HUWE1 related ID

https://pubmed.ncbi.nlm.nih.gov/32381089/

Background:

Xp11.22 duplications have been reported to contribute to nonsyndromic intellectual disability (ID). The HUWE1 gene has been identified in all male Xp11.22 duplication patients and is associated with nonsyndromic ID. Currently, few Xp11.22 duplication cases have been reported in the Chinese population, with limited knowledge regarding the role of other genes in this interval.

Case presentation:

We investigated four unrelated Chinese male Xp11.22 duplication patients, performed a comprehensive clinical evaluation for the patients and discussed the role of other genes in this interval. All patients presented with similar clinical features, including ID, speech impairments and motor delay, which were mostly consistent with those of the Xp11.22 duplication described previously. We searched and compared all cases and noted that one of the probands (Family 1) and DECIPHER case 263,219, who carried small overlapping duplications at Xp11.22 that only covered

the entire HSD17B10 gene, also suffered from ID, suggesting the important role of HSD17B10 in this interval. Furthermore, three patients (two probands in Families 3 and 4 and DECIPHER case 249,490) had strikingly similar hypogonadism phenotypes, including micropenis, small testes and cryptorchidism, which have not been previously described in Xp11.22 duplication patients. Interestingly, the FGD1 gene was duplicated only in these three patients. Sufficient evidence has suggested that haploinsufficiency of the FGD1 gene causes Aarskog-Scott syndrome, which is characterized by hypogonadism and other abnormalities. Given that, we are the first group to propose that FGD1 may be a potential dosage-sensitive gene responsible for the hypogonadism observed in our patients.

Conclusion:

We reported novel genotypes and phenotypes in Chinese male Xp11.22 duplication patients, and the HSD17B10 and FGD1 genes may be involved.