Rapid naked-eye detection of a liver disease biomarker by discovering its monoclonal antibody to functionalize engineered red-colored bacteria probes

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Repeatability, reproducibility and stability:

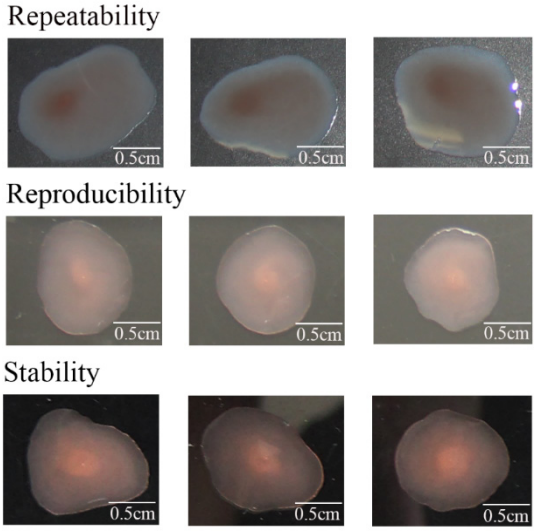

Figure S1. The Repeatability was conducted by one author for three times, the reproducibility was conducted by three different people, and the stability was conducted on the first, fourteenth, and thirtieth day after probe preparation. The ready-to-use bioprobes were stored at 4℃. In the above experiments, the concentration of GCA was 0.83 μg/ml. These results were recorded on a dark background with a camera.

Repeat experiments of sensitivity and specificity:

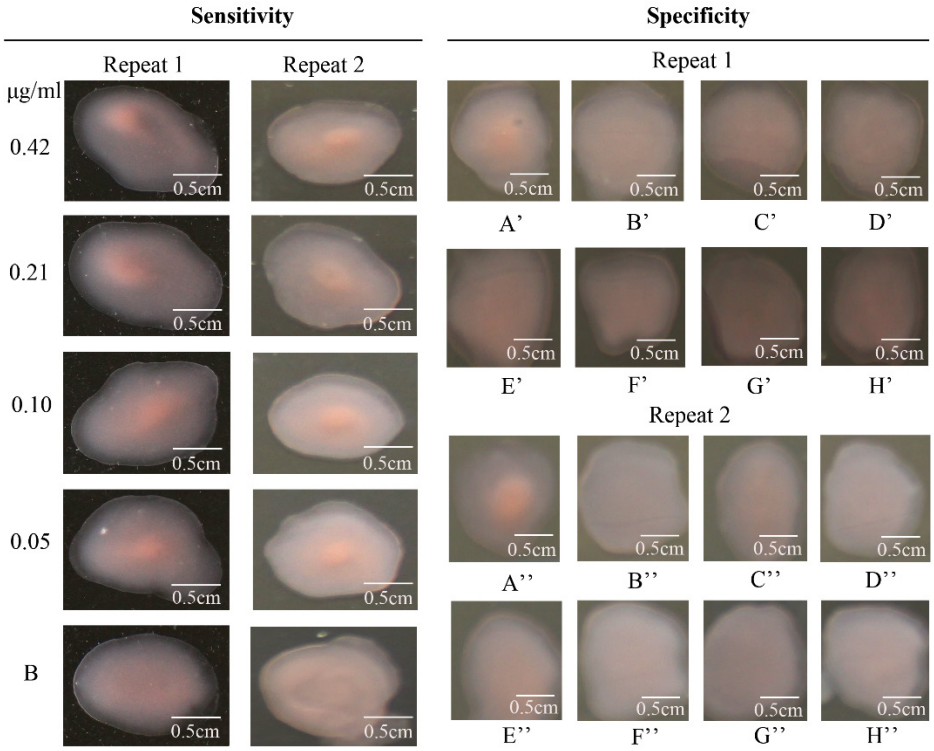

Figure S2. Sensitivity experiments were repeated twice at the GCA concentration of 0.42 μg/ml, 0.21 μg/ml, 0.10 μg/ml, 0.05 μg/ml, and blank, separately. Specificity experiments were also repeated twice as Figure 6. A, GCA. B, Deoxycholic Acid. C,

Ursodesoxycholic Acid. D, Glycyl Ursodeoxycholic Acid. E, Glycochenodeoxycholic Acid. F, Taurocholic Acid. G, Hyodeoxycholic Acid. H, Cholic Acid. ’ means first repeat, ’’ means second repeat. These results were recorded on a dark background with a camera.

Size distribution characterization of GCA in methanol and PBS:

GCA was dissolved in methanol and 1xPBS at the concentration of 0.1μg/ml, respectively. The resultant solutions were analyzed by Nano Particle Size and Zeta Potential Analyzer (Malvern, Zetasizer Nano ZS). The result is shown in Figure S3. The average particle size of GCA in methanol is about 135.8 nm (Figure S3-A), and the average particle size of GCA in PBS buffer is about 677.2 nm (Figure S3-B). This result indicates that the accumulation of GCA occurs in both methanol and PBS solutions. Moreover, the aggregation effect was stronger in PBS buffer.

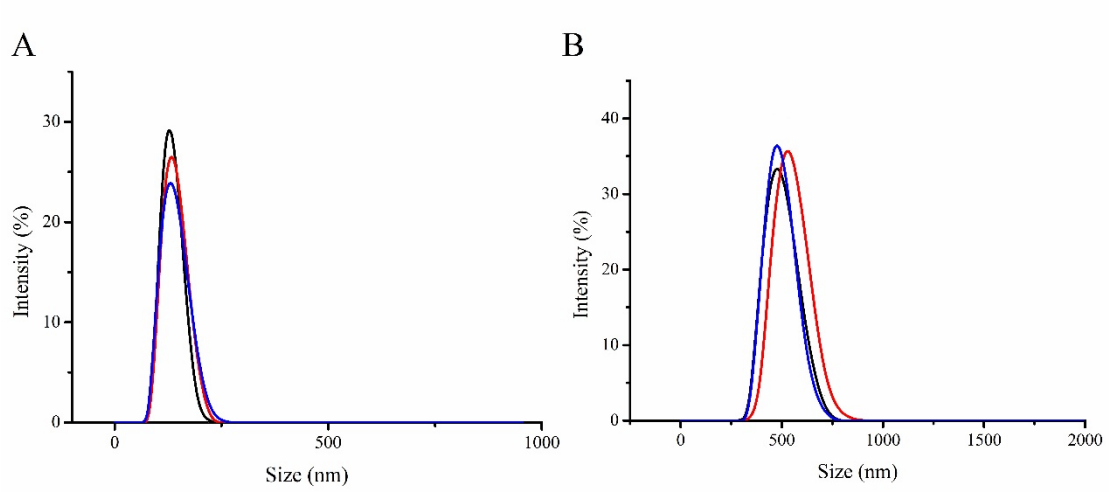

Figure S3. Result of size distribution characterization of GCA aggregates. (A) 0.1 μg/ml GCA in methanol, (B) 0.1 μg/ml GCA in PBS buffer. Each experiment was repeated three times.