Supporting Information Available

Raman spectra of short and long SWNTs

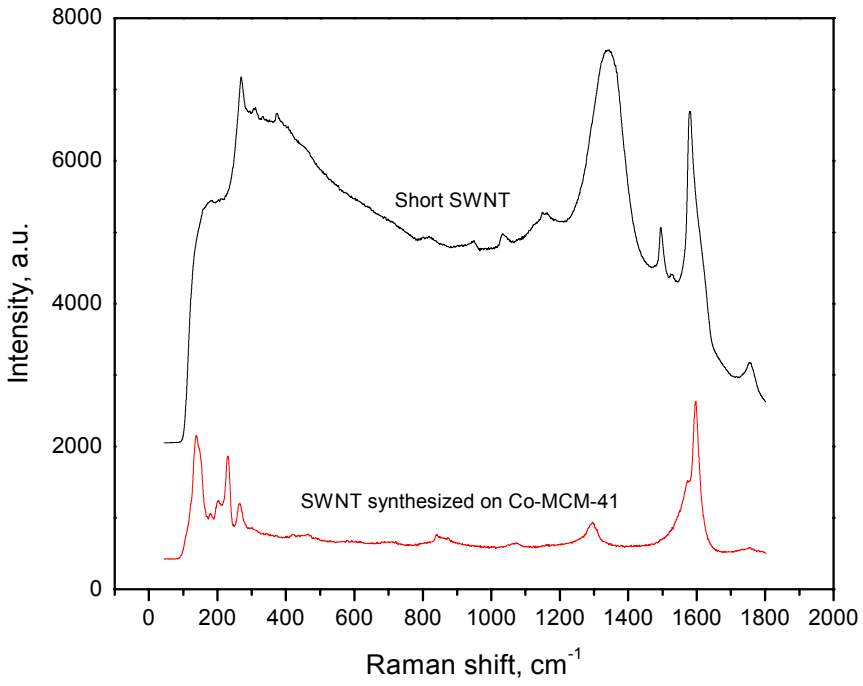

Figure 1. Raman spectra before and after cutting. We observe a strongly pronounced D-band after cutting (around 1300 cm^{-1}), indicating a large number of defects in the short SWNT sample.

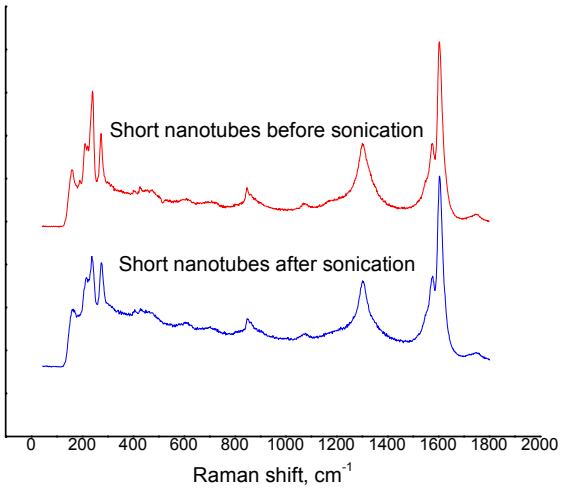

Figure 2. Raman spectra collected at 785 nm excitation wavelength for short SWNT before and after ultrasonication in ethanol for 1 h at 30 W. (y-axis is in arbitrary units)

To asses the influence of ultrasonication on tube length, we employ Raman spectroscopy on SWNT shortened by the cyclodextrin mediated soft cutting process. SWNT are dispersed in ethanol and sonicated for 1 h as described in the manuscript. Raman spectra of the nanotubes before and after sonication are collected using a 785 nm excitation laser wavelength. It is widely accepted that the intensity of the D-band (around 1300 cm-1) is a qualitative metric of SWNT defects, while the G-band (around 1600 cm-1) is a measure of SWNT graphene sheet folding.[1] Sonication induced SWNT cutting would result in a clear increase in the D/G intensity ratio. The nearly constant D/G ratio (approx. 0.38) suggests sonication induced cutting to be minimal.

Sample images from Live/Dead and metabolic activity assay

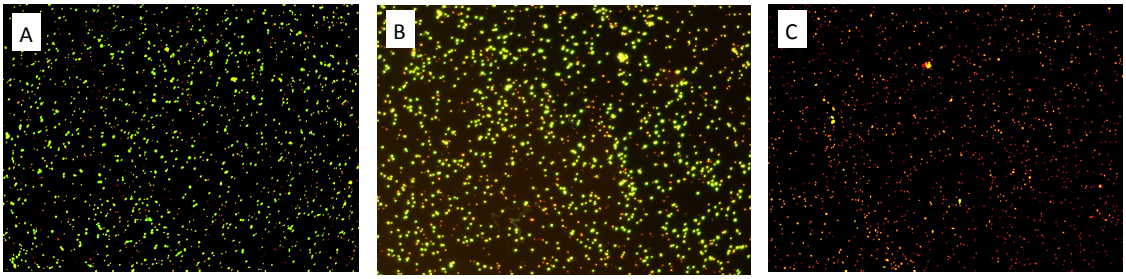

Figure 3. Sample images from Live/Dead and metabolic activity assay. A: pure PLGA, B: Short SWNT-low concentration, C: Short SWNT-high concentration. Cells stained with green and red indicate live and dead cells, respectively.

TEM image of long SWNTs

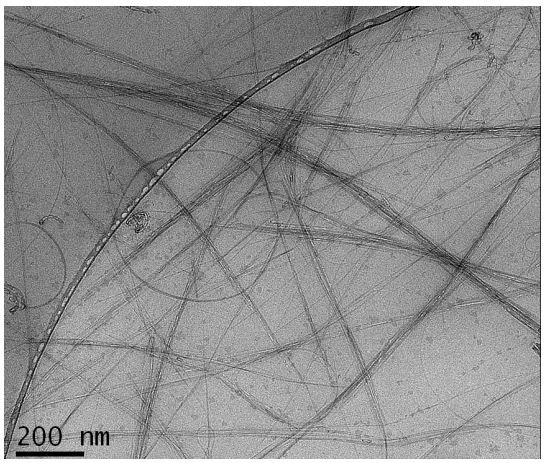

Figure 4. TEM image of long SWNTs. Length is ca. 3-5 µm.

Reference:

1. M. S. Dresselhaus, G. Dresselhaus and M. Hofmann, *Vibrational Spectroscopy*, 2007, **45**, 71-81.