

Characterization of Monoclonal Antibodies Specific for Synthetic Cannabinoids

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Abstract : Synthetic cannabinoids have attracted much public attention recently in Japan. 1-pentyl-3-(1-naphthoyl)-indole (JWH-018), 1-pentyl-2-methyl-3-(1-naphthoyl) indole (JWH-015), 1-(5-fluoropentyl)-3-(1-(2,2,3,3-tetramethylcyclopropyl)) indole (XLR-11) and 1-methyl-3-(1-adamantyl) indole (JWH-018 adamantyl analog) are known as synthetic cannabinoids and are also considered dangerous illegal drugs in Japan. It has become necessary to develop sensitive and useful methods for detection of synthetic cannabinoids. We produced two monoclonal antibodies (MAb) against synthetic cannabinoids, named NT1 (IgG1) and NT2 (IgG1), using Hybridoma technology. The cross-reactivity of these produced MAbs was evaluated using a competitive enzyme-linked immunosorbent assay (ELISA). In the results, we found both of these antibodies recognize many kinds of synthetic cannabinoids analog. However, neither of these antibodies recognizes naphthoic acid, 1-methyl-indole and indole known as a raw material of synthetic cannabinoid. Thus, the MAbs produced in this study could be a useful tool for the detection of synthetic cannabinoids.

Keywords : ELISA, monoclonal antibody, sensor, synthetic cannabinoid

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