



Dear Wendy and Lisa,

Thank you for undertaking the first step in discovering the mitochondrial potential of your CODE Health products. We have performed the cell-based studies summarized in the abstract below. We look forward to continued work with you to define the potential of CODE Health products to impact human resilience.

Sincerely,
Hemal H. Patel, PhD
Senior Advisor, Versea Discovery



CODE Health Cell-Based Study Abstract

Background:

Mitochondrial function is central to cellular energy regulation and stress response. Dysregulated mitochondrial activity is implicated in various diseases, including metabolic disorders, neurodegeneration, and chronic inflammation. This study investigates the impact of specific CODE formulations—BALANCE (Cellular Health Formula), CALM (Healthy Mind Formula), and REACT (Allergy Formula)—on mitochondrial function in different cell types to assess potential therapeutic properties.

Purpose:

The study aims to determine how CODE formulations influence mitochondrial energy production, oxidative stress, and metabolic profiles in distinct cell lines representing muscle, neuronal, and immune systems.

Methods:

Three cell lines were tested: C2C12 mouse myoblasts (BALANCE), BE(2)-M17 human neuroblasts (CALM), and RAW264.7 mouse macrophages (REACT). Cells were incubated with CODE formulations (prepared with saline as a carrier) at varying dilutions for 24 hours. Mitochondrial function was assessed through metabolic profiling, including mitochondrial stress tests, ATP synthesis rates, and reactive oxygen species (ROS) generation. Data were normalized to saline controls and reported as relative changes.

Results:

- **BALANCE:** In C2C12 cells, BALANCE significantly enhanced mitochondrial energetics, particularly at 10x and 1000x dilutions, indicating improved ATP production and stress response capacity. Positive effects were observed on mitochondrial networks.
- **CALM:** BE(2)-M17 neuroblasts exposed to CALM showed a trend toward reduced mitochondrial activity, suggesting potential downregulation of energy production, possibly aiding in nervous system "calming" under stress.
- **REACT:** RAW264.7 macrophages exposed to REACT exhibited a shift toward glycolysis with reduced mitochondrial activity. This may correspond to a moderated immune response, potentially mitigating immune overactivation linked to conditions such as chronic inflammation and long COVID.

Conclusion:

CODE formulations exert cell-specific effects on mitochondrial function. BALANCE enhances muscle cell energetics, CALM reduces neuronal mitochondrial activity, and REACT downregulates immune cell mitochondrial response. These findings suggest therapeutic potential for targeted modulation of cellular bioenergetics in metabolic, neurological, and inflammatory conditions. Further research with expanded sample sizes and mechanistic studies is warranted.