

Impact of P2RX7 and TNF/LTA genes polymorphisms in non-verbal intelligence in mentally healthy individuals.

Enikeeva R.^{1, 2*}, Kazantseva A.^{1, 2, 3}, Davydova Yu.^{1, 2}, Mustafin R.⁴, Malykh S.^{5, 6}

Lobaskova M.⁵, Takhirova Z.², Abushakhmina A.², Khusnutdinova E.^{1, 2, 6}

¹ Institute of Biochemistry and Genetics – Subdivision of the Ufa Federal Research Centre of the Russian Academy of Sciences, Ufa, Russia

² Bashkir State University, Ufa, Russia

³ Ufa State Petroleum Technological University, Ufa, Russia

⁴ Bashkir State Medical University, Ufa, Russia

⁵ Psychological Institute of Russian Academy of Education, Moscow, Russia

⁶ Lomonosov Moscow State University, Moscow, Russia

* enikeevarf@gmail.com



Non-verbal intelligence

- Nonverbal intelligence as one of cognitive abilities implies an individual's ability to use problem-solving strategies and manipulate visual information without using verbal skills.

The heritability of intelligence in infancy is estimated at about 20% (40% in middle childhood and 80% in adulthood)



Inflammatory mediators belong to one of the promising and poorly studied biological systems in relation to non-verbal intelligence

Research objective:

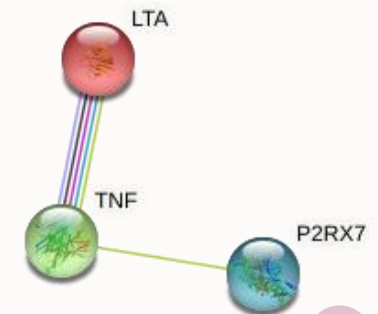
The purpose of this work was to study the SNPs of genes involved in regulation of inflammatory mediators and their role in the formation of individual differences in the level of nonverbal intelligence in mentally healthy individuals.

Materials and methods

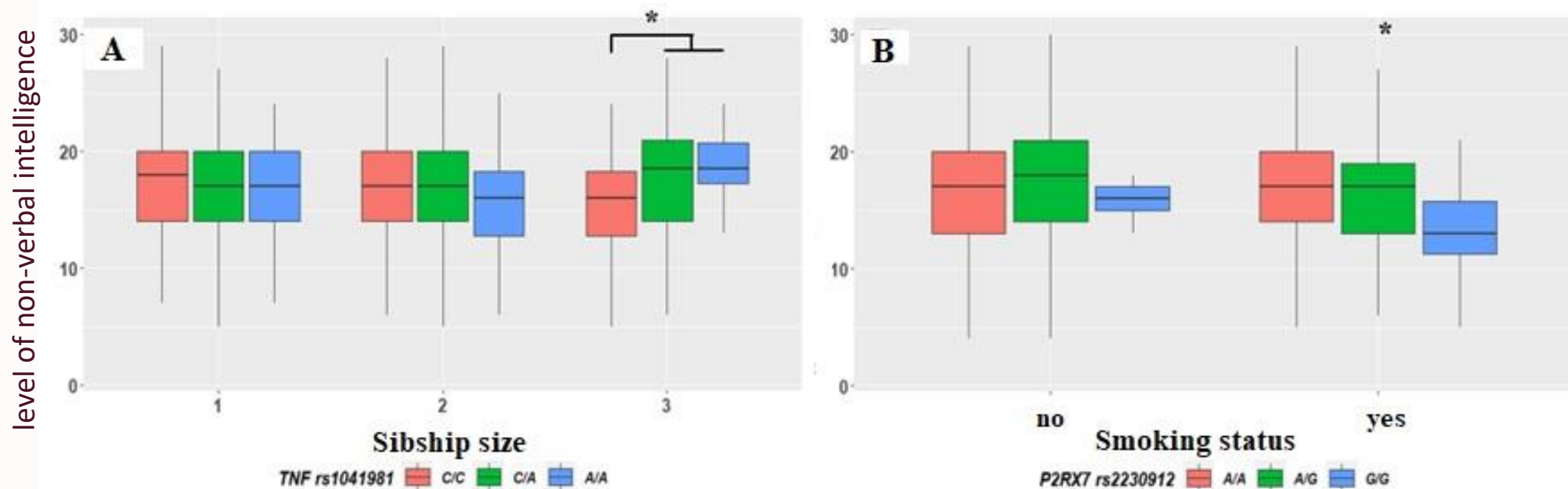
The study involved 1011 mentally healthy individuals from Republic of Bashkortostan (80% women) (mean age $19,79 \pm 1,69$ years)

SNPs genotyping was performed using PCR-based KASP genotyping technology on “CFX96” DNA Analyzer. Statistical testing of logistic regression models was performed with PLINK v.1.09.

Gene	Polymorphic locus	Localization in the gene
<i>LTA</i>	rs1041981	3 exon
<i>TNF</i>	rs1800629	5'-UTR
<i>P2X7R</i>	rs2230912	13 exon



Analysis of gene associations of inflammatory mediators in non-verbal intelligence



As a result of G×E interactions we observed that sibship size significantly affected the association of the *rs1041981* in the *TNF/LTA* gene and a dose-dependent effect of *P2RX7 rs2230912* minor G - allele on a decreased level of nonverbal intelligence among smoking individuals.

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Thank you for your attention!