



***HLA-B*1502* typing kit by one step PCR**

Amornrat Romphruk^{1,2*}, Chintana Puapairoj¹, Arunrat Romphruk^{2,3}, Chanvit Leelayuwat^{2,3}

¹ Blood Transfusion Center, Faculty of Medicine, Khon Kaen University, Thailand.

² Centre for Research and Development of Medical Diagnostic Laboratories, Faculty of Associated Medical Sciences, Khon Kaen University, Thailand.

³ Department of Clinical Immunology and Transfusion Sciences, Faculty of Associated Medical Sciences, Khon Kaen University, Khon Kaen, Thailand

Background and Objective: Human Leukocyte Antigens (HLA) is a group of antigens expressed on most nucleated cells. Their functions are involved in immune responses. There are several groups reported the associations between the HLA genes with the hypersensitivity to some drugs, such as carbamazepine (CBZ), particularly *HLA-B*1502* with the Stevens-Johnson syndrome (SJS) or cutaneous form of toxic epidermal necrosis (TEN). Therefore, screening for the presence of *HLA-B*1502* in patients before CBZ and phenytoin (PHT) treatment is an alternative to prevent such adverse events. To detect *HLA-B*1502* by commercial typing kit is very expensive and requires special equipments. In this study, a high resolution PCR-sequence specific primers (PCR-SSP) technique has been developed and evaluated to define *HLA-B*1502*.

Method: The *HLA-B*1502* typing kit was developed upon the principle of PCR- SSP and multiplex- PCR.

Twelve PCR reactions were amplified in one step PCR. The kit has been tested with 64 known standard DNA samples carrying *HLA-B*1502* by sequence based typing and 156 samples with known *HLA-B*15* by a low resolution PCR-SSP and another 100 blind samples.

Result: The sensitivity, specificity and accuracy of this kit is 100%. Furthermore, this kit can define *HLA-B*1502* with other *HLA-B*15* subtypes or *HLA-B*1502* with *HLA-B*46* or *HLA-B*1502* with other *HLA-B** alleles. The turnaround time for the typing is 2.5 hours after DNA extraction.

Conclusion: This study established a simple typing kit for *HLA-B*1502* detection with high efficiency and low cost. It can be used for screening in the patients with a risk of developing acute CBZ-induced SJS/TEN in general hospital laboratories.

Key words: *HLA-B*1502*, PCR-SSP, HLA and hypersensitivity

