

Impact of *HLA-C*03:04* allele frequency screening test in preventing dapson-induced SCARs in Thais

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Introduction

Dapsone is an anti-inflammatory and antibiotic drug that was widely used for the treatment of leprosy, acne fulminans, and dermatitis herpetiformis (DH). However, dapson is the main cause that triggers severe cutaneous adverse reactions (SCARs) with a possibility of 0.4 to 3.6% of patients after initiating treatment. In fact, the mortality rate of dapson-induced SCARs is approximately 9.9%. In previous studies, *HLA-B*13:01* was strongly associated with dapson-induced SCARs in Han Chinese, Thais, and Koreans. Nevertheless, the distribution of *HLA-B*13:01* marker in each population might differ. Moreover, there were found that the association between *HLA-C*03:04* and dapson hypersensitivity syndrome in Han Chinese leprosy patients by OR = 9.00 and p-value = 2.23×10^{-19} .

Objective

The aim of this study was to investigate the distribution of *HLA-C* 03:04* in Thailand's healthy population.

Method

A total of 350 participants, were *HLA-C* genotyping used sequence-specific oligonucleotides (PCR-SSOs). This study was approved by the Ethics Committee of Rangsit University

Result

The most frequency of *HLA -C* alleles in Thais, consist of *HLA -C* 01:02* (17.00 %), *-C*08:01* (11.00%) , *-C*07:02* (10.70%) , *-C* 03:04* (9.10%) , *-C* 03:02* (8.00%) , *-C* 07:01* (6.30%), *-C* 07:04* (4.60%), *-C* 04:01* (4.40%) ,*-C* 12:02* (4.30%) ,and *-C* 04:03* (3.90%).

Interestingly, *HLA -C* 03:04* allele was similar to the distribution among Thais and other populations such as Eastern Europe (6.09%), Vietnam (7.42%), East Croatia (2.25%), and Han Chinese (11.70%).

Conclusion

Consequently, *HLA-C*03:04* might serve as a pharmacogenetic marker for screening prior to initiation therapy with dapson for prevention of dapson-induced SCARs in Thai population.

Keywords: *HLA-C*03:04* , SCARs, Thai population, allele frequency,