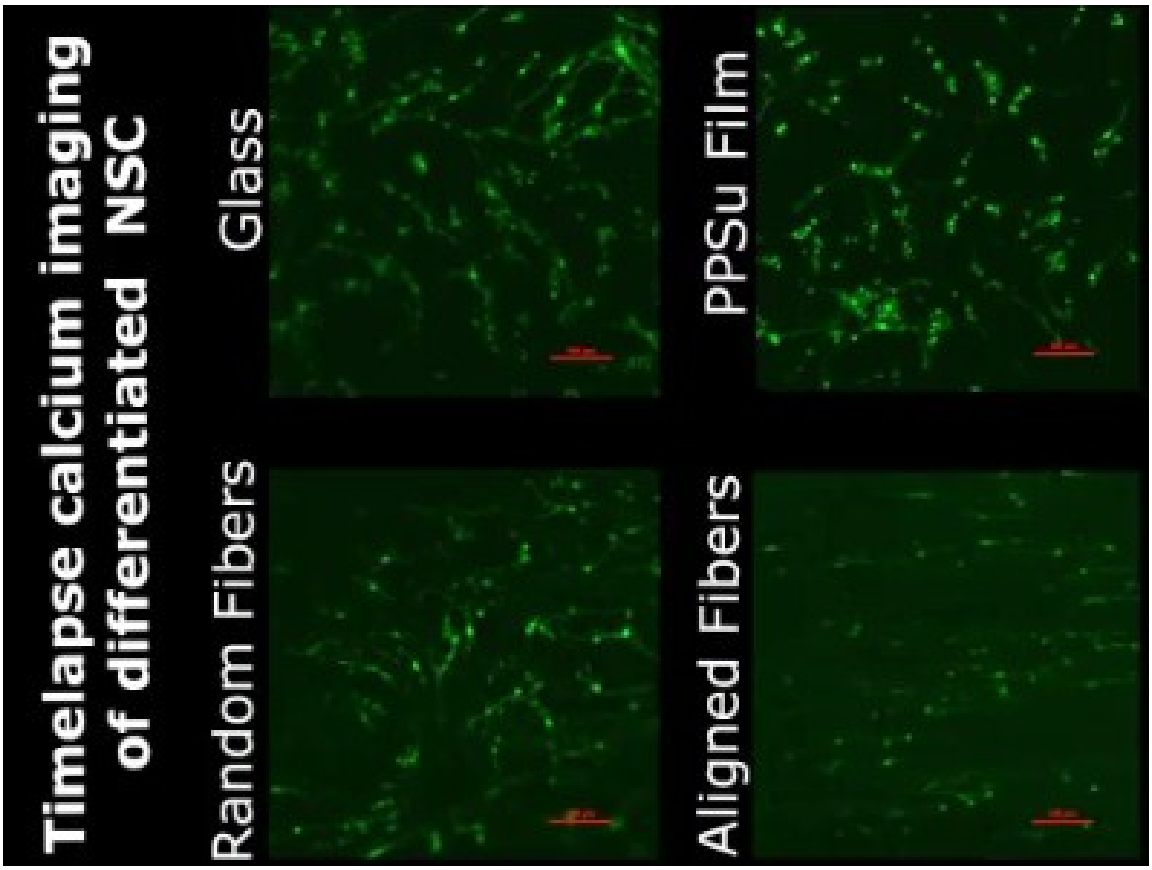
Video S1. Timelapse imaging of GFP expressed-NSCs on control (imaging period: 24 h; interval of captured image: 15 min; videos was made by 5 frames per second; Scale bar: 200 μm).
Link: https://drive.google.com/open?id=0B0jgefmkYOe-S1p4dDlYLWY2S3M



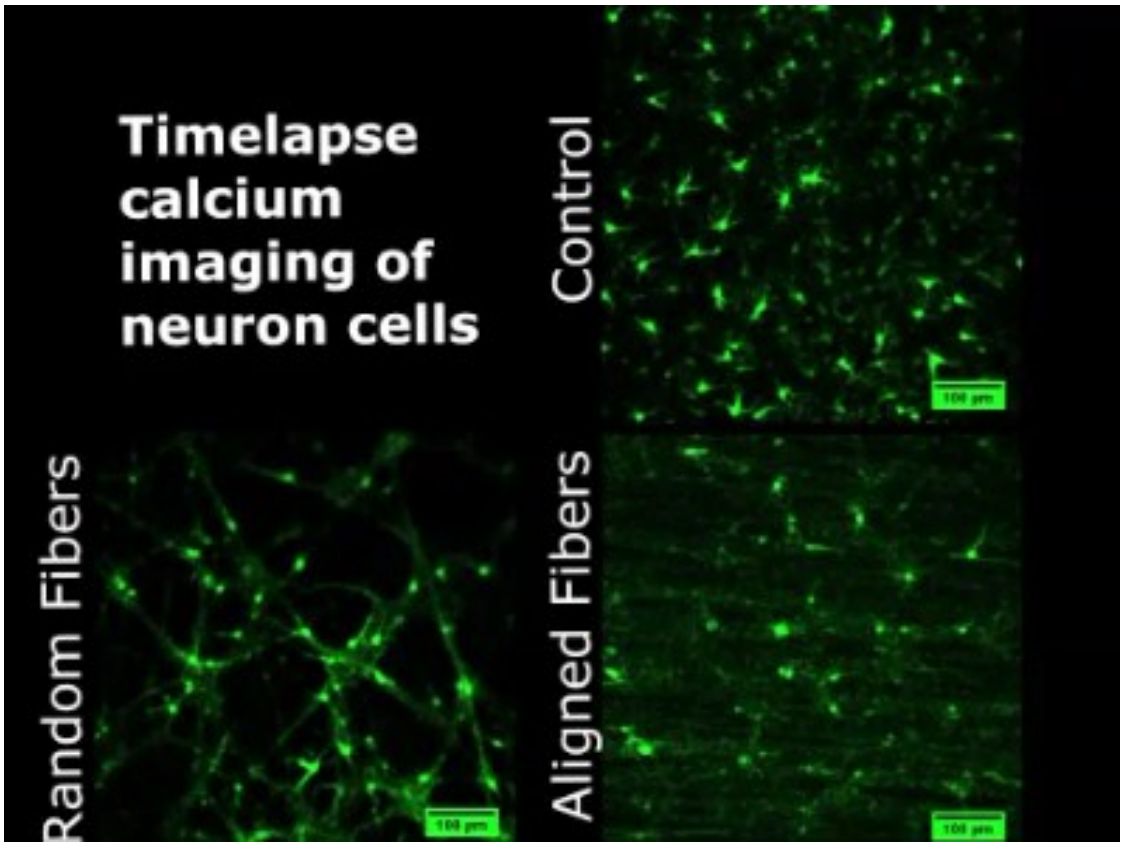
Video S2. Timelapse imaging of GFP expressed-NSCs on random fibers (imaging period: 24 h; interval of captured image: 15 min; video was made by 5 frames per second; Scale bar: 200 μm).
Link: https://drive.google.com/open?id=0B0jgefmkYOe-bHE2TllnNVFtYkk



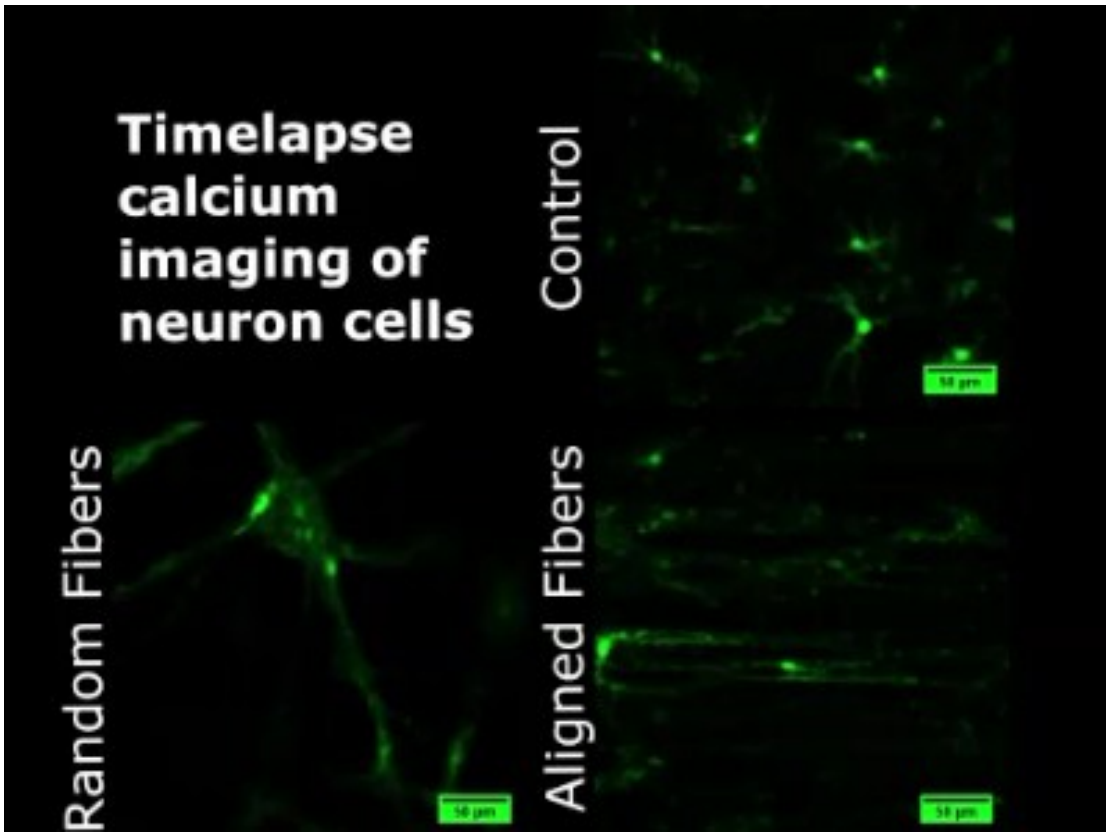
Video S3. Timelapse imaging of GFP expressed-NSCs on aligned fibers (imaging period: 24 h; interval of captured image: 15 min; video was made by 5 frames per second; Scale bar: 200 μm).
Link: https://drive.google.com/open?id=0B0jgefmkYOe-SVhWXzMybjlMVHM



Video S4. Timelapse Calcium imaging of differentiated NSCs on control, PPSu film, random fibers, and aligned fibers (imaging period: 10 min; interval of captured image: 500 ms; videos were made by 50 frames per second; Scale bar: 100 μm).
Link: **https://drive.google.com/open?id=0B0jgefmkYOe-bTNFRVZoRlBoeUk**



Video S5. Timelapse Calcium imaging of neuron cells on control, random fibers, and aligned fibers (imaging period: 10 min; interval of captured image: 500 ms; videos were made by 50 frames per second; Scale bar: 100 μm).
Link: https://drive.google.com/open?id=0B0jgefmkYOe-TTNHYjNiQk5qQjQ



Video S6. Timelapse Calcium imaging of neuron cells on control, random fibers, and aligned fibers (imaging period: 5 min; interval of captured image: 500 ms; videos were made by 50 frames per second; Scale bar: 50 μm).
Link: **https://drive.google.com/open?id=0B0jgefmkYOe-MnZwRUhaUWJ4OG8**