

# TimeBeacon

## MitoPhy®

### Cellular Energy Supplement Technical White Paper

Product Name: TimeBeacon® MitoPhy® Cellular Energy Supplement

Core Ingredients: Urolithin A 500 mg + Ergothioneine 30 mg (per 2 capsules daily)

Technology Platform: Supraeitic® Innovative Formulation Technology

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## Executive Summary

TimeBeacon<sup>®</sup> MitoPhy<sup>®</sup> cellular energy supplement works through the core mechanism of mitophagy activation<sup>[1]</sup>, reversing biological age by targeting mitochondrial quality control.

### Key Advantages

**Technology Breakthrough:** Powered by the Supraeuteic<sup>®</sup> innovative formulation technology, the oral bioavailability of Urolithin A is increased 7.05-fold compared with conventional raw materials, overcoming the solubility bottleneck [Internal Report: TB-PK-2025-001].

**Human Validation:** After 8 weeks of continuous use, 71.4% of healthy adult subjects showed improvement in biological age assessment (based on DNA methylation testing). Among responders, the average reduction in biological age was 8%, with statistical significance of  $P < 0.01$  [Internal Report: TJF25-0010290].

Functional Data (31 subjects, 56 days) [Internal Report: NMD2508-0138-01]:

- Strength increase: 15.38%
- Endurance improvement: 33.33%
- Sleep quality improvement: 64.71%
- Sleep onset time reduction: 50%
- Skin radiance improvement: 29.31%
- Skin firmness improvement: 16.74%
- Skin elasticity improvement: 8.11%
- Transepidermal water loss reduction: 11.74%
- Waist circumference reduction: 2.42%

All key indicators demonstrated statistical significance ( $P < 0.01$ ).

## **Product Philosophy**

### **Sustained energy • Enduring stamina**

## **Technology Highlights**

- **Mitophagy Activation:** Activates the PINK1-Parkin signaling pathway to clear damaged mitochondria and promote mitochondrial biogenesis [1].
- **Bioavailability Breakthrough:** Supraetic® technology delivers approximately 7.05-fold higher bioavailability of active ingredients [Internal Report: TB-PK-2025-001] — one capsule equals the effect of seven conventional capsules.
- **Multi-Dimensional Anti-Aging Validation:** A comprehensive evidence chain spanning molecular biomarkers, physiological function, and biological age.
- **6-in-1 Scientific Formula:** Urolithin A + Ergothioneine + PQQ + Spermidine + Black Ginger Extract + Green Coffee Bean Extract.

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