

Preparation and characterization of monoclonal antibody against melatonin

Soukhtanloo, M.^a, Ansari, M.^{ad}, Paknejad, M.^a, Parizadeh, M.R.^b, Rasaei, M.J.^c

^a Department of Clinical Biochemistry, School of Medicine, **Medical Sciences/University** of Tehran, Iran

^b Department of Biochemistry and Nutrition, Faculty of Medicine, **Mashhad University of Medical Sciences**, Mashhad, Iran

^c Department of **Medical** Biotechnology, School of **Medical Sciences**, Tarbiat Modarres **University**, Tehran, Iran

^d Department of Clinical Biochemistry, School of Medicine, **Medical Sciences/University** of Tehran, Tehran, Iran

[View references \(13\)](#)

Abstract

Anti-melatonin monoclonal antibodies (MAb) were prepared following coupling melatonin to bovine serum albumin (BSA) by Mannich reaction. Balb/c mice were immunized via injection of the melatonin-BSA intraperitoneally. The spleen cells producing high titer of antibody were fused with myeloma cells of SP2/0 origin. After two limiting dilutions, two stable clones (AS-H10 and AS-D16) exhibiting best properties were selected for further studies. The class and subclass of two MAbs were found to be IgG₁ and IgG_{2a} with λ and κ light chains, respectively. Antibodies secreted by these two clones showed high affinity of about 10^{-8} M⁻¹. Study of the specificity criteria showed that these clones had no cross reactivity with indolic, aromatic, and imidazole ring-containing compounds, and had high specificity towards melatonin. The calibration curve was constructed with a sensitivity range of 10 ng/mL to 10 μ g/mL. In conclusion, these MAbs may be useful for immunoassay of melatonin. © 2008 Mary Ann Liebert, Inc.

Indexed Keywords

EMTREE drug terms: antigen; bovine serum albumin; formaldehyde; immunoglobulin G₁; immunoglobulin G_{2a}; immunoglobulin kappa chain; immunoglobulin lambda chain; melatonin; monoclonal antibody

EMTREE medical terms: animal cell; animal experiment; antibody production; article; Bagg albino mouse; calibration; controlled study; immunoassay; molecular cloning; mouse; nonhuman; priority journal; protein analysis; protein structure; protein synthesis; sensitivity analysis; spleen cell

Species Index: Bovinae; Mus

Chemicals and CAS Registry Numbers: formaldehyde, 50-00-0; melatonin, 73-31-8

ISSN: 1004-0014 **CODEN:** HYBRD **Source Type:** Journal **Original language:** English

DOI: 10.1089/hyb.2008.002 **Document Type:** Article