Editorial   **Open Access**

Long Noncoding RNAs in Aging

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Editor Note

Aging increases the risk of disease and death. LncRNAs play important roles in age-related diseases, such as cardiovascular disease, neurodegenerative disorders and cancer. Recently, increasing evidences suggest that many long noncoding RNAs (lncRNAs) function through specific interactions with other cellular factors, namely proteins, DNA, and other RNA molecules. lncRNAs have been discovered and studied for many years, however their impact on protein expression programs has only been taken seriously in recent years [1].

Many long noncoding RNAs are reported to execute their cellular functions by associating with chromatin modifying factors. Gonzalez et al discovered that lncRNAs could alternatively splice by modulating chromatin signatures [2]. Some of the examples of lncRNAs are described here.

The H19 long noncoding RNA has been implicated in human genetic disorders and cancer by regulating the expression of different genes. Zou et al reported that H19 plays an important role in controlling the intestinal epithelial barrier function by serving as a precursor for microRNA 675 (miR-675) [3]. Holdt et al. found that ANRIL with atherosclerosis and Chr9p21 genotype are associated, however whether ANRIL expression is a marker or modulator of atherosclerosis at Chr9p21 genotype still need to be demonstrated [4]. Abdelmohsen et al. demonstrated that 7SL and HuR could affect gene expression by influencing p53, showing ncRNA 7SL is increased in cancer cells. They found that 7SL may be an effective target in the treatment of cancers with reduced p53 levels [5]. Yoon et al. found that HOTAIR is highly upregulated in senescent cells, causing rapid decay of targets to prevent premature senescence [6].

With advancing age, the body's ability declines to store energy, mobilize energy stores, sense changes in energy availability and utilization. The age-associated increases in adiposity, reduced pancreatic function, and loss of muscle mass lead to major pathologic conditions seen in the elderly [7]. LncRNAs are implicated in the aging process, age-related diseases and provide a suitable and effective way to design treatments in future.

References

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