

## Interleukin-6 plasma level increases with age in an Italian elderly population (“The Treviso Longeva”–Trelong–study) with a sex-specific contribution of rs1800795 polymorphism

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**Abstract** The transcription rate of interleukin-6 (IL-6) can be reduced by the C-allele of a polymorphism (rs1800795) located in the 5'-flanking region of the IL-6 gene (NM\_000600), and IL-6 plasma levels increase with age. We assembled an elderly Italian population [“The Treviso Longeva (Trelong) study”, age range 70–106 years,  $n = 668$  subjects] and assessed rs1800795 genotype and plasma IL-6 concentrations. The rs1800795 genotype was also assessed in an independent Italian study (“Milan” study, age range 70–96,  $n = 245$  subjects). To verify an age- or sex-specific effect of rs1800795 genotype we compared people younger (70–85) and older (85+) than 85 years of age. We found a significant reduction in the frequency of rs1800795 C/C genotype in 85+ men from the Trelong

study, while in the Milan study this data did not reach significance. However, considering the two studies together, the frequency of the rs1800795 C/C genotype was significantly lower in 85+ than in 70–85 males (4.0% and 10.7%, respectively), while it remained unchanged in females. As for IL-6 plasma levels, after a multivariate analysis to control for confounders, a correlation between age and plasma IL-6 concentrations was revealed ( $P < 0.0001$ ). An increase in circulating IL-6 levels in the entire 85+ group compared to the 70–85 group ( $P < 0.05$ , Tukey’s test) was also noticed. We suggest a sex-specific pattern for genetic variability linked to inflammatory response and longevity, consistent with the age-related increase in IL-6.

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