Electronic Supplementary Information

Glucose-Sensitive Nanofiber Scaffolds with Improved Sensing Design for Physiological Conditions

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NMR data

3-Fluoro-4-propoxycarbonylphenylboronic acid (**2b**) ^{1}H NMR (500 MHz, CD_3OD): δ = 7.847 ppm (t, *J* = 7.3 Hz, 1H), 7.578 ppm (d, *J* = 5 Hz, 1H), 7.486 ppm (d, *J* = 11 Hz, 1H), 4.278 ppm (t, *J* = 6.3 Hz, 2H), 1.783 ppm (m, 2H), 1.035 ppm (t, *J* = 7.5 Hz, 3H).

3-Fluoro-4-hexyloxycarbonylphenylboronic acid (**2c**) ^{1}H NMR (500 MHz, CD_3OD): δ = 7.852 ppm (t, *J* = 7.5 Hz, 1H), 7.503 ppm (m, 2H), 4.314 ppm (t, *J* = 6.5 Hz, 2H), 1.755 ppm (m, 2H), 1.463 ppm (m, 2H), 0.921 ppm (t, *J* = 7.5 Hz, 3H).

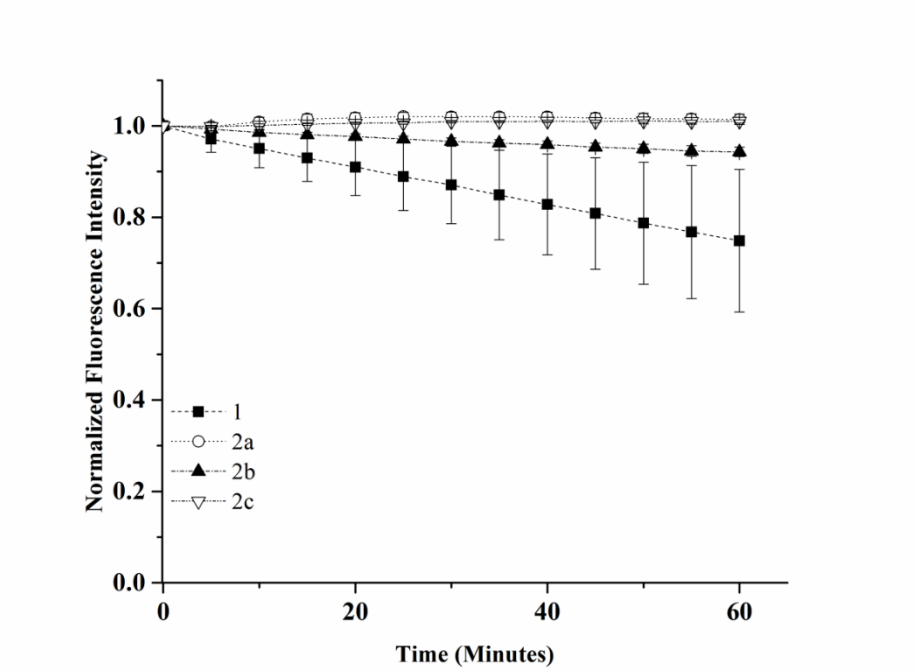

Figure S1. Fluorescence decay of macrosensors with different boronic acids. The macrosensors contained **Boronic Acids 1** (n=7), **2a** (n=7), **2b** (n=7) or **2c** (n=8) and were exposed to PBS for 60 minutes. Fluorescence intensities were normalized to time 0 and error bars represent standard deviations.

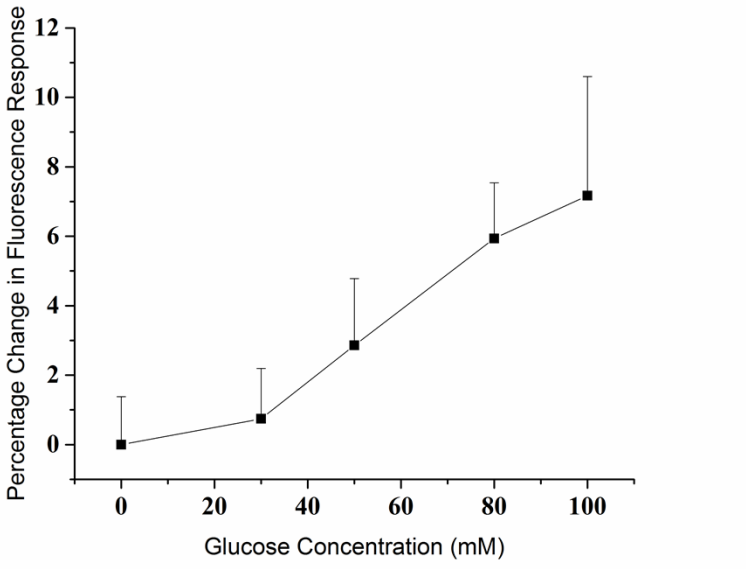

Figure S2. Response of macrosensors against different concentrations of glucose. The macrosensors contained Boronic Acids 1a were exposed to 0 mM(n=4), 30 mM (n=4), 50 mM (n=4), 80 mM (n=4) or 100 mM (n=4) glucose solution in PBS for 60 minutes. The percent change

in fluorescence was calculated as the average normalized difference between the control and glucose groups. Error bars were calculated using error propagation.

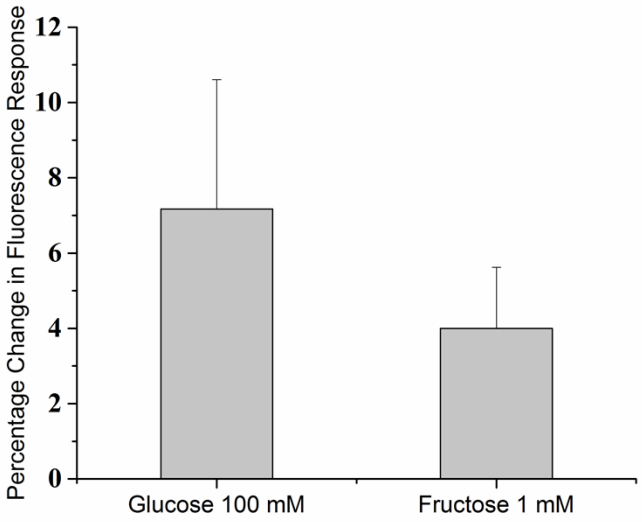

Figure S3. Comparison of sensor response to two sugars, glucose and fructose. Macrosensors containing **Boronic Acid 1a** were exposed to PBS as a control (n=4), 100 mM glucose (n=4) or 1 mM fructose (n=4) solution in PBS a for 60 minutes. The percent change in fluorescence response was calculated as the average normalized difference between the control and glucose groups. Error bars were calculated using error propagation.