Association of TGFβ1 cod 10 (C>T) gene polymorphism with longevity in a North-Italian sample

BOOK OF ABSTRACTS

PADUA, 1-4 SEPTEMBER 2019

DIPARTIMENTO DI BIOLOGIA
UNIVERSITÀ DEGLI STUDI DI PADOVA

SIBE
SOCIETÀ ITALIANA DI BIOLOGIA EVOLUZIONISTICA

UNIVERSITÀ DEGLI STUDI DI PADOVA

Association of TGFβ1 cod 10 (C>T) gene polymorphism with longevity in a North-Italian sample

Stefano Ruberto, Alfredo Santovito

Department of Life Sciences and Systems Biology, University of Turin

Human longevity is considered as a complex trait determined by both genetic and environmental factors. The genetic influence seems to increase with the higher ages, since centenarians have significantly better health compared to old but not centenarian subjects. Cytokines are crucial for the regulation of inflammation development in humans and some studies have shown that variations in cytokine genes might play a role in determining human longevity. For these reasons we decided to examine the possible association of six cytokine gene polymorphisms with longevity in an Italian cohort. A total of 1,019 healthy volunteers aged 10-100 and belonging to the North-Italian population were recruited. We genotyped subjects for TNF-α -308 (G>A), IL10 -1082 (G>A), IL10 -819 (C>T), TGFβ1 cod 10 (C>T), TGFβ1 cod 25 (G>C), IL6 (G>C) gene polymorphisms. In order to evaluate a possible age-associated selection, the sample was split in five age groups: 1-24, 25-49, 50-69, 7085 and 86-100. No significant differences in cytokine allele frequencies were found between age groups, with exception of TGFβ1 cod 10 (C>T) gene polymorphism, for which we observed a significant decrease of the T-allele in the oldest group compared to the younger ones. TGF-β is a potent regulatory cytokine that plays an essential role in inflammation and in maintenance of immune response homeostasis. The mutations that alter the blood level of this cytokine, such as (C>T) mutation, could result in lowest levels of the functional cytokine, with consequent increase in the duration of the inflammation process and, consequently, in the cancer risk. In conclusion in this study we provided evidences for a role of TGFβ1 cod 10 (C>T) gene polymorphism in longevity, in a sample of Italian subjects.