Supplementary Materials

Seeding, Plating and Electrical Characterization of Gold Nanowires Formed on Self-Assembled DNA Nanotubes

Dulashani R. Ranasinghe 1, Basu R. Aryal 1, Tyler R. Westover 2, Sisi Jia 3, Robert C. Davis 2, John N. Harb 4, Rebecca Schulman 3 and Adam T. Woolley 1,*

1 Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT 84602, USA; dulashani13@gmail.com (D.R.R.); aryalbasu99@gmail.com (B.R.A.)
2 Department of Physics and Astronomy, Brigham Young University, Provo, UT 84602, USA; tyler.westover13@gmail.com (T.R.W.); davis@byu.edu (R.C.D.)
3 Johns Hopkins Institute for Nanobiotechnology, Johns Hopkins University, Baltimore, MD 21218, USA; jiasisi1208@outlook.com (S.J.); rschulm3@jhu.edu (R.S.)
4 Department of Chemical Engineering, Brigham Young University, Provo, UT 84602, USA; john_harb@byu.edu
* Correspondence: awoolley@chem.byu.edu; Tel.: +1-801-422-1701

6nt SEs nanotube monomer sequences for SEs tiles within out PEG modification:

SEs_1: TCAGTGACACGCGTCTGGAGCGTGGACGA
SEs_2: CCAGACAGGGTGCTGGACCGCA
SEs_3-Cy3: /Cy3/CCAGAAGGCTGTGGCTAAACAGTAACCGAACCTAAACGCT
SEs_4: GTCTGGTAGAGCACCACTGAGAGGA
SEs_5: CGATGACCTGCTTCGGTTACTGTTAGCTGCTCTA

/Cy3/ denotes Cy3 fluorophore covalently attached to the 5’ end of DNA.

Scheme S1. DNA nanotube tile sequences.
**Figure S1.** AFM height characterization. (a) AFM image of Au nanorods seeded on DNA nanotubes; height scale: 20 nm (b) Height analysis of DNA nanotube (blue) and Au nanorod seeded DNA nanotube (red).

**Figure S2.** SEM images of Au nanorods seeded and Au plated with commercial plating solution.
Figure S3. Blank experiment to assess substrate resistance. (a) SEM image of EBID connections without a nanowire. (b) I-V curve from the setup in (a).

Figure S4. Control experiment connecting 4 Au pads to an EBID-written nanowire. (a) SEM image of EBID connections to an EBID-deposited nanowire. (b) I-V curve from the setup in (a).