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Volume 11, Issue 2, 2018, Pages 607-613

A preliminary study on MYO1H single nucleotide polymorphism (rs10850110) in mandibular prognathism in Malay population (Article)

Yahya, S.N.^a, Razak, N.S.A.^a, Mokhtar, K.I.^b, Kharuddin, A.F.^c, Abu Bakar, N.^d [✉](#) [🔍](#)^aKulliyah of Dentistry, International Islamic University Malaysia, Malaysia^bUnit of Oral Biology, Kulliyah of Dentistry, International Islamic University, Malaysia^cKulliyah of Science, International Islamic University, Malaysia[View additional affiliations](#) [v](#)

Abstract

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Evidence suggests that several genes; including Myo1H, play an important role in the etiology of Class III malocclusion. Single nucleotide polymorphism (SNP) in marker rs10850110 (locus 12q24.11) within Myo1H gene has been associated with the incidence of mandibular prognathism (MP). MYO1H is a class 1 myosin which has been implicated in various motile processes including cytoskeleton reorganization. Therefore, genetic alteration in genes responsible for muscle function will also affect the skeletal growth. This study aimed to detect the presence of Myo1H (rs10850110) SNP and to determine its genotype and allele distribution in MP patient in the local population. The sample comprises of 31 patients; 14 patients from class I malocclusion (control samples) and 17 patients from class III malocclusion (MP). Cephalometric measurements were performed prior to saliva samples collection. The DNA was amplified using the specific primers for the marker rs10850110 and the genotyping was done by sequencing. Chi-square test was used to determine the over-representation of marker allele ($p < 0.05$). Presence of Myo1H SNP (rs10850110) was detected in local population analysed and the distribution of its genotype and allele could be observed. There were significant differences between allele ($p=0.000$) and genotype ($p=0.000$) frequency within and between control (Class I) and Class III malocclusion. Our findings are in agreement with previous studies suggesting positive influence of Myo1H (rs10850110) SNP in the incidence of MP. Further studies should be developed in order to understand the exact role and mechanism of Myo1H in different classes of malocclusions. © 2018 University of Dicle.

SciVal Topic Prominence [i](#)

Topic: Malocclusion | Genes | III malocclusion

Prominence percentile: 75.894 [i](#)

Author keywords

Malocclusion

Mandibular prognathism

Myo1H SNP

ISSN: 1309100X

Source Type: Journal

Original language: English

Document Type: Article

Publisher: University of Dicle

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🔍 Abu Bakar, N.; Orthodontics and Dental Public Health Department Kulliyyah of Dentistry, International Islamic University Malaysia Kuantan Campus, Kuantan, Pahang, Malaysia; email:nor_aini@iiium.edu.my

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