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Fluorescence immuno assay for procalcitonin hormone in whole blood

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The determination of blood level of TSH is an important biomarker for the clinical assessment of sepsis status. Here, we presented a new fluorescence (FL) immunochip PCT assay system, which was developed with a platform of point-of-care test (POCT) for clinical applications. The assay system modified a later-flow immunochromatographic technology and consisted of anti-PCT-mAbcoated strip in a disposable chip, a detection buffer containing FL-labeled anti-PCT-polyAb, a chip for the calibration curve, and a laser FL scanner. The analytical performance of FL immunochip PCT assay system was evaluated by linearity, interference, recovery, and imprecision tests. The comparability of the developed assay was examined with automated reference assay. The developed assay system exhibited anexcellent linearity in working range of 0.25–50 ng/ml. The analytical mean recovery of control was 97.6% in a dynamic working range and the imprecision of intra- and inter-assay of CVs was less than 10%. There was highly significant correlation between the developed PCT assay and automated Beckman Coulter Access 2 reference assay with r=0.989 ($p<0.001$). The developed FL immumo assay is the only method that quantifies PCT concentration in whole blood, which meets the criteria of POCT, including affordable cost, a disposable device, and requiring minimum maintenance to perform test.

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