

Longevity genes and senescence genes

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Abstract

Many life-control genes are functionally preserved from lower organisms to mammals. The aging-related gene accepted for the first time in the world is an insulin-signal-related gene, the telomere, discovered to come from the nematode. Telomeres are known also to relate to aging or aging-associated diseases. If the aging process is to be prevented, it is important to maintain the length and loop structure of telomeres. From studies of these aging-related genes, our interest will lead to prolonging human life. Caloric restriction is mentioned as one of the established methods of prolonging the life of an organism. Caloric restriction prolonged the lives of such organisms as a protozoan, a water flea, and fish. According to the study by *Macaca mulatta* (a species of the genus *macaca*), caloric restriction decreased mortality and aging-associated diseases. Furthermore, it was proved that resveratrol contained in red wine activates SIRT1, which is relevant to life extension by caloric restriction.

Key words : aging-related gene, life control, insulin signal, telomere, caloric restriction