

# Chinese herbal treatment shows signs of effectiveness in bone marrow recovery

15 December 2016, by Reggie Kumar

UCLA researchers have found that a Chinese herbal regimen called TSY-1 (Tianshengyuan-1) increased telomerase activity in normal blood cells but decreased it in cancer cells. Telomerase is an enzyme responsible for the production of telomeres, which play an important role in the regulation of normal cell division. These results indicate that telomerase-based treatments may play an important role in treating both blood cell deficiency and cancer.

More than 80 percent of cancers have increased [telomerase activity](#), and other medical conditions are also associated with decreased or abnormal telomerase function. The ability to increase or decrease telomerase activity has important implications for treating cancers in which insufficient numbers of [blood cells](#) are produced. When a person's bone marrow is unable to keep up with the need for healthy blood cells, [bone marrow failure](#) is triggered. Bone marrow failure affects about seven in 100,000 people annually.

TSY-1 has been used in China for many years to treat aplastic anemia, a condition in which the body stops producing enough new blood cells and myelodysplastic syndrome or preleukemia; both are associated with telomerase abnormality.

The five-year study, led by UCLA Jonsson Comprehensive Cancer Center member Dr. Jianyu Rao, measured the ability of TSY-1 to affect telomerase activity in [cancer cells](#) lines, including one known as HL-60, as well as normal peripheral blood mononuclear and [hematopoietic stem cells](#). Rao's team used various approaches, including assays of telomerase activity, measurement of cell growth, and gene expression profiling of TSY-1 treated cells, to determine how it acts. The results showed that the target of TSY-1 activity is the TERT gene. TERT is the major regulatory component of telomerase activity.

The findings provide the foundation and support for

further clinical studies to demonstrate the clinical benefit of this treatment for cancer and blood cell deficiencies.

The study is published online today in the journal *OncoTarget*.

Provided by University of California, Los Angeles

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