

Supplementary Information

Surface plasmon resonance (SPR) imaging for ABH antigens detection of RBCs and saliva: secretor status-related ABO subgroup identification

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The steps of fabricating an antibody array

(1): the carboxyl group on a sensor chip was converted to the reactive ester group by injecting a mixture of 0.4 M 1-ethyl-3-(3-diethyl-aminopropyl) carbodiimide and 0.1 M N-hydroxysuccinimide into the flow channels for 10 min. Antibodies in sodium acetate buffer were immediately injected for 10 minutes. The antibodies covalently reacted with carboxyl group on the surface. The residual of the reactive ester group was blocked by ethanolamine at pH 8.5 for 10 min. The antibody surfaces were preserved by the immunoassay stabilizer injected into the flow channel. After the antibody surface immersed the stabilizer for 20 min, the flow cell and the SPR chip were carefully removed from the SPR system while the stabilizer still placed on the SPR chip. The SPR chip was dried in a desiccator with low relative humidity (<15%).

(2): before an analysis, the immobilized antibody chip was rotated 90° and reattached to the prism surface.

(3): a new 7-channel flow cell was then applied to the immobilized antibody chip. This way, the stripes of the immobilized antibodies are perpendicular to the sample's flow channel, yielding an array of square spots. With this method, we can analyse seven different specimens with three different antibodies, including anti-A, anti-B and anti-H surface, at the same time.

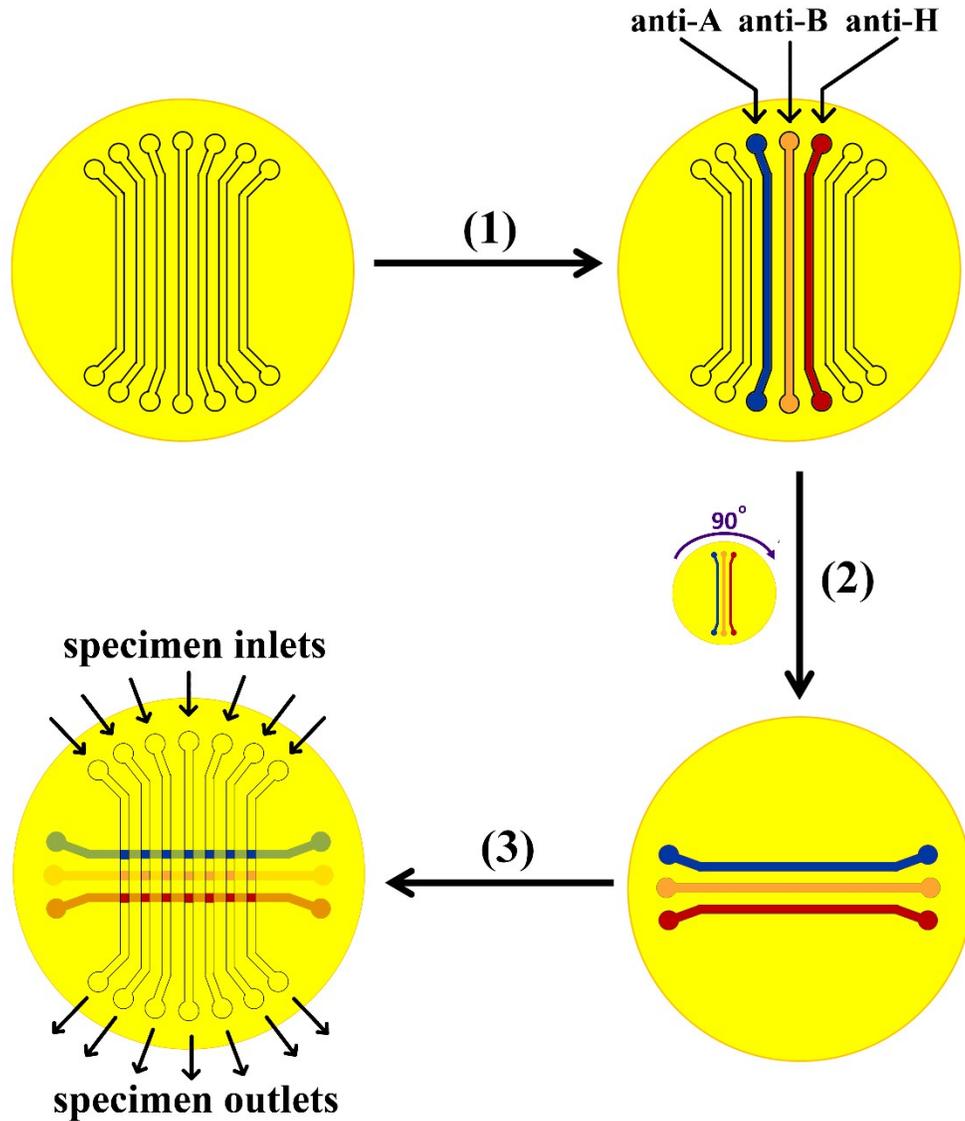


Fig. S1 The steps of making an array of antibody surface: (1) The three-antibodies, including anti-A, anti-B, and anti-H, were immobilized on the surface via an amine coupling reaction. Then, the three-antibody line-surfaces were stabilized in a dried phase. (2) The stabilized chip was rotated 90° . (3) The 3×7 sensor arrays were created at the cross-section of the sample flow channels and the immobilized antibody stripes.