

Supplementary information

SHSY5Y cell viability on disordered SWCNT

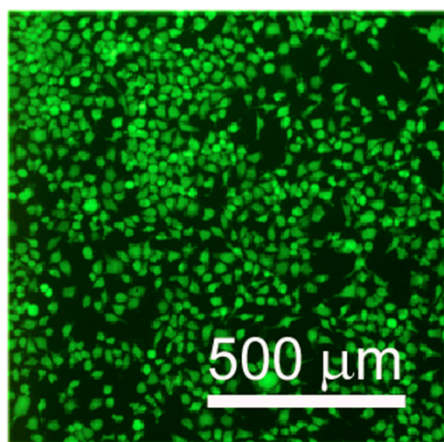


Figure 1S: FDA viability after 24h of SHSY5Y cells on disordered SWCNT from SWCNT/OBTY suspension

SHSY5Y cells were suspended in cell medium at a final concentration of 2.5×10^4 cells/cm² and seeded on the SWCNT networks with and without semicapsule architecture, for different times in order to test neuronal cell adhesion.

After cell incubation in standard culture conditions, the samples were rinsed with cell medium to remove non-adherent and dead cells before being observed under optical microscope. Images were captured by an optical microscope (NIKON, Eclipse 80i) equipped with a Nikon digital camera.

The cell viability was determined by Fluoresceine diacetate (FDA) cell staining

In figure 1S the FDA viability is shown after 24h of SHSY5Y cells on disordered SWCNT under the same experimental conditions reported in the manuscript.

The effect of OBTY on cell adhesion

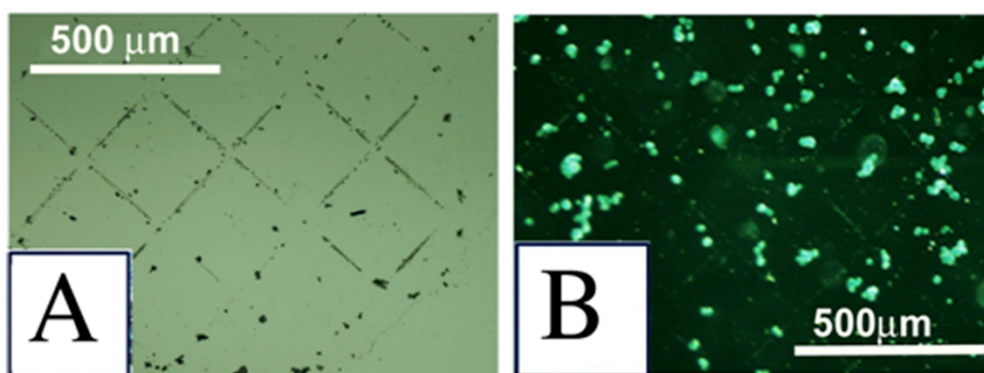


Figure 2S. A) optical photograph (bright field) of the OBTY pattern made on silicon oxide substrate with a copper grid with pitch size of 250 μm Fig. B) represents the optical photograph (dark field) of SHSY5Y cells after 30 minutes from seeding on the OBTY pattern

OBTY is the aromatic amino acid used as suspending agent for preparing both disordered SWCNT and SWCNT semicapsules.

We performed experiments for evaluating cell adhesion on bare silicon substrate with respect to OBTY-patterned silicon substrate by using grid assisted deposition (in the same experimental conditions reported in the manuscript for SWCNT patterning). After 30 minutes from cell seeding, we rinsed the cells with fresh culture medium to remove the not-attached cells and we analyzed the cell density on both the OBTY pattern and on bare silicon oxide

Fig. A is the optical photograph (bright field) of the OBTY pattern made on silicon oxide substrate with a copper grid with pitch size of 250 μm and hole size of 205 μm . Fig. B represents the optical photograph (dark field) of SHSY5Y cells after 30 minutes from seeding on the OBTY pattern. About 64% of the seeded cells ($190/\text{mm}^2$) adhered on the pattern holes (silicon substrate), while only 36% of cells were found on the OBTY pattern. This corresponds to a density of 208 cells/ mm^2 on the pattern holes and only 136 cells/ mm^2 on the OBTY pattern. Hence we can exclude any adhesion promoting on effects due to the presence of OBTY during the experiment time.