GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Cloning, sequencing, and polymorphisms of the Wistar-Imamichi rat growth hormone gene using PCR-SSCP

M.Q. Liu[1], J.G. Wang[2]* and X.L. Li[2]*

[1]College of Life Science, Hohhot, Inner Mongolia, China
[2]Key Laboratory of National Education Ministry for Mammalian Reproductive Biology and Biotechnology, Inner Mongolia University, Hohhot, Inner Mongolia, China

*These authors contributed equally to this study.
Corresponding author: X.L. Li
E-mail: lixueling@hotmail.com

Genet. Mol. Res. 12 (4): 6203-6211 (2013)
Received November 8, 2012
Accepted May 10, 2013
Published December 4, 2013
DOI http://dx.doi.org/10.4238/2013.December.4.7

ABSTRACT. We successfully cloned the Wistar-Imamichi (WI) rat growth hormone gene (GenBank accession: GQ890681), which contained 5 exons and 4 introns. Using the polymerase chain reaction-single-strand conformation polymorphism (PCR-SSCP) technique, a novel missense substitution single nucleotide polymorphism was identified and tested for Hardy-Weinberg equilibrium with the χ^2 test. This gene fragment was investigated in 50 adult rats and 50 neonatal rats by PCR-SSCP. Results showed that only intron 4 had a polymorphic locus at the 97th nucleotide position from A (in the AA genotype) to C (in the BB genotype). Further statistical analysis showed that this locus was in Hardy-Weinberg equilibrium. These results suggested that this specific pathogen-free WI rat population, which was bred in the barrier system of the Research Center for Laboratory Animal Science of Inner Mongolia University, has high hereditary stability.

Key words: Wistar-Imamichi rat; Growth hormone gene; PCR-SSCP

