Research Article ISSN 2639-8494

Clinical Immunology & Research

Age Reversal by Telomere Elongation Without Cancer Risk

Pichaet Wiriyachitra[1*], Preeya Leelahagul[1], Sirithip Wiriyachitra[1], Ampai Panthong[2] and Sakda Sreesangkom[1]

[1]*Asian Phytoceuticals Public Company Limited, Thailand.*

[2]*Chiang Mai University, Thailand.*

[*]Correspondence:
Wiriyachitra P, Asian Phytoceuticals Public Company Limited, Thailand, Tel: +662 646 4882.

Received: 20 Sep 2024; **Accepted:** 14 Nov 2024; **Published:** 25 Nov 2024

Citation: Pichaet Wiriyachitra, Preeya Leelahagul, Sirithip Wiriyachitra, et al. Age Reversal by Telomere Elongation Without Cancer Risk. Clin Immunol Res. 2024; 8(2): 1-4.

ABSTRACT

This study investigated the effects of Mylife/Mylife100®, a Thai FDA-approved dietary supplement formulated from extracts of five plants, namely pennywort leaves, black sesame seeds, soybeans, guava fruit, and mangosteen aril, on telomere length and immune cell function, focusing on its potential anti-aging and health-promoting properties, having previously shown markedly improved quality of life in cancer patients through enhanced immunity. Ten healthy adults participated in an 8-week trial, consuming 4 capsules daily of Mylife/Mylife100® for weeks 1-4, followed by 6 capsules daily for weeks 5-8. Results showed significant increases in absolute telomere length from baseline to week 8 with 8 out of 10 subjects experiencing telomere elongation equivalent to 1.6 - 23.0 years of age reversal. Mean CD4 counts increased by 5.8% and mean CD8 counts by 8.2% ($p < 0.05$) by week 8. All safety parameters remained within normal ranges, and participants reported improvements in sleep, energy, and general well-being. The concurrent enhancement of telomere length and immune function indicates that Mylife/Mylife100® is a safe and effective dietary supplement for enhancing telomere health and immune function, contributing to improved quality of life and anti/reverse aging effects without the cancer risk associated with telomere elongation.

Keywords

Age reversal, Anti-aging, Black sesame seed, Cancer, CD4, CD8, Extract, Food supplement, Guava, Killer T cell, Mangosteen, Mylife/Mylife100®, Pennywort leave, Soybean, T-cell, Telomere.

Background

Mylife/Mylife100®, a supplement approved by the Thai FDA, contains extract powders from pennywort leaves, black sesame seeds, soybeans, guava fruit, and mangosteen aril. It has been used for over a decade by cancer patients for health purposes, yielding satisfactory results. Not only have patients seen improvements in their cancer conditions due to enhanced immunity from increased CD4 and CD8 levels, but their overall health has also significantly improved during use and they have remained healthy even after discontinuation [1]. This has led us to hypothesize that Mylife/Mylife100® may delay telomere attrition and promote telomere lengthening, which results in improved health and quality of life for cancer patients.

Materials and Methods

Preparation of Mylife/Mylife100® from Five Edible Plants

The dietary supplement Mylife/Mylife100® is formulated from five edible plants. Mangosteen aril juice powder is prepared by grinding, centrifuging, filtering, and spray-drying the juice. Pennywort leaf powder is obtained by heating and centrifuging an extract from the dried leaves. Guava juice powder is produced by grinding, filtering, and spray-drying the juice, while black sesame and isolated soybean protein powders are processed similarly with grinding, centrifuging, and drying steps. Each capsule contains specific doses of these powders, and the product is registered with the Thai FDA [2].

Subjects

The study included 10 participants (2 males and 8 females) with an average age of 54 ± 7 years. All participants were generally healthy, non-drinkers, non-smokers, and had no chronic illnesses requiring regular medication. None had received a COVID-19

vaccination, as it was unavailable at the time. Their diet, exercise, and daily routines remained consistent throughout the 8-week data collection period.

Study Design

The study spanned 8 weeks, with each participant attending three scheduled visits: at week 0 (first visit), week 4 (second visit), and week 8 (third visit). Body composition data and blood samples were collected at each visit. Participants were instructed to maintain their usual lifestyle, including daily dietary intake and exercise habits, throughout the entire 8-week period.

Blood Sample Collection

Blood samples were collected by venipuncture after a 12-hour fasting period to measure various biomarkers. Serum was obtained from clotted blood. An aliquot of EDTA blood was used for a complete blood count and to assess T-lymphocyte subpopulations. Another EDTA blood sample was used to isolate peripheral blood mononuclear cells (PBMCs) for measuring absolute telomere length [2].

Measurement of Blood Biochemistry and Body Composition

Plasma glucose, aspartate transaminase (AST), alanine transaminase (ALT), blood urea nitrogen (BUN), and creatinine were analyzed with specific assay kits using an automatic analyzer. Body weight, height, and body mass index (BMI: kg/m²) were measured using a Tanita BC-420MA segmental body composition analyzer (Tanita Corporation, Tokyo, Japan) [2].

Measurement of Leukocyte Telomere Length

Peripheral blood mononuclear cells (PBMC) were isolated from whole blood by density gradient centrifugation. Genomic DNA was extracted from 2-5 million PBMCs using the DNAeasy kit (Qiagen), and its purity and quantity were checked via UV spectrophotometry. PBMC telomere length was measured by quantitative PCR, comparing telomere repeat copy number to the single-copy gene 36B4, based on the qPCR method of O'Callaghan and Fenech (2011). Each 10-µL qPCR reaction included 20 ng DNA, PowerUp SYBR Green, and telomere primers, with 40 cycles and a dissociation curve for verification. A standard curve ensured reaction linearity ($R^2 > 0.99$) and allowed conversion to absolute telomere length (aTL) in kb per diploid genome. Triplicate runs were used, with a 1% interassay variation [2].

Statistical Analysis

The statistical analyses were performed using GraphPad Prism 6.0, with a significance level of 5% ($p < 0.05$) for all analyses [2].

Results

The initial body composition of the 10 subjects is shown in Table 1. The sample group consists of 10 participants (2 males and 8 females), aged 44 – 64 years (average age: 54 ± 7 years). Their average body mass index (BMI) was 25.3 ± 3.4 kg/m². All participants were generally healthy, non-drinkers, non-smokers, and had no chronic conditions requiring regular medication. None of them had received any COVID-19 vaccination, as it was unavailable at the time. Their daily living activities (diet, exercise, and routines) remained consistent throughout the 8-week data collection period. During weeks 1-4, 2 capsules of Mylife/Mylife100® were taken before breakfast and 2 capsules before dinner (a total of 4 capsules per day). In weeks 5-8, the dosage was increased to 3 capsules taken before breakfast and 3 capsules before dinner (a total of 6 capsules per day). All participants were able to take the prescribed amount of Mylife/Mylife100® capsules without experiencing any side effects. They reported better sleep, improved skin health, a refreshed mood, enhanced concentration, no fatigue, increased energy, and less exhaustion. Food intake and energy expenditure remained consistent throughout the study, as assessed by body mass index (BMI), which remained stable during the entire study. The mean ± SD of the body mass index was 25.3 ± 3.4 kg/m² at week 0 and remained stable at 25.1 ± 3.4 kg/m² at week 4 and 25.3 ± 3.6 kg/m² at week 8.

Table 1: Initial Body Composition of 10 Subjects.

No	Sex	Age	Height, cm	Weight, kg	BMI, kg/m²
1	F	44	162	59.0	22.5
2	F	46	158	65.0	26.0
3	F	53	160	61.4	24.0
4	F	54	150	68.6	30.5
5	F	55	156	55.3	22.7
6	F	56	156	66.1	27.2
7	F	57	162	62.9	24.0
8	F	61	153	46.6	19.9
9	M	46	175	91.9	30.0
10	M	64	170	75.7	26.2

Effects of Mylife/Mylife100® on Liver and Renal Function

Kidney function was assessed by measuring blood urea nitrogen (BUN) and creatinine levels, while liver function was evaluated using SGOT and SGPT enzyme levels. Throughout the study, the levels of serum BUN, creatinine, SGOT, and SGPT, which indicate liver and kidney function, remained within normal ranges (Table 2).

Table 2: Liver and Renal Function Tests During the Study.

Parameter	Week	Mean ± SD	Normal value
Blood urea nitrogen, mg/dL	0	14.6 ± 3.1	7.8 – 20.3
	8	14.9 ± 5.0	7.8 – 20.3
Creatinine, mg/dL	0	0.80 ± 0.20	Female: 0.65 – 1.08
	8	0.90 ± 0.20	Male: 0.81 – 1.43
SGOT, U/L	0	22 ± 5	Female: 0 – 31
	8	21 ± 3	Male: 0 – 35
SGPT, U/L	0	21 ± 8	Female: 0 – 34
	8	23 ± 6	Male: 0 – 45

Effects of Mylife/Mylife100® on Leukocyte Telomere Length

An increase in absolute telomere length of 70 base pairs is equivalent to a 1-year age reversal [3]. As shown in Table 3, the mean ± SD of absolute telomere length for all 10 subjects was

6,712 ± 814 base pairs at week 0, increasing to 6,761 ± 692 base pairs at week 4, with 5 out of 10 subjects experiencing an increase in absolute telomere length from the initial measurement by 183 to 580 base pairs, equivalent to an age reversal of 2.6 to 8.3 years.

At week 8, the mean ± SD of absolute telomere length for all 10 subjects increased to 7,120 ± 1,043 base pairs, with 8 out of 10 subjects experiencing an increase in absolute telomere length from the initial measurement by 111 to 1,612 base pairs, equivalent to an age reversal of 1.6 to 23.0 years.

The percentiles of telomere length at weeks 0, 4, and 8 were 53 ± 15, 54 ± 16, and 60 ± 16, respectively. Both absolute and percentile telomere lengths at week 8 were significantly higher than those at week 0 ($p < 0.05$).

Table 3: Leukocyte Telomere Length During the Study.

Parameter	Week	Mean ± SD
Telomere, base pairs	0	6,712 ± 814
	4	6,761 ± 692
	8	7,120 ± 1,043*
Telomere, percentile	0	53 ± 15
	4	54 ± 16
	8	60 ± 16*

Significant difference from week 0: *$p < 0.05$

Effects of Mylife/Mylife100® on T-Cells

As shown in Table 4, the mean ± SD of CD4 levels at the start of the study was within the normal range (470–1,404 cells/µL), measuring 860 ± 298 cells/µL. At week 4, the mean ± SD increased to 915 ± 264 cells/µL. At week 8, the mean ± SD remained relatively constant at 910 ± 200 cells/µL. This indicates that the dosages of 4 capsules per day and 6 capsules per day had similar effects on CD4 counts.

Table 4: Absolute CD4 and CD8 T-Cell Counts During the Study.

Parameter	Week	Mean ± SD	
CD4, cells/µL	0	860 ± 298	
	4	915 ± 264	increased 55 cells or 6.4% of week 0
	8	910 ± 200	increased 50 cells or 5.8% of week 0
CD8, cells/µL	0	521 ± 244	
	4	556 ± 211	increased 35 cells or 6.7% of week 0
	8	564 ± 248*	increased 43 cells or 8.2% of week 0

Significant difference from week 0: *$p < 0.05$

The mean ± SD of CD8 levels at the start of the study was within the normal range (360–1,250 cells/µL), measuring 521 ± 244 cells/µL. At week 4, the mean ± SD increased to 556 ± 211 cells/µL. At week 8, the mean ± SD rose slightly to 564 ± 248 cells/µL. The CD8 counts increased with the higher dosage, as evidenced by a 1.5% increase at week 8 compared to week 4. In summary, mean CD4 counts increased by 5.8% and mean CD8 counts by 8.2% ($p < 0.05$) by week 8.

Effects of Mylife/Mylife100® on Fasting Blood Sugar and Blood Pressure

As shown in Table 5, both fasting blood sugar and blood pressure levels improved to within normal ranges for all participants.

Table 5: Fasting Blood Sugar and Blood Pressure Levels During the Study.

Parameter	Week	Mean ± SD	Normal value
Fasting blood sugar, mg/dL	0	103 ± 14	< 100
	8	88 ± 8*	
Systolic BP, mmHg	0	133 ± 19	≤ 140
	8	121 ± 17***	
Diastolic BP, mmHg	0	86 ± 9	≤ 90
	8	74 ± 7**	

Significant difference from week 0: *$p < 0.005$, **$p < 0.01$, ***$p < 0.03$

Discussion

The study evaluated the effects of Mylife/Mylife100® on telomeres and T-cells, showing promising results for its use in promoting telomere health and immune function. Over the 8-week period, participants experienced significant increases in leukocyte telomere length, suggesting a potential slowdown of telomere attrition. Notably, 8 out of 10 subjects showed a significant increase in telomere length, indicating improvements equivalent to reversing 1.6 to 23 years of aging. The other two subjects did not show an increase in telomere length because of their underlying diseases that existed before the study. Additionally, Mylife/Mylife100® positively impacted T-cell counts, with stable increases observed in both CD4 and CD8 levels. The dosages of 4 capsules and 6 capsules per day produced similar beneficial effects on CD4 counts, while CD8 counts showed a significant improvement with the higher dosage.

The fact that this product lengthens telomeres while boosting immunity at the same time makes it a valuable and safe food supplement for anti-aging and age reversal without the risk of cancer causing from telomere lengthening of cancer cells. Any existing cancer cells will be eradicated by the increased T cells before their telomeres can elongate and become long-living cancer cells.

Safety was confirmed as liver and renal function indicators remained within normal ranges throughout the study. Furthermore, participants reported subjective improvements in well-being, such as better sleep, enhanced mood, and increased energy levels. It should be noted that the results from this study, which showed significant increases in CD4 and CD8 levels, differed from those of another study with a larger sample group [2], which exhibited lower increases in CD4 and CD8. This difference may be attributed to the fact that subjects in the smaller group were not vaccinated with mRNA COVID-19 vaccines.

Conclusion

In conclusion, the findings support the efficacy and safety of Mylife/Mylife100® as a dietary supplement for enhancing telomere length and T-cell function, contributing to improved overall health and potential age-reversal effects.

References

1. Wiriyachitra P, Leelahagul P, Wiriyachitra S, et al. Cancer Patient Life Quality Improvement by T-Cell Stimulation with Five Edible Plants. Clin Immunol Res. 2024; 8: 1-3.
2. Praengam K, Tuntipopipat S, Muangnoi C, et al. Efficacy of a dietary supplement derived from five edible plants on telomere length in Thai adults: A randomized, double-blind, placebo-controlled trial. Food Science Nutrition. 2024; 12: 1592-1604.
3. Lin Y, Damjanovic A, Metter EJ, et al. Age-associated telomere attrition of lymphocytes in vivo is coordinated with changes in telomerase activity, composition of lymphocyte subsets and health conditions. Clin Sci (Lond). 2015; 128: 367-377.