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Immunochromatographic assay using brightly colored silica nanoparticles as visible label for point-of-care detection of clenbuterol

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Graphical Abstract:

The stabilities of core-shell purple silica nanoparticles (core-shell purple SiNPs) and colloidal gold were compared in solutions with different concentration of salt (left) and different pH (right), respectively. An immunochromatographic strip based on core-shell purple SiNPs for detection of clenbuterol (CLE) has been developed. It was based on competitive reaction between the CLE-BSA (test line) and the target CLE to combine with anti-CLE antibody-modified core-shell purple SiNPs conjugates. As is shown in the figure, when there is no CLE in the sample, purple band would appear both at test and control line. Otherwise, no color or reduced purple color intensity at the control line compared with the negative sample.

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