

**TITLE:** Genes Associated with Mandibular Prognathism in the Chinese Population

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## **ABSTRACT BODY**

### **INTRODUCTION**

Mandibular prognathism (MP) is the relationship of the mandible anteriorly positioned in relation to the cranial base. The prevalence of MP in Asians is estimated to be 15%, whereas American and European descent exhibit a 5% prevalence. Orthodontic treatment is lengthy and challenging, and severe cases require surgical intervention. However, when a treatment is planned well, the outcomes are predominantly successful. It has been known that genetics are involved in the etiology of prognathism and that greater genetic contribution corresponds to greater challenges to treatment. Thus, there is a desire to determine genes involved in the etiology of prognathism.

### **METHODS**

An electronic search was done using search engines PubMed, Scopus, Google Scholar and keywords: mandibular prognathism, Class III, genes, genetics, Chinese, Asian. The search covered the 2000-2018 time period.

### **RESULTS**

Seven studies fit the inclusion criteria, 4 being linkage studies and 3 being association studies. The genes that were determined to be associated with MD included *TGFB3*, *FGF23*, *EPB41*, *COL2A1*, *ADAMTS*, *FGF20*, and *EVC*.

### **CONCLUSIONS**

Seven different genes were identified. As autosomal dominant (AD) inheritance is the most commonly known inheritance pattern in MP. Genes may either express an AD pattern or may interact with other genes as well as with non-genetic/environmental factors to contribute to the MP phenotype. Moreover, the disparate genes may correspond to subpopulations of the Chinese. Thus, it is important to determine genes which contribute to MP in order that earlier intervention may be made, and perhaps in the near future, the specific gene could be silenced.

### **KEYWORDS**

Mandibular prognathism, Class III, genes, genetics, Chinese, Asian.