

## The Telomere Test

### *A Window to Your Cellular Age*

Telomeres are sections of genetic material at the end of each chromosome whose primary function is to prevent chromosomal “fraying” when a cell replicates. As a cell ages, its telomeres become shorter. Eventually, the telomeres become too short to allow cell replication, the cell stops dividing and will ultimately die - a normal biological process. **The Telomere Test** can determine the length of a patient’s telomeres in relation to the patient’s age.

#### **The Telomere Test analyzes:**

- Lysis of Cells
- DNA Extraction
- Amplification

**What do the results mean?** Age adjusted telomere length is the best method to date to assess biological age using structural analysis of chromosomal change in the telomere. Telomere length is an indicator of how rapidly one ages relative to a normal population. Therapies directed at slowing the loss of telomere length may slow aging and age-related diseases.

**When should retesting be considered?** Testing should be done once per year to evaluate the rate of aging and make adjustments in nutrition, nutritional supplements, weight management, exercise and other lifestyle modifications known to influence telomere length.

**What role will nutritional supplements play in slowing telomere shortening?** Oxidative stress will shorten telomere length and cause aging in cellular tissue. Antioxidant supplements can potentially reduce oxidative stress very effectively, which will ultimately improve oxidative defenses, mitochondrial function, reduce inflammation and slow vascular aging. Targeted supplementation is key, as antioxidants work synergistically and must be balanced to work most effectively and avoid inducing a pro-oxidant effect. Increasing antioxidant capacity at the cellular level is critical to maintaining telomere length.

**Recent evidence suggests that a high quality and balanced multivitamin will also help maintain telomere length.** Specifically, studies have linked longer telomeres with levels of vitamin E, vitamin C, vitamin D, omega-3 fatty acids and the antioxidant resveratrol. In addition, homocysteine levels have been inversely associated with telomere length, suggesting that reducing homocysteine levels via folate and vitamin B supplementation may decrease the rate of telomere loss. Similarly, conditions such as cardiovascular disease, insulin resistance, diabetes, hypertension, atherosclerosis and even dementia affect telomere length. Correcting subclinical nutritional deficiencies that may contribute to such diseases is crucial for telomere maintenance.