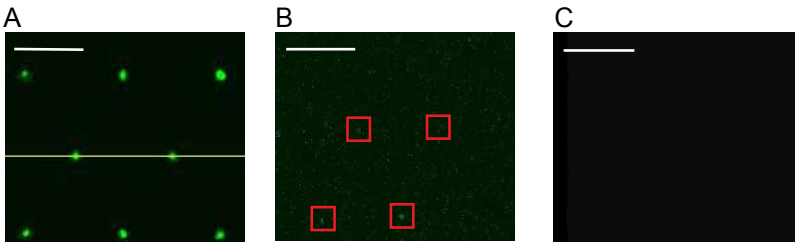
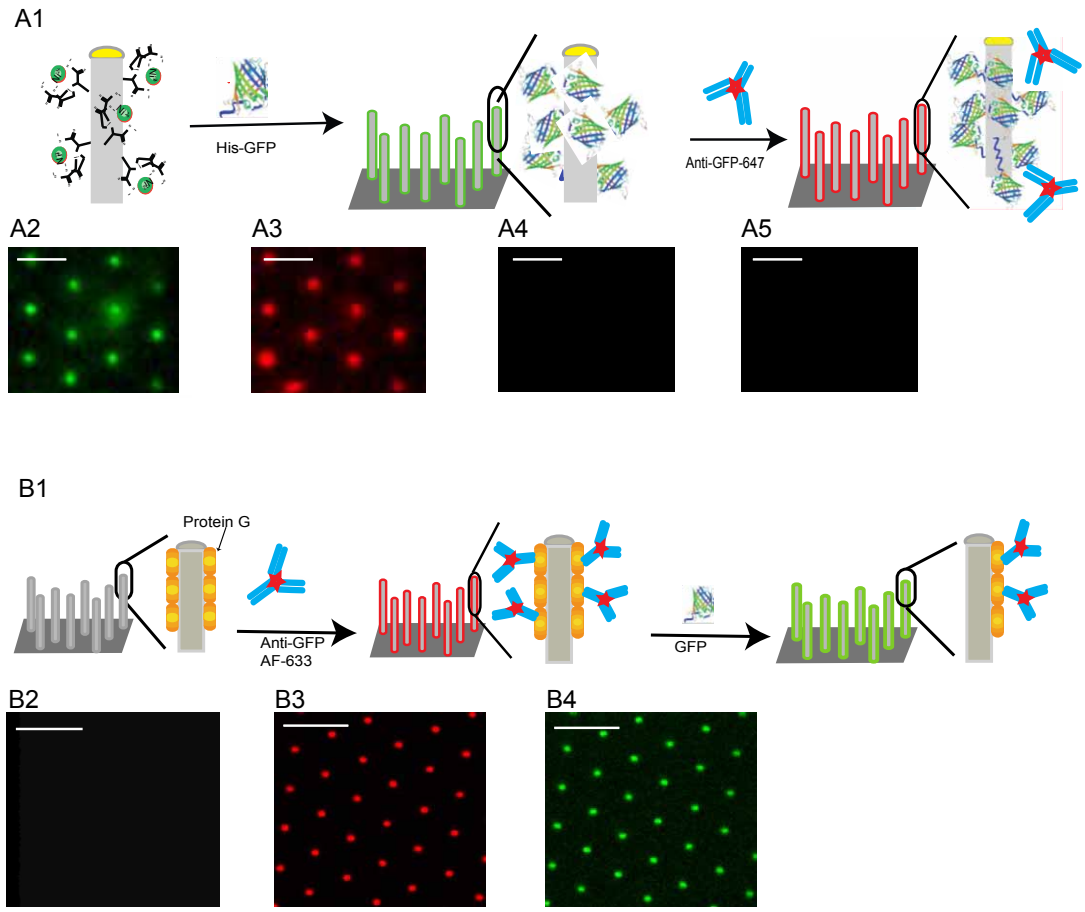
Vertical Nanowire Arrays as a Versatile Platform for Protein Detection and Analysis

Katrine R. Rostgaard, Rune S. Frederiksen, Yi-Chi C. Liu, Trine Berthing, Morten H. Madsen, Johannes Holm, Jesper Nygård and Karen L. Martinez

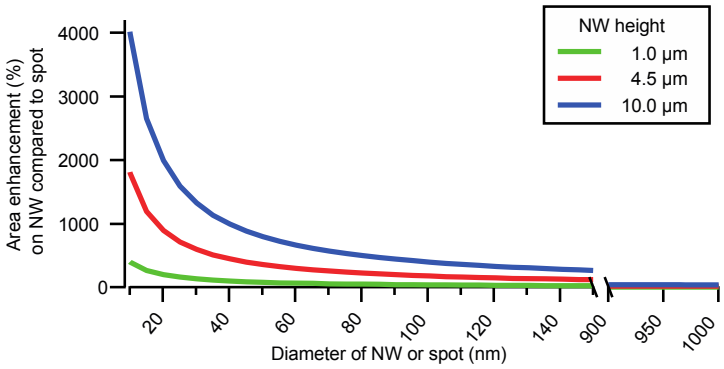
Supplementary material



Supplementary Figure 1. NW arrays functionalized with BSA-biotin as described in the experimental section and incubated 30 min at RT with (A) 100 nM SA488, (B) 100 nM SA-488 that was blocked by pre-incubation with biotin, and (C) 100 nM non-fluorescent SA. Red squares in B mark NW positions. CLSM images. All scale bars represent 5 μm.



Supplementary Figure 2. (A1) Illustration of NW functionalization by Ni:NTA followed by immobilization of His-GFP and anti-GFP-647 as described in the experimental section. (A2) Wide field image of GFP immobilized on NW array (A3) Wide field image of Anti-GFP 647. (A4) GFP signal after elution with imidazole. (A5) Anti-GFP-647 signal after elution with imidazole. All scale bars represent 5 µm. (B1) Illustration of NW functionalization by adsorption of 13 µg/ml protein G (Sigma Aldrich) in PBS for 30 min at RT followed by incubation with 0.02mg/ml anti-GFP-647 for 30 min at RT and 5,58µM His-GFP for 2 hours at RT. (B2) CLSM image of GFP signal after immobilization of anti-GFP-647 but before adding GFP. (B3) CLSM image of Anti-GFP-647 immobilized on NW array. (B4) CLSM image of GFP. All scale bars represent 5 µm.



Supplementary Figure 3. Area enhancement on a NW compared to a spot of the same diameter. The enhancement was calculated as $Enhancement = \frac{A_{NW}}{A_{Spot}} = \frac{2\pi rh+\pi r^2}{\pi r^2} = \frac{2h+r}{r}$. Curves show the enhancement for 3 different heights of NWs.