



Association of the IL-6 -174G/C gene polymorphism with knee osteoarthritis in a Thai population

S. Honsawek¹, B. Deepaisarnsakul², A. Tanavalee³, P. Yuktanandana³,
P. Bumrunghanichthaworn¹, S. Malila¹ and N. Saetan¹

¹Department of Biochemistry, Faculty of Medicine,
Chulalongkorn University, Bangkok, Thailand

²Department of Clinical Laboratory, Taksin Hospital, Bangkok, Thailand

³Department of Orthopaedics, Faculty of Medicine,
Chulalongkorn University, Bangkok, Thailand

Presented at the Combined SICOT/RCOST 2009 Annual Meeting, Pattaya,
Thailand, October 29 to November 1, 2009.

Corresponding author: S. Honsawek

E-mail: Sittisak.H@chula.ac.th

Genet. Mol. Res. 10 (3): 1674-1680 (2011)

Received January 11, 2011

Accepted July 27, 2011

Published August 8, 2011

DOI <http://dx.doi.org/10.4238/vol10-3gmr1161>

ABSTRACT. Osteoarthritis is a chronic progressive degenerative joint disease characterized by age-related regressive change in articular cartilage. A single nucleotide polymorphism has been described at position -174 of the interleukin-6 (IL-6) promoter region, leading to three possible genotypes, GG, GC, and CC. We investigated a possible association of the IL-6 -174G/C gene polymorphism with knee osteoarthritis in a Thai population. Genotype distributions and allelic frequencies of the IL-6 -174G/C polymorphism were investigated in 115 knee osteoarthritis patients and 100 healthy controls. Genotyping was performed using PCR-RFLP. The genotype distribution of IL-6 was 79 GG, 36 GC, 0 CC in knee osteoarthritis patients and 88 GG, 12 GC, 0 CC in controls. The frequency of the GC genotype in subjects with knee osteoarthritis was higher than in controls ($P < 0.001$). Logistic regression analysis showed

that the GC genotype was independently associated with increased risk of knee osteoarthritis (odds ratio = 3.3, 95% confidence interval = 1.6-6.9, P = 0.001). These findings suggest that the -174G/C polymorphism of the IL-6 gene promoter plays a role in the pathogenesis of knee osteoarthritis.

Key words: Interleukin-6; Case-control study; Thai population; Single nucleotide polymorphism; Knee osteoarthritis