

Telomerase reverse transcriptase (abbreviated to **TERT**, or hTERT in humans) is a catalytic subunit of the **enzyme telomerase**, which, together with the telomerase RNA component (**TERC**), comprises the most important unit of the telomerase complex.

Telomerase RNA component (TERC), also known as human telomerase RNA (hTR), is a **non-coding RNA** molecule that serves as an integral part of the telomerase complex. Telomerase is an enzyme that is responsible for maintaining the length of telomeres, which are the protective caps at the ends of chromosomes.

TERC is a long non-coding RNA molecule that acts as a template for the synthesis of telomeric DNA by the telomerase enzyme. It contains a template region that binds to the telomerase reverse transcriptase (TERT) protein, which adds nucleotides to the end of telomeres.

Mutations in the TERC gene have been associated with various genetic disorders, including dyskeratosis congenita, a rare inherited bone marrow failure syndrome, and aplastic anemia, a condition characterized by a decrease in the number of blood cells produced by the bone marrow.

Research on telomerase and TERC is also of great interest in the field of aging, as telomere shortening has been linked to age-related diseases and the aging process itself. Therefore, understanding the role of TERC in telomere maintenance may provide insights into potential therapeutic targets for age-related diseases.

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