

Disruptive natural selection by male reproductive potential prevents underexpression of the genes encoding proteins on the human Y chromosome as a self-domestication syndrome

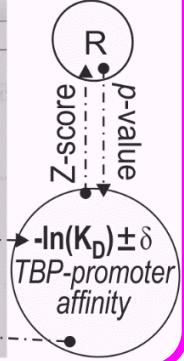
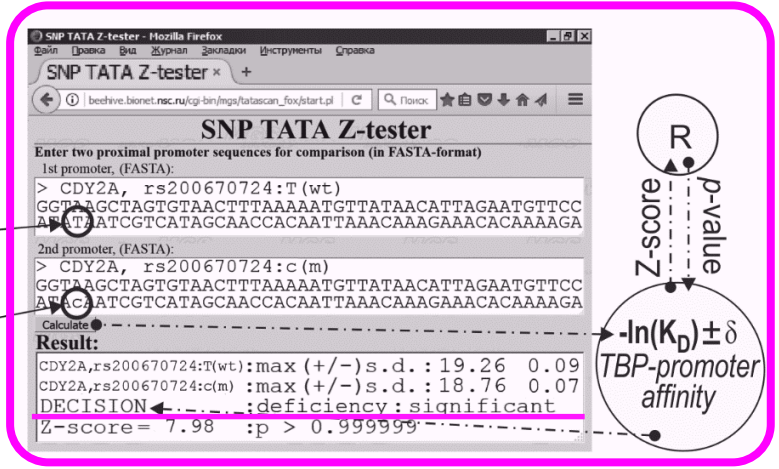
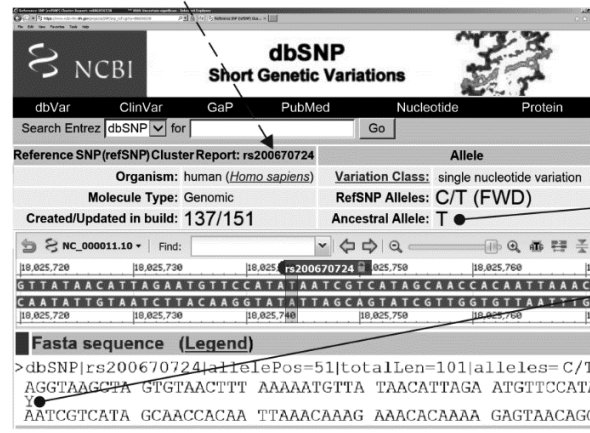
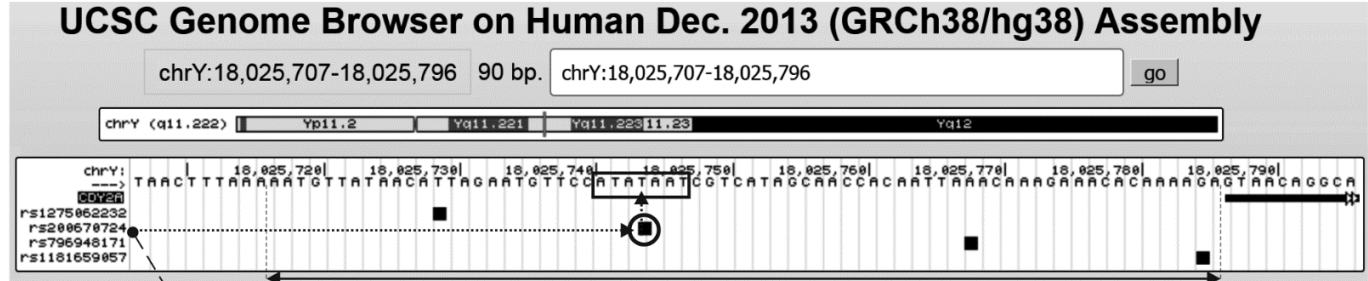
Ponomarenko M, Chadaeva I, Oshchepkov D, Rasskazov D, Osadchuk A, Osadchuk L
 Institute of Cytology and Genetics, SB RAS, Novosibirsk, Russia

We studied all SNPs located up to 70 bp in front of transcription start sites (TSS) of the all protein-coding genes on the human **chromosome Y**, because only their manifestations are not gender-specific

Gene **CDY2A**
 (unique male-specific)



Deficiency → male maturation arrests



non-annotated SNP **rs200670724** can cause **CDY2A** deficiency, which is a clinically known physiological marker of **male maturation arrests** that can **reduce the male reproductive potential** (Stahl et al., 2012)

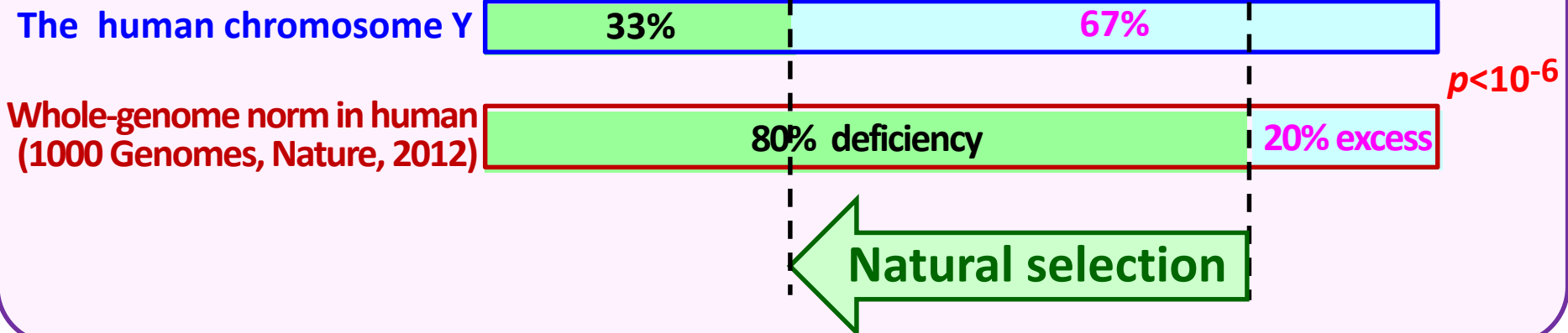
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We tested **all 1206 SNPs** in question within promoters of **all 63 protein-coding genes** on the human chromosome Y that yielded **261 SNPs altering significantly expression** of these genes.

The relative proportions of candidate SNP markers decrease and increase the affinity of the TBP--DNA

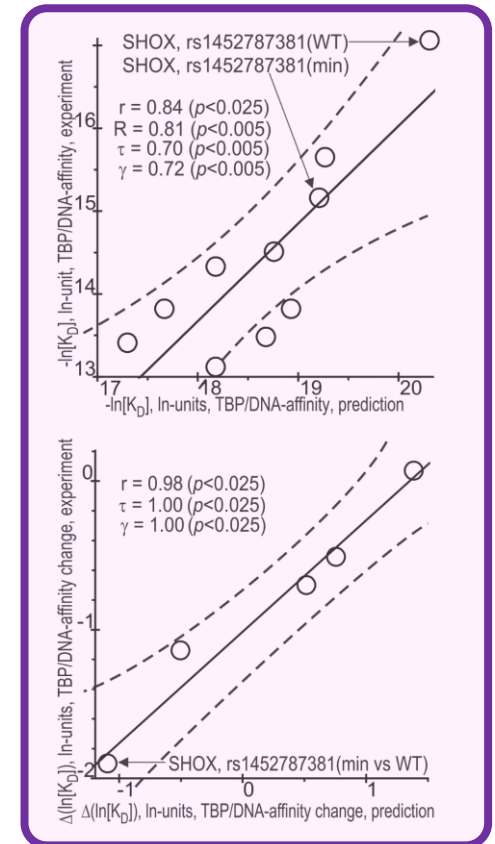
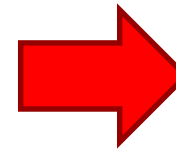
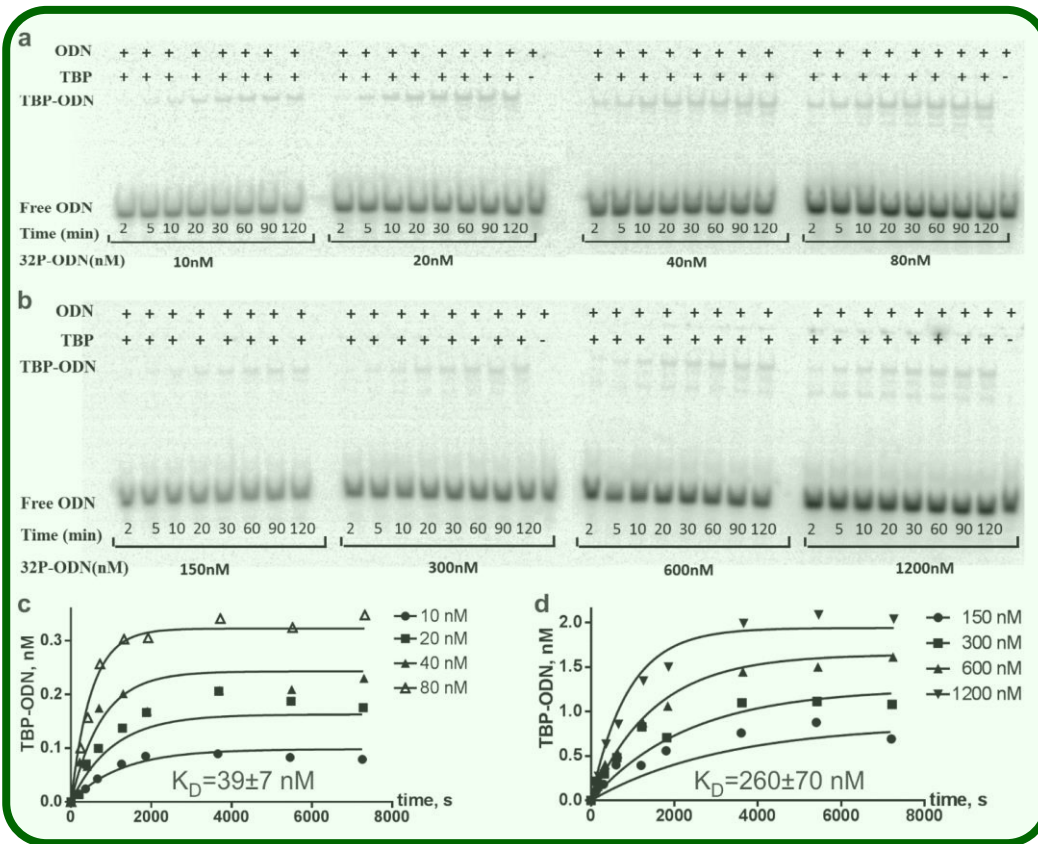


Natural selection prevents the deficiency of proteins encoded by the human Y chromosome

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Using the EMSA method, we have selectively confirmed our predictions of SNP_TATA_Z-tester for genes on the human chromosome Y.

We thank the Russian Science Foundation Project #19-15-00075 for its support of this study.