

## Production of monoclonal antibody and development of immunochromatographic assay for Ochratoxin A

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Ochratoxin A(OTA) is a mycotoxin produced by *Aspergillus* and *Penicillium* species, and causes nephrotoxicity, hepatotoxicity, and carcinogenicity in animals. It has been frequently detected in grains, cereals, coffee, and other commodities including animal feeds, although a range of commodities has been reported to contain ochratoxin A. For the rapid and quantitative detection of ochratoxin A levels in human foods and animal feeds, a monoclonal antibody against ochratoxin A was produced by immunization of BALB/c mice with ochratoxin A-bovine serum albumin (BSA) conjugate. After several screening steps, we selected one monoclonal antibody(mAb: C7G25) and it belongs to the IgG<sub>2a</sub> heavy chain subclass with a kappa type light chain. The level of 50% inhibition value(IC<sub>50</sub>) was 1.20 ng/mL in a competitive direct enzyme-linked immunosorbent assay(ELISA) and the detection limit was 0.12 ng/mL. This antibody is also very specific, cross-reacting only with ochratoxin B(31.7%) in a competitive direct ELISA. Based on the sandwich format using the produced monoclonal antibody against ochratoxin A, a rapid immunochromatographic assay was developed to efficiently detect ochratoxin A. This immunochromatographic method was able to detect up to 500 ng/mL of ochratoxin A in less than 10 min.

**KEYWORDS** : ochratoxin A; monoclonal antibody; Enzyme-linked Immunosorbent Assay (ELISA); colloidal gold; immunochromatographic assay