Supporting Information

Determination of SWCNT(6,5) Concentration

We use the absorption wavelength of the absorption spectrum to determine the concentration of the purified SWCNT(6,5). Several different concentrations of carbon nanotube in 1%wt SDS dispersions were used to characterized by UV/Vis/NIR spectra. 560nm wavelength peak was chosen as the standard for concentration measurement because it is $E_{22}$ wavelength of SWCNT(6,5).

Figure S1. Linear plots of the concentration of the SWCNTs (6,5) absorbance at 560nm wavelength peak. The linear fitting equation is $y=33.488x+0.0005$. ($R^2 = 0.99$)

Table S1. Library of phenylboronic acid

| Phenylboronic acid derivative | Structure |
|------------------------------|-----------|
| Phenylboronic acid (PBA)     | ![Structure](image1) |
| 3-nitrophenylboronic acid (3NPBA) | ![Structure](image2) |
| 4-nitrophenylboronic acid (4NPBA) | ![Structure](image3) |
| 2-carboxybenzeneboronic acid (2CPBA) | ![Structure](image4) |
| Name                                           | Structure            |
|------------------------------------------------|----------------------|
| 3-carboxybenzeneboronic acid (3CPBA)           | ![Structure](image1) |
| 4-carboxybenzeneboronic acid (4CPBA)           | ![Structure](image2) |
| 3-aminophenylboronic acid (3AMBA)              | ![Structure](image3) |
| 3-carboxy-5-fluorobenzeneboronic acid (5F3CPBA)| ![Structure](image4) |
| 3-carboxy-5-nitrophenylboronic acid (5N3CPBA)  | ![Structure](image5) |
| 5-carboxy-2-chlorobenzeneboronic acid (2Cl5CPBA)| ![Structure](image6) |
| Name                                                      | Structure |
|-----------------------------------------------------------|-----------|
| 3-amino-4-methylbenzene boronic acid (3A4MPBA)             | ![Structure Image] |
| 4-carboxy-3-fluorophenylboronic acid (4C3FPBA)             | ![Structure Image] |
| 9-anthraceneboronic acid (9ANBA)                           | ![Structure Image] |
| 9-phenanthreneboronic acid (9PHBA)                         | ![Structure Image] |
| 4-methyl-1-naphthaleneboronic acid (4M1NPBA)               | ![Structure Image] |
| 4-chlorophenyl boronic acid (4CYBA)                        | ![Structure Image] |
3-acetylphenylboronic acid (3ACPBA)