

A CNV ASSOCIATED WITH A HIGHER COGNITIVE ABILITY

Copy-number variants (CNVs) are major contributors to neurodevelopmental disorders and are often associated with reduced cognitive performance. The authors of a paper published in Cell Genomics (1) present a novel approach to functionally aggregate rare and ultra-rare CNVs, enabling a deeper understanding of gene-dosage-sensitive processes. They identified 864 gene sets sensitive to deletions or duplications across brain and non-brain tissues.

Remarkably, the study reveals the first CNV associated with higher cognitive ability: a duplication at 2q12.3, encompassing EDAR, SH3RF3, SEPT10, and SOWAHC. This CNV has a moderate effect size, equivalent to a 6.5-point increase in IQ, without significant heterogeneity across cohorts.

This finding brings to mind the BOLA2 gene, which is duplicated between 4 and 8 times exclusively in Homo sapiens, not in any other primate, not in Neanderthals (2).

1. [https://www.cell.com/cell-genomics/fulltext/S2666-979X\(24\)00350-1?returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2666979X24003501%3Fshowall%3Dtrue](https://www.cell.com/cell-genomics/fulltext/S2666-979X(24)00350-1?returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2666979X24003501%3Fshowall%3Dtrue)
2. <https://www.nature.com/articles/nature19075>