

The Distribution of *HLA-B*48:01* and *HLA-B*55:01* in Healthy Thai Individuals

Sasa Chanuntranont¹, Atchara Srisodsai, Ph.D.², Patompong Satapornpong, Ph.D.³

1. University of California, Riverside, California, United States

2. MedCoach Institute, Bangkok, Thailand

3. The division of general pharmacy practice, department of pharmaceutical care, College of Pharmacy, Rangsit University, Thailand (Corresponding author)

Penicillin, an antibiotic included in the beta-lactam (BL) class, is commonly used to treat bacterial infections in adults and children. It has been reported that approximately 10-20% of children who have received antibiotics in the beta-lactam class have developed a hypersensitivity reaction. In previous studies, it has been proven that *HLA-B*48:01* has an association with BL hypersensitivity in Thai children (OR = 37.4, 95%CI: 1.69-824.59; p = 0.016), and *HLA-B*55:01* has an association with penicillin hypersensitivity (OR = 1.41, 95%CI: 1.33–1.49; p = 2.04 x10⁻³¹) in European ancestry. The aim of this study is to explore whether there is a distribution of *HLA-B*48:01* and *HLA-B*55:01* in healthy Thai individuals. 200 unrelated healthy Thai individuals were recruited in this study. *HLA-B* alleles using the Lifecodes HLA SSO typing kits (Immucor, West Avenue, Stamford, USA). We found that the *HLA-B* alleles that show the most frequency in healthy Thai individuals were *HLA-B*46:01* (14.25%), *HLA-B*40:01* (7%), *HLA-B*58:01* (7%), *HLA-B*15:02* (6.75%), *HLA-B*13:01* (6.25%), *HLA-B*44:03* (4.75%), *HLA-B*51:01* (4.25%), *HLA-B*52:01* (4.00%), *HLA-B*35:05* (3.00%), and *HLA-B*40:06* (2.75%). Furthermore, there was not much distribution between *HLA-B*48:01* (0.25%) and *HLA-B*55:01*(0.25%) in Thais. Interestingly, the distribution of *HLA-B*48:01* was more prominent in Asian individuals: 2.88% of Japan, 3.56% of South Korea, 1.16% of Hong Kong, 1.00% of China, and 8% of Philippines. Whereas, *HLA-B*55:01* has 3.60% in Europeans and less than 1% in Asians. Thus, the distribution of pharmacogenetics markers could be used for screening among different ethnicities before initiation of penicillin treatment to avoid hypersensitivity reactions.

Key words: *HLA-B*48:01*, *HLA-B*55:01*, penicillin hypersensitivity, Thai database

Biography

I am an undergraduate student studying Biology (B.S.) at the University of California, Riverside and have an interest in pharmacogenetics and precision medicine. I had the opportunity to research the distribution of pharmacogenetics marker in Thai individuals and I hope this research would be of use in my future studies.

