



***CD40* functional gene polymorphisms and mRNA expression in rheumatoid arthritis patients from western Mexico**

I.V. Román-Fernández¹, D.F. Ávila-Castillo¹, S. Cerpa-Cruz²,
S. Gutiérrez-Ureña², J. Hernández-Bello¹, J.R. Padilla-Gutiérrez¹,
Y. Valle¹, M.G. Ramírez-Dueñas³, A.L. Pereira-Suárez³ and J.F. Muñoz-Valle¹

¹Research Institute in Biomedical Sciences, CUCS,
University of Guadalajara, Guadalajara, Jalisco, Mexico

²Division of Rheumatology, Guadalajara Civil Hospital “Fray Antonio Alcalde”,
Guadalajara, Jalisco, Mexico

³Laboratory of Immunology, CUCS, University of Guadalajara,
Guadalajara, Jalisco, Mexico

Corresponding author: J.F. Muñoz-Valle
E-mail: biologiamolecular@hotmail.com

Genet. Mol. Res. 15 (4): gmr15048775

Received May 11, 2016

Accepted July 14, 2016

Published October 24, 2016

DOI <http://dx.doi.org/10.4238/gmr15048775>

Copyright © 2016 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution ShareAlike (CC BY-SA) 4.0 License.

ABSTRACT. The CD40 pathway is involved in the development and pathogenesis of autoimmune diseases, including rheumatoid arthritis (RA). Two single nucleotide polymorphisms (SNPs) in the *CD40* gene, rs1883832 and rs4810485, are associated with susceptibility to inflammatory and autoimmune diseases and are thought to alter CD40 expression at the mRNA and protein level. This study assessed for the first time the association of these SNPs with RA and *CD40* mRNA levels in a western Mexican population. A total of 278 RA patients and 318 control subjects were included. Genotyping was performed

by polymerase chain reaction (PCR)-restriction fragment length polymorphism, and *CD40* mRNA expression was determined by real-time quantitative PCR. No significant differences in genotype and allele frequencies were identified between the RA patients and controls. When stratified by genotype, these SNPs were not found to be associated with the presence of autoantibodies or the clinical activity of the disease. *CD40* mRNA levels were elevated 1.5-fold in RA patients compared to control subjects; however, no clear tendencies were observed following stratification by genotype. These results suggest that the *CD40* SNPs rs1883832 and rs4810485 are not RA susceptibility markers in the western Mexican population. Further studies are needed to clarify their roles in *CD40* mRNA expression.

Key words: CD40; SNP; Rheumatoid arthritis; Autoimmunity; qPCR