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Arg72pro POLYMORPHISM OF Tp53 GENE IS RELATED TO CARDIOVASCULAR RISK FACTORS AMONG CROATIAN SENESCENT MEN

Petra Krajacic[a], **Tatjana Skaric-Juric**[a], **Zeljka Tomas**[a], **Matea Zajc Petranovic**[a] and **Nina Smolej Narancic**[a]
[a]Institute for Anthropological Research, Croatia

The p53 tumor suppressor protein, often termed the genome's guardian, has a critical role in cell cycle, apoptosis, cell senescence, DNA repair and metabolism. Animal and human studies have identified TP53 gene as one of the most important candidate genes involved in longevity. Here, we investigated the associations of Arg72Pro polymorphism of TP53 gene with indicators of biological age in 324 people aged 85+ yrs. Univariate and multivariate analyses of wide spectrum of variables associated with health status included noninvasive biometric measurements, biochemical blood tests and self-rated health. In univariate analyses Arg/Arg was related with higher body mass (skinfold thickness, upper arm and waist circumferences) and with higher fasting blood glucose. T-test, ANOVA/PostHoc test results showed a significant positive association of Arg/Arg genotype with anthropometric nutritional status variables as well as with fasting glucose level (cardiovascular risk factors) in elderly men but not in women. Sex-specific principal component analysis encompassing 40 variables extracted four significant factors, among which the first factor represented body mass and composition while the second one represented general health. Although the two factors had almost identical structure in both sexes, the t-test ($p = 0.031$), ANOVA ($p = 0.046$) and PostHoc test ($p=0.018$) revealed significant association of Arg72Pro polymorphism only with the factor of general health in men, indicating that Arg/Arg was the risk and Arg/Pro was the protective genotype. Namely, Arg/Pro heterozygote carriers had better scores in personal independence, motility and self-rated health, suffered less from chronic and acute illness and used fewer medications. We suggest that further research should also be directed towards the investigation of gender specific influence of TP53 gene on different health-related traits. In conclusion, our results indicate the role of Arg72Pro polymorphism in health-related traits in men of very old age, but its role in longevity remains to be elucidated.

Biography

Petra Krajacic is Ph.D. student at Faculty of science (Department of Biology, Zagreb University, Croatia). In her dissertation she conducted an association study of four most important polymorphisms of longevity genes (p53, IL-6, TNF, SIRT1) and diverse phenotypic traits, like motility, independence, life satisfaction and the presence of age- related disease, of 325 very old age people (85+). This research is a part of a Complex traits variation and health in children, adults and centenarians project founded by the Ministry of Science, Education and Sports.

petraxkrajacic@gmail.com

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