

BioAge™ Device – The World’s First One-Drop Biological Age Analyzer

Revolutionizing Preventive Health and Longevity Measurement

1. Executive Summary

The **BioAge™ Device** represents a transformative advancement in biological diagnostics — the first portable analyzer capable of determining an individual’s **true biological age** from a **single drop of blood** in under five minutes.

Developed by **Lathell Nutraceuticals LLC**, BioAge™ integrates **biochemical sensing**, **AI-driven data interpretation**, and **bioelectrical profiling** to create a real-time snapshot of the body’s biological condition, going far beyond traditional blood tests or wellness trackers.

This pre-market opportunity enables early investors and distribution partners to secure **exclusive market positions** before regulatory clearance and full-scale production.

2. The Science Behind BioAge™

2.1. Biological vs. Chronological Age

- **Chronological age** simply counts years lived.
- **Biological age** reflects the actual physiological wear and cellular performance of the body.
- It is influenced by lifestyle, stress, diet, toxins, inflammation, and genetics.
- Lower biological age correlates with greater longevity, disease resistance, and metabolic resilience.

2.2. Core Measurement Framework

The BioAge™ system estimates biological age through three integrated biomarker classes:

1. **Molecular Biomarkers:**

- Oxidative stress indices
- Protein carbonylation
- Inflammatory cytokine micro-signatures

2. **Bioelectrical Impedance Signals:**

- Measures cellular hydration, membrane potential, and metabolic activity.
- Integrated microcurrent analysis captures sub-millisecond electrical response profiles correlated with cellular aging.

3. **Spectral and Enzymatic Kinetics:**

- Colorimetric and spectroscopic responses to proprietary reagent films.
- Interpreted by an internal photodiode array calibrated for biomolecular decay rates.

These data streams are fused using **Lathell’s proprietary AI-Age Algorithm**, trained on thousands of human biological samples and benchmarked against recognized longevity datasets (e.g., DNA

methylation and metabolomic studies).

3. How It Works

Step 1 – Collect

A single drop of blood from a sterile finger-prick is placed on a micro-reactive cartridge or slide. No centrifugation or lab processing is required.

Step 2 – Read

The cartridge is inserted into the **BioAge™ Analyzer**, which uses optical, impedance, and biochemical sensing to scan the sample within seconds.

Step 3 – Compute

Advanced embedded firmware interprets the composite biomarker data using AI models, displaying:

- **Biological Age (years)**
- **Aging Rate (e.g., "SLOW", "NORMAL", "ACCELERATED")**
- **Delta Age (difference between biological and chronological age)**

Results appear on the device screen and can be synced securely with a companion app or cloud dashboard.

4. The Technology Stack

Component	Description
Sensor Array	Hybrid optical + electrical micro-sensor set detecting molecular and metabolic markers.
Microfluidic Cartridge	Single-use bio-reactive slide with integrated reagent layer; drop-based input.
Embedded Processor	ARM-based architecture performing signal fusion, normalization, and AI inference.
BioAge Algorithm™	Proprietary machine learning model correlating composite biomarkers to validated biological-age datasets.
Display Interface	5-inch touch display with real-time visualization and result logging.
Connectivity	Optional Bluetooth / Wi-Fi for clinical or research data integration.

5. Applications and Market Reach

Sector	Use Case	Value Proposition
Longevity Clinics	Track aging rate and therapy impact	Objective baseline for rejuvenation programs
Wellness Centers	Personalize nutrition, supplements, and lifestyle plans	Adds measurable outcomes to service packages
Clinical Research	Stratify participants and monitor biological improvement	Data-driven biomarker validation tool
Corporate Health / Insurance	Assess aging-related risk metrics	Preventive screening and employee wellness

6. Competitive Advantages

- **Rapid Testing:** <5 minutes per analysis
- **Minimal Sample Volume:** One drop of capillary blood
- **No Laboratory Required:** Fully portable and digital
- **AI-Driven Precision:** Machine learning improves accuracy over time
- **Cross-Platform Integration:** Data sync with cloud for analytics or telehealth
- **Regulatory Pathway:** Designed for eventual FDA 510(k) submission as a Class II diagnostic device

7. Development & Production Roadmap

Phase	Description	Status
Prototype Design	Mechanical & electronic integration	✅ Complete
Algorithm Calibration	AI training on reference biomarkers	✅ Completed pilot
Pre-Clinical Validation	Analytical precision & repeatability	⚙️ In preparation
Regulatory Engagement	FDA pathway & labeling consultation	⚙️ Scheduled Q1 2026
Mass Production	Final tooling and manufacturing partner onboarding	⚙️ Pre-investment stage

8. Investment & Pre-Order Opportunity

Lathell Nutraceuticals LLC is offering early partnership and distribution rights to selected buyers, investors, and health-tech distributors.

This pre-production round enables partners to:

- Secure **territorial exclusivity** for distribution or licensing.
- Participate in **equity or joint-venture structures** tied to device rollout.
- Gain early-stage access to **data rights and algorithm updates**.

Production MOQ: 250 units for early clinical deployment.

Projected unit cost (pilot batch): USD 950–1,200

Projected retail: USD 2,499–2,999 per analyzer.

9. Intellectual Property

- Trademark: **BioAge™** (filed under Lathell Nutraceuticals LLC)
 - Patent (in progress): *"System and Method for Real-Time Biological Age Estimation from Minimal Blood Sample"*
 - Proprietary algorithm and firmware protected under trade secret law.
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10. Summary Statement

BioAge™ is not just a device — it's the future of human longevity tracking.

By converting a single drop of blood into a quantifiable biological-age metric, it bridges the gap between preventive healthcare and precision longevity science.

Investors and distributors who partner now position themselves at the forefront of a multi-billion-dollar longevity diagnostics market projected to redefine how humans measure health and aging.