

FTO Gene Polymorphisms Influence Neuroblastoma Susceptibility in Chinese Children

Peiqi Liu¹, Yue Li¹, Yong Li², Li Li³, Jiwen Cheng⁴, Suhong Li⁵, Jiao Zhang⁶, Haixia Zhou⁷, Jing He⁸, Yunlong Huo¹, and Zhonghua Yang¹

¹Shengjing Hospital of China Medical University

²Hunan Children's Hospital

³Kunming Children's Hospital

⁴Xi'an Jiaotong University Second Affiliated Hospital

⁵Children's Hospital of Shanxi

⁶The First Affiliated Hospital of Zhengzhou University

⁷The Second Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University

⁸Guangdong Provincial Key Laboratory of Research in Structural Birth Defect Disease

April 12, 2023

Abstract

Background Neuroblastoma (NB) is a malignancy of neural crest cells that typically occurs in children. Single nucleotide polymorphisms (SNPs) in the fat mass and obesity associated (*FTO*) gene, a well-conserved gene, are related to tumorigenesis. However, there is a lack of evidence regarding the relationship between *FTO* gene SNPs and NB susceptibility. **Methods** TaqMan assay was performed to determine associations between *FTO* gene SNPs and the risk of NB in 898 patients and 1734 controls from eight medical centers in China. And stratification analysis was performed to assess the association between the selected *FTO* SNPs and NB susceptibility among different subgroups. **Results** There was no significant association between the selected *FTO* polymorphisms and risk of NB in both single locus analysis and combined analysis. **Conclusion** Our study shows that individuals with retroperitoneal NB and those with III+IV NB are more likely to present with *FTO* SNPs than other patients. Furthermore, participants with *FTO* rs8047395 GG genotype were more likely to develop III+IV stage NB than other participants.

Hosted file

manuscript.doc available at <https://authorea.com/users/605615/articles/635040-fto-gene-polymorphisms-influence-neuroblastoma-susceptibility-in-chinese-children>

Hosted file

Table 1.docx available at <https://authorea.com/users/605615/articles/635040-fto-gene-polymorphisms-influence-neuroblastoma-susceptibility-in-chinese-children>

Hosted file

Table 2.docx available at <https://authorea.com/users/605615/articles/635040-fto-gene-polymorphisms-influence-neuroblastoma-susceptibility-in-chinese-children>

Hosted file

Table S1_2.docx available at <https://authorea.com/users/605615/articles/635040-fto-gene-polymorphisms-influence-neuroblastoma-susceptibility-in-chinese-children>