



CODE Health Study Pilot
12/04/2024

Study Conditions:

-mescreen adapted to cell-based assessment of mitochondrial function

-Data Collection

- CALM
- BALANCE
- REACT

Dose

1 drop (40ul)

10x dilution

100x dilution

1000x dilution

-Cells incubated for
24 hours

Hypothesis: The specific CODE formulations will regulate biochemistry in cells and alter mitochondrial function.

Data Collection

1) Complete Metabolic Profile

- Mitochondrial Stress
- ATP Synthesis Rate

2) Reactive Oxygen Species Generation

- Baseline and stress conditions

3) Mito-Network (only on muscle cells-C2C12)

- Baseline and stress conditions

Cell Lines Utilized

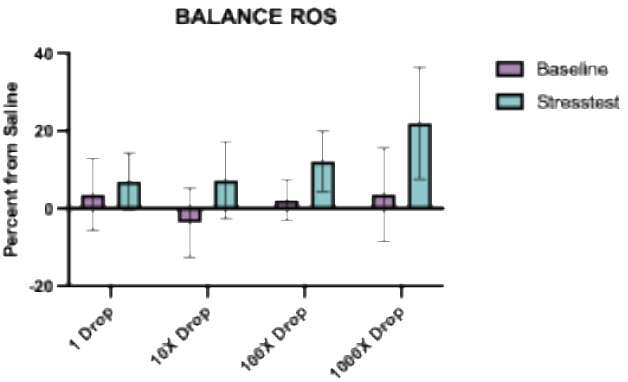
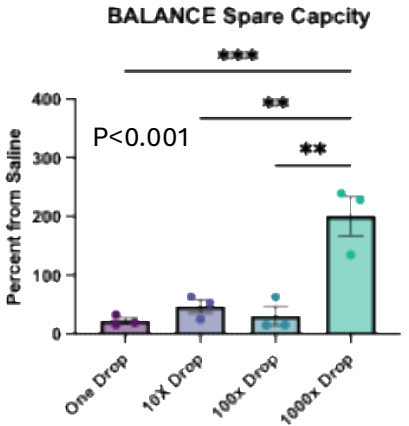
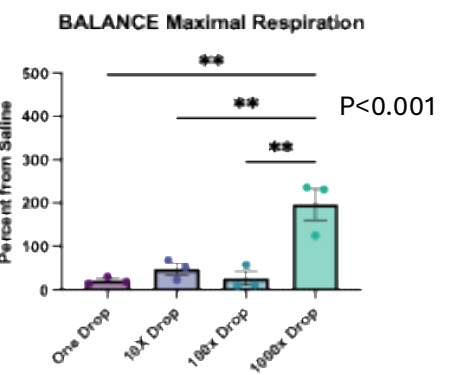
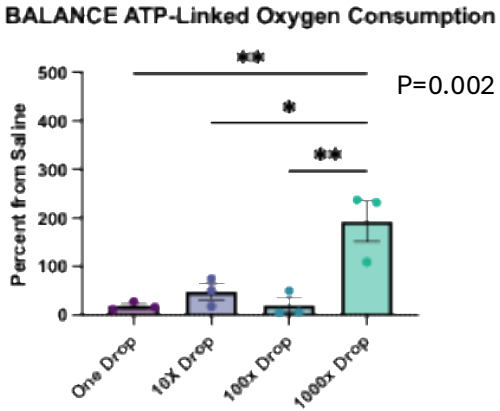
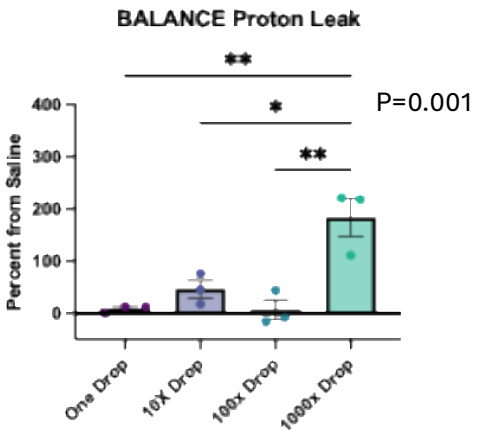
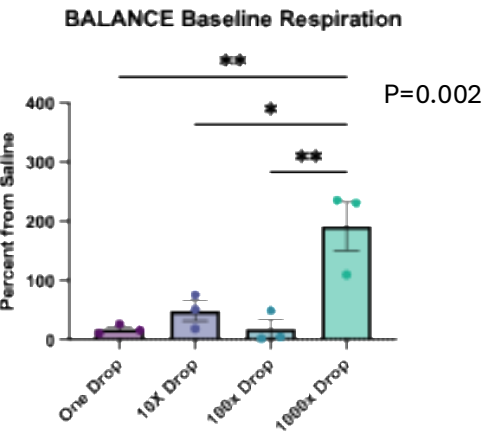
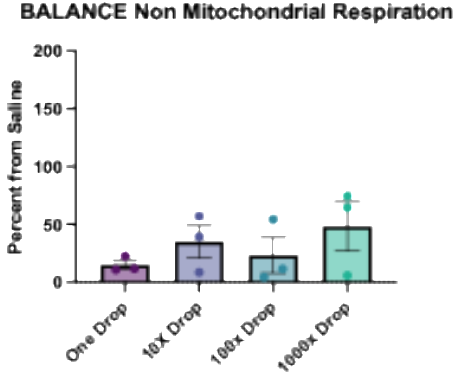
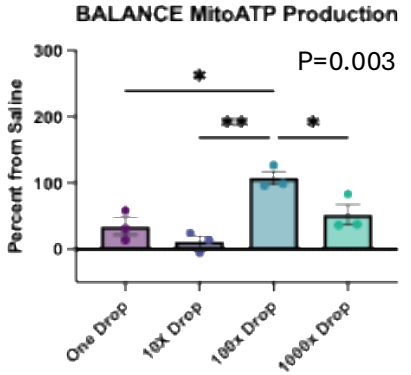
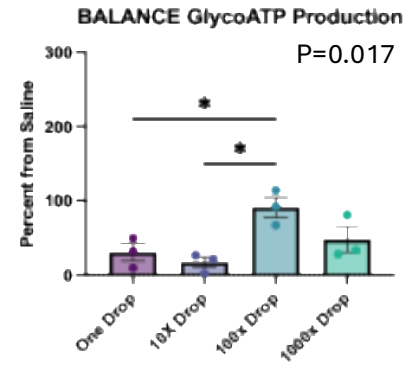
- C2C12: Mouse myoblast; BALANCE CODE Formulation
- BE(2)-M17: Human neuroblast; CALM CODE Formulation
- RAW264.7: Mouse macrophage: REACT CODE Formulation

Note: Each cell line has a saline drop control with appropriate matching dilutions. CODE Formulation values were normalized to the respective saline control and reported as an increase/decrease from this.

BALANCE Overview

- Energy production (ATP) is enhanced consistently at 10x dilution for both glycolysis and mitochondrial
- A 1000x dilution enhances multiple parameters of the mitochondrial stress response

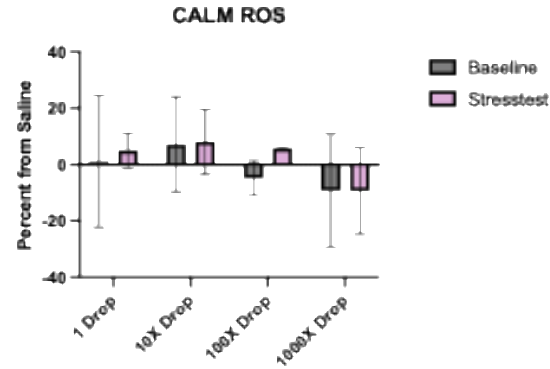
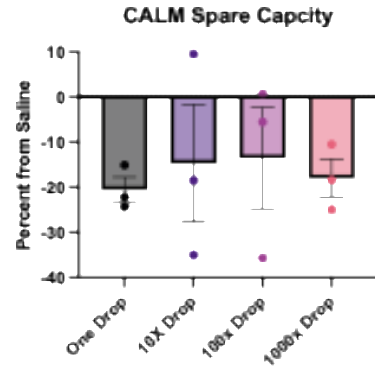
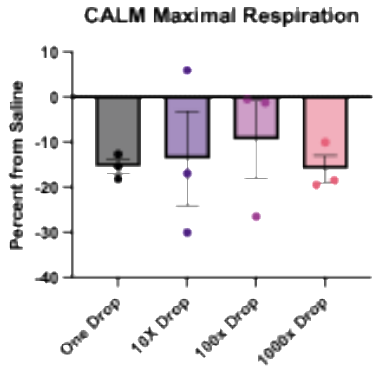
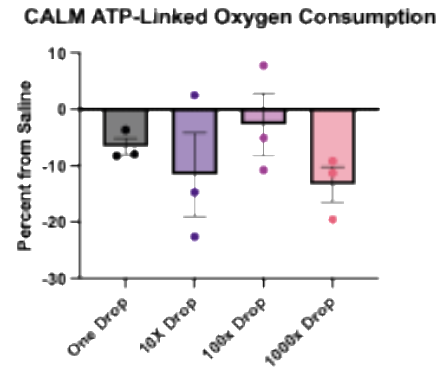
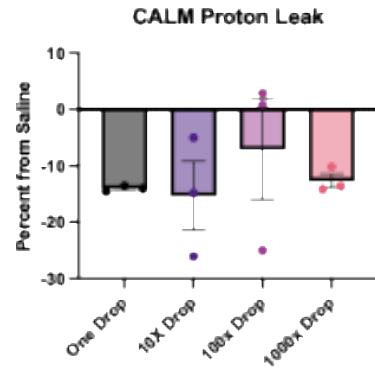
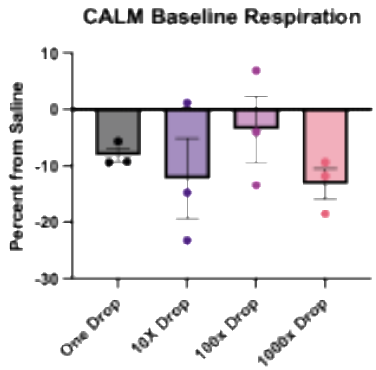
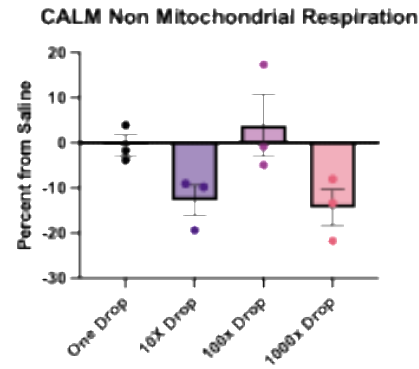
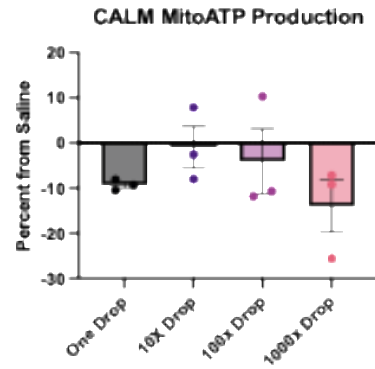
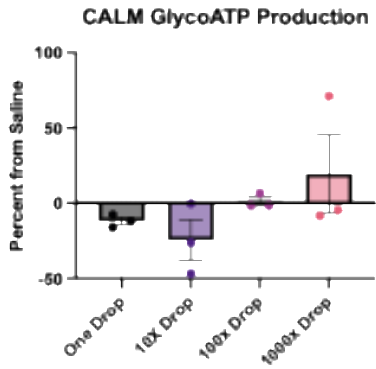
CODE BALANCE
significantly impacts
mitochondrial energetics
and stress response in
muscle cells



Legend:
 Baseline (purple)
 Stresstest (teal)

CALM Overview

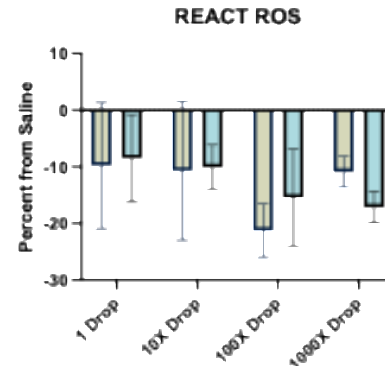
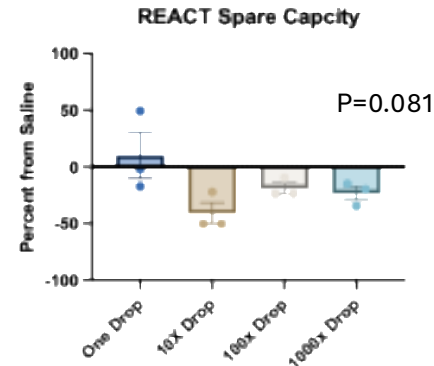
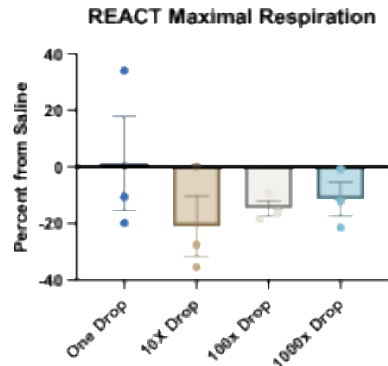
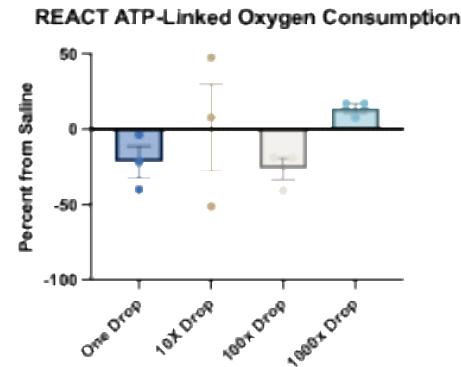
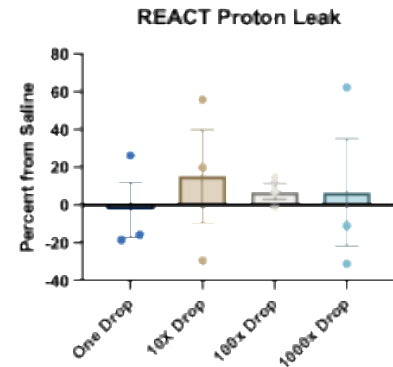
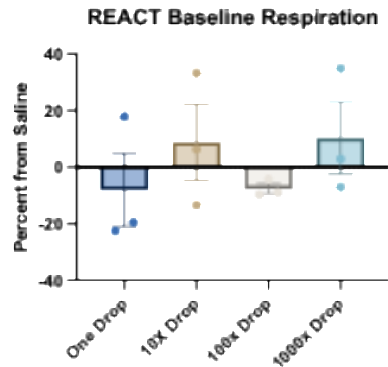
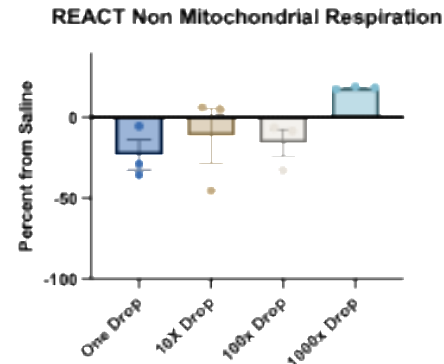
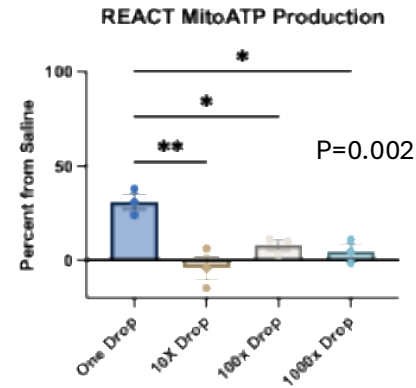
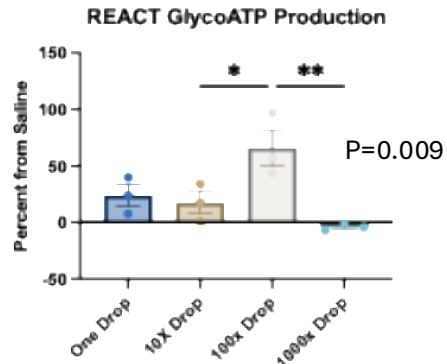
- Little to no significant changes with CALM
- A major trend to lower mitochondrial function, which may be necessary in “calming” the nervous system. Mitochondria create energy, and many stressors overstimulate and turn up energy—CALM seems to lower this.



CODE CALM trends towards downregulating mitochondrial activity in neuronal cells as a possible slowing and “calming” response

REACT Overview

- Energy profile shows shift to glycolysis over mitochondrial with an increased dilution of source solution.
- A similar trend as CALM with REACT to lower immune cell response. It could be how inflammation is possibly lowered. Overactive immune cells, which drive energy through mitochondria, can lead to exhaustion of immune response and have been linked to long- COVID.

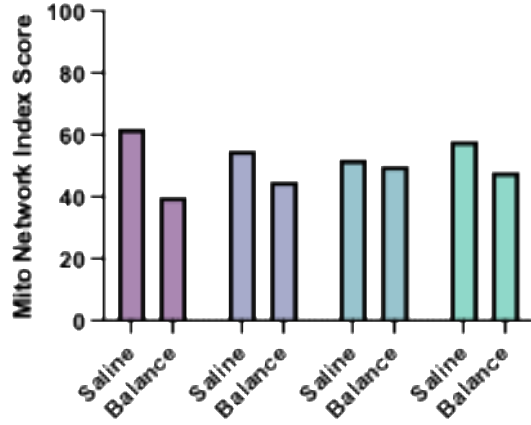


Legend:
■ Baseline
■ Stresstest

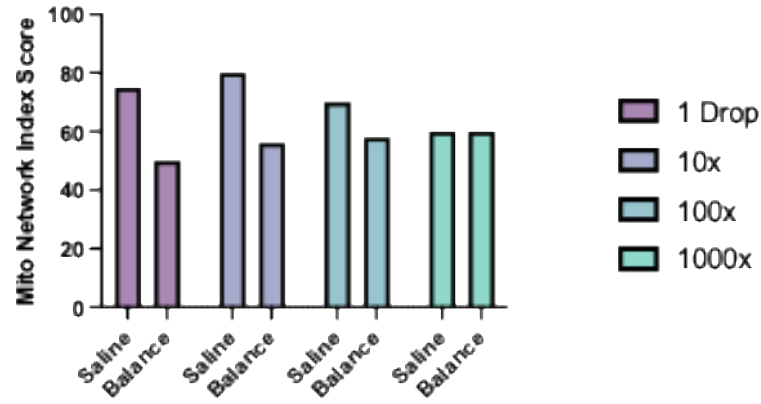
CODE REACT trends towards downregulating mitochondrial activity in immune cells as a possible slowing of immune reactivity

MitoNetwork Data

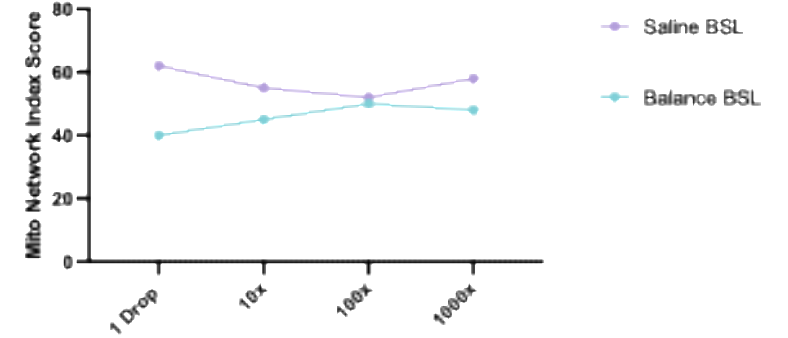
BALANCE Mito Network Baseline



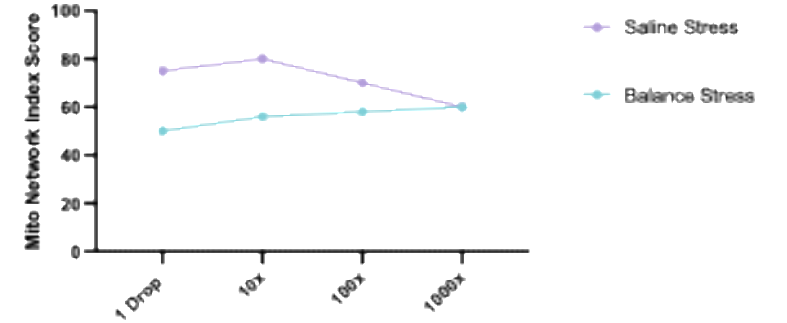
BALANCE Mito Network Stressed



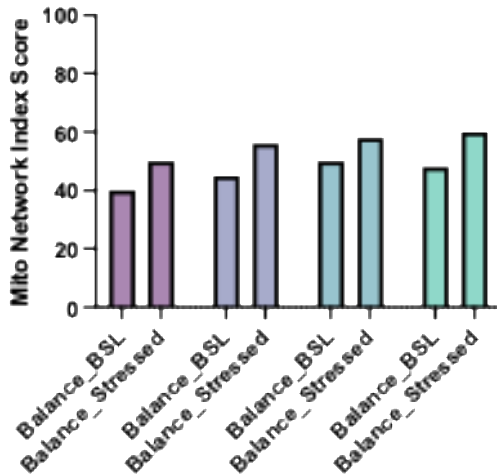
BALANCE Mito Network BSL



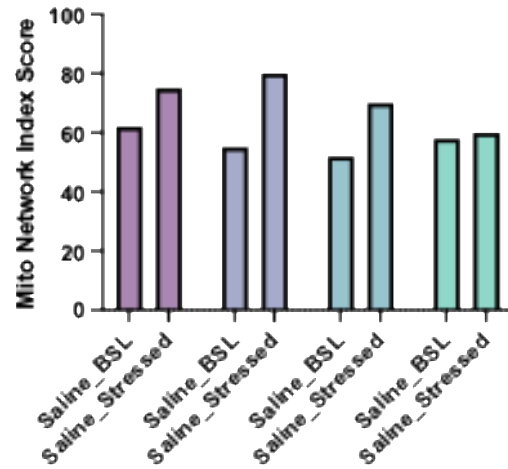
BALANCE Mito Network Stress



BALANCE BSL v Stress



Saline BSL v Stress



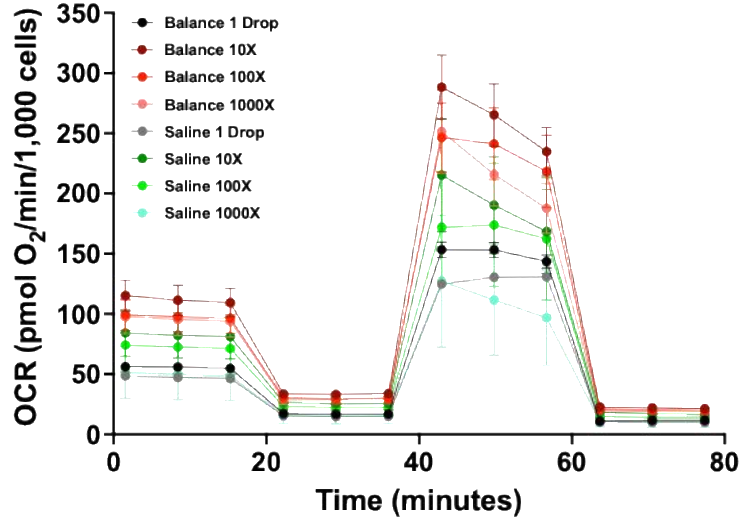
BALANCE appears to have a protective effect of mito network at higher doses in both BSL and Stress conditions

Additional raw data for discussion

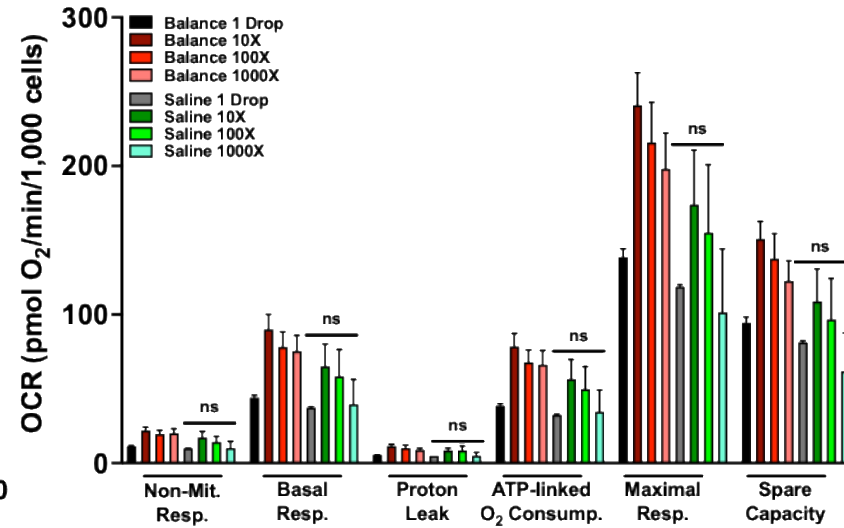
BALANCE Metabolic Profile Results

C2C12 Cells: Mouse Myoblast

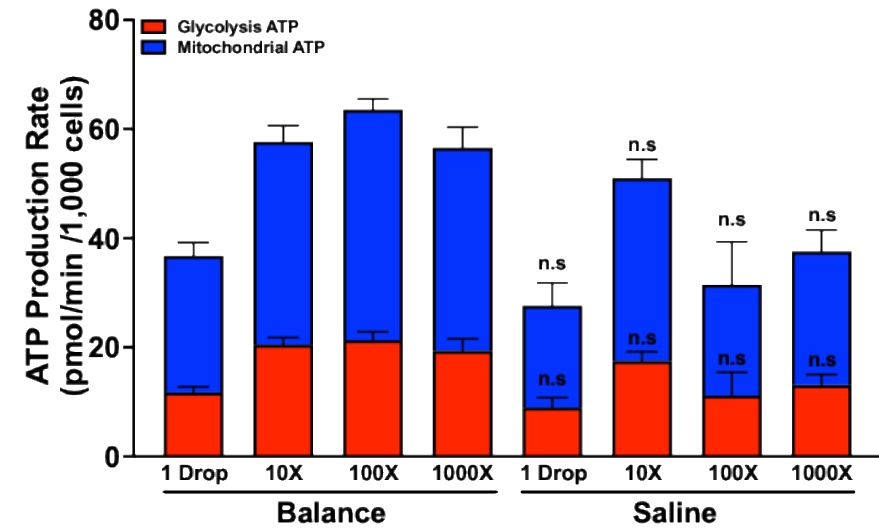
BALANCE RAW MITO CURVE



BALANCE RAW MITO PARAM



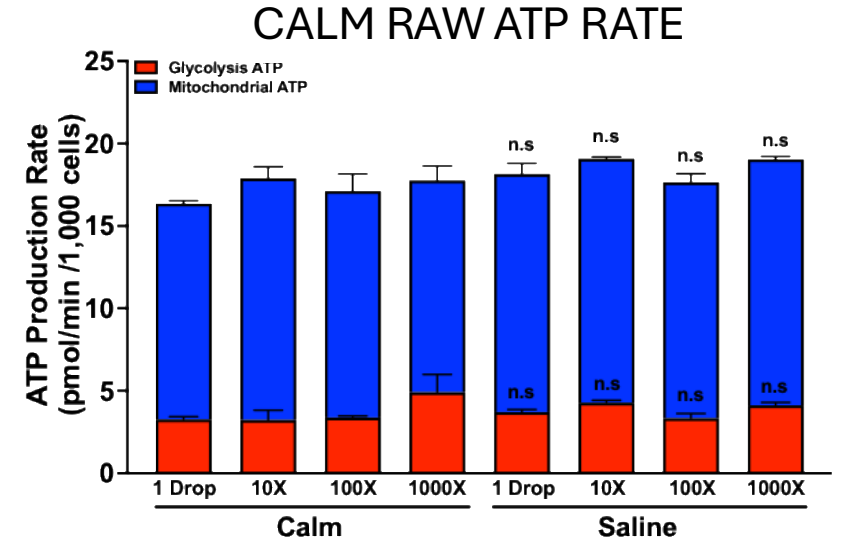
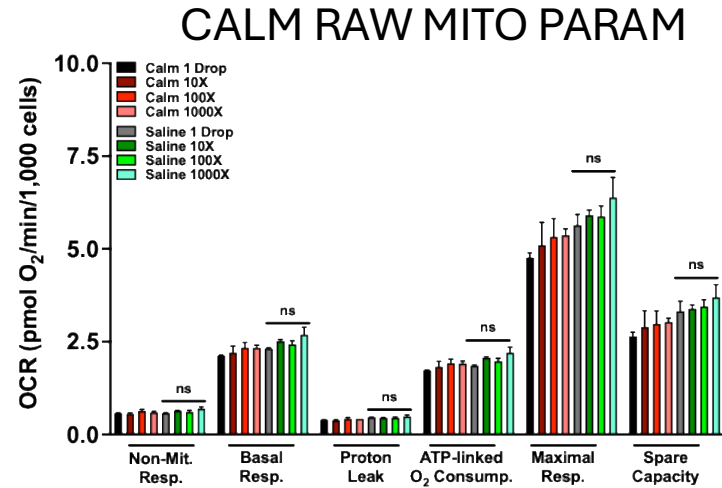
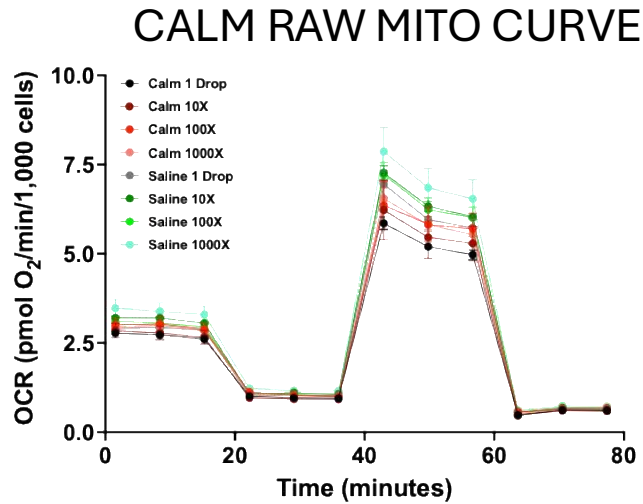
BALANCE RAW ATP RATE



Trending increase in maximal mitochondrial respiration and capacity

CALM Metabolic Profile Results

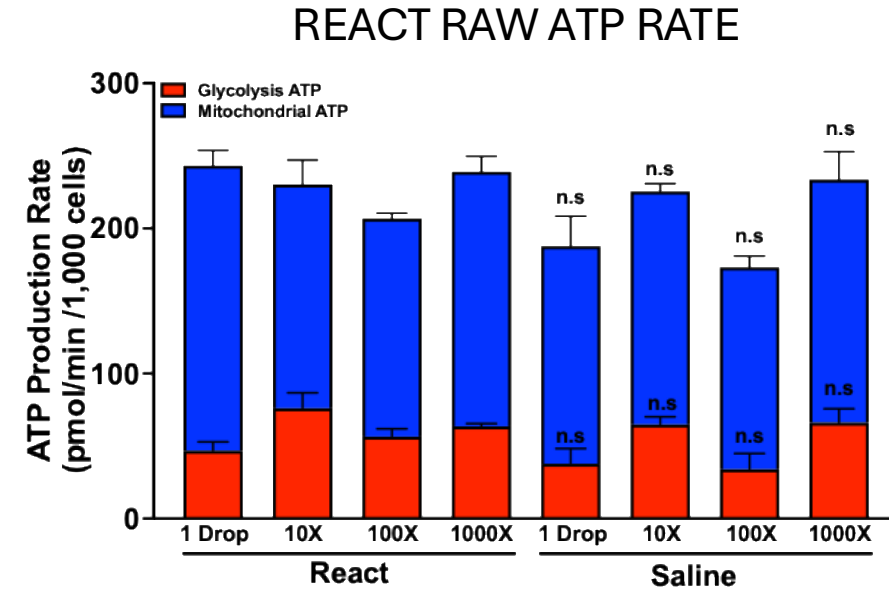
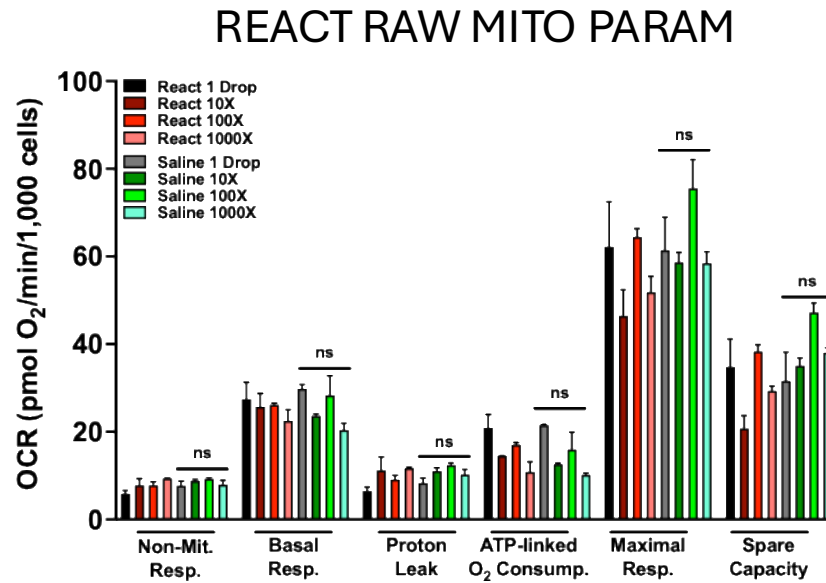
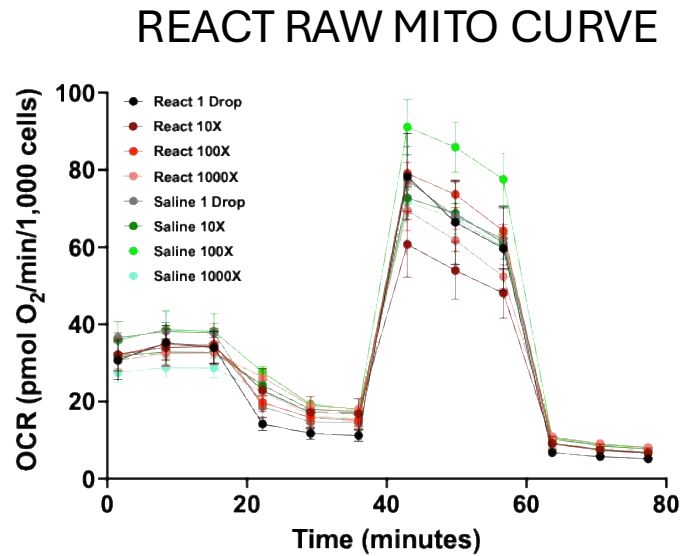
BE(2)-M17: Human Neuroblast



Trending decrease in maximal mitochondrial respiration and capacity

REACT Metabolic Profile Results

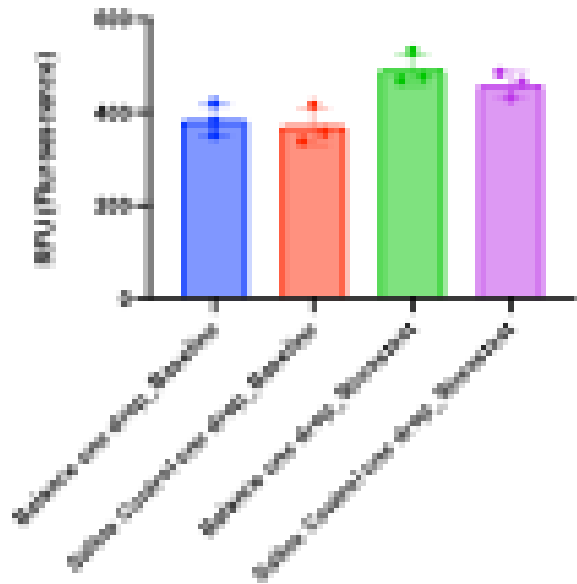
RAW264.7: Mouse Macrophage



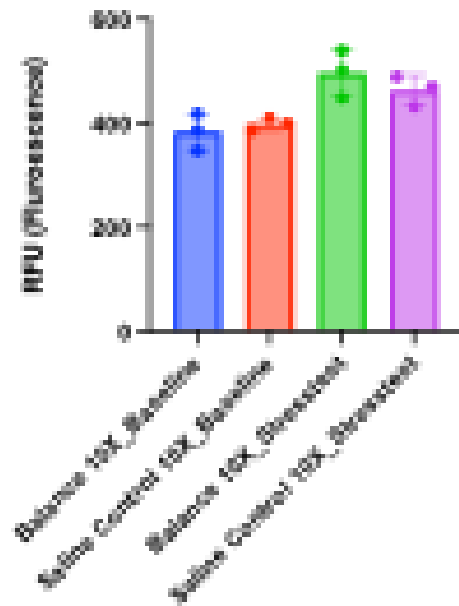
Trending decrease in maximal mitochondrial respiration and capacity

ROS Data – BALANCE

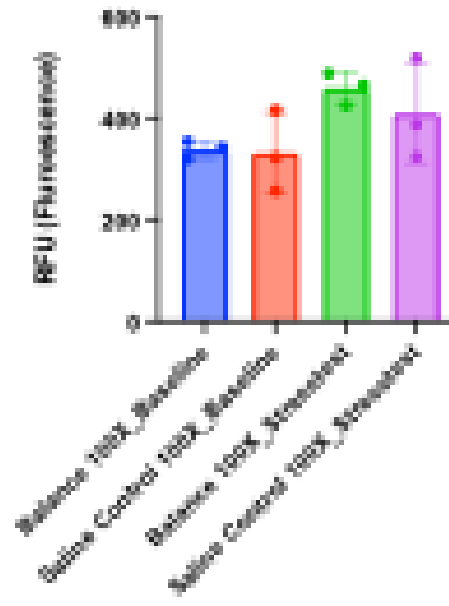
BALANCE ROS 1 DROP



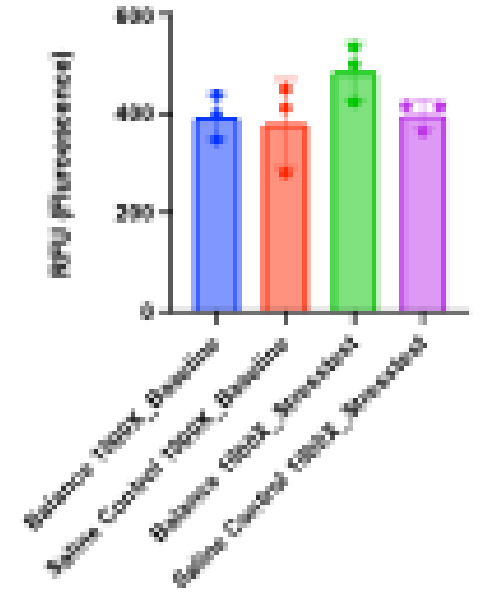
BALANCE ROS 10X



BALANCE ROS 100X

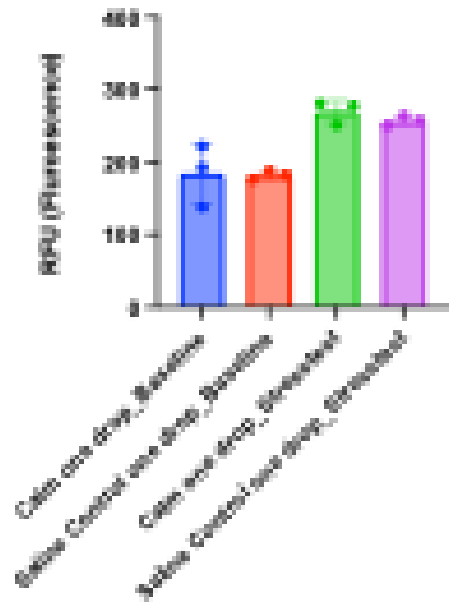


BALANCE ROS 1000X

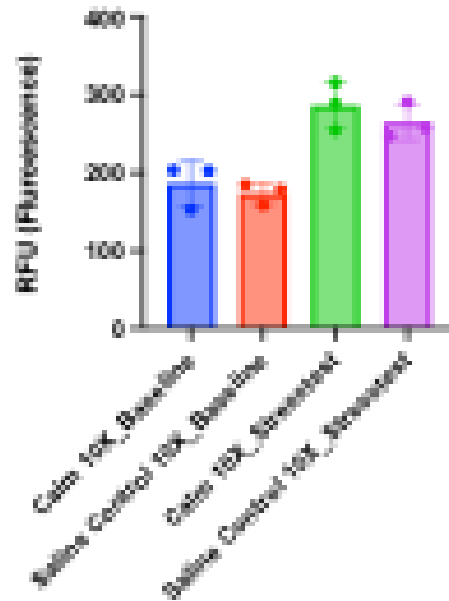


ROS Data – CALM

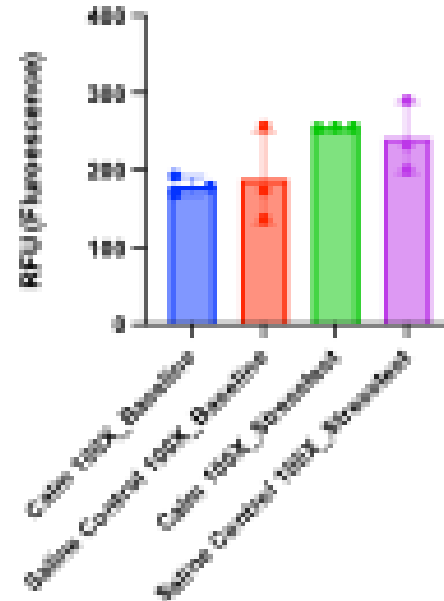
CALM ROS 1 DROP



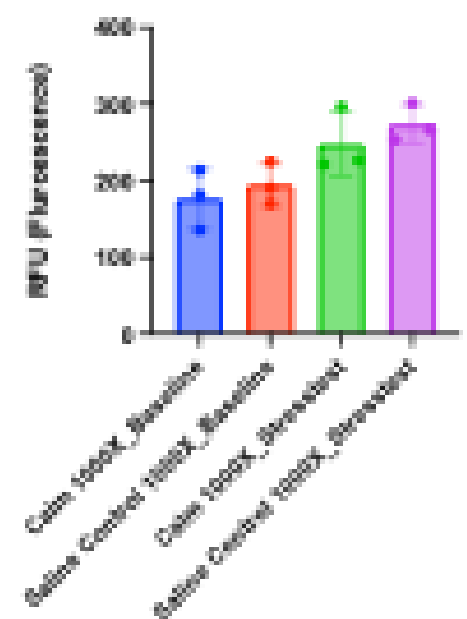
CALM ROS 10X



CALM ROS 100X

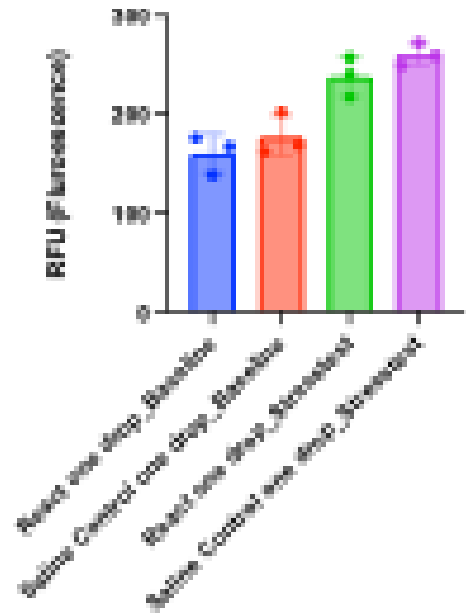


CALM ROS 1000X

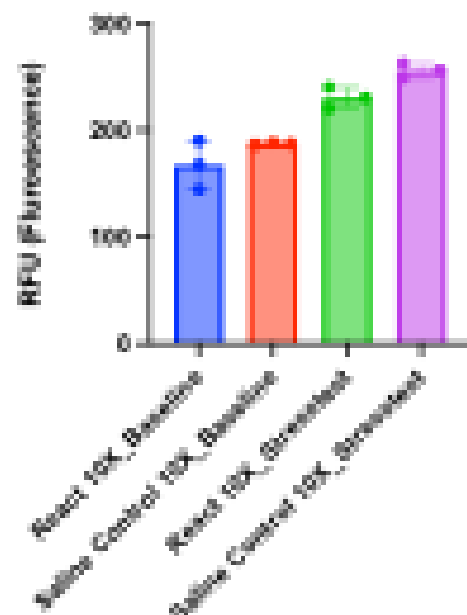


ROS Data – REACT

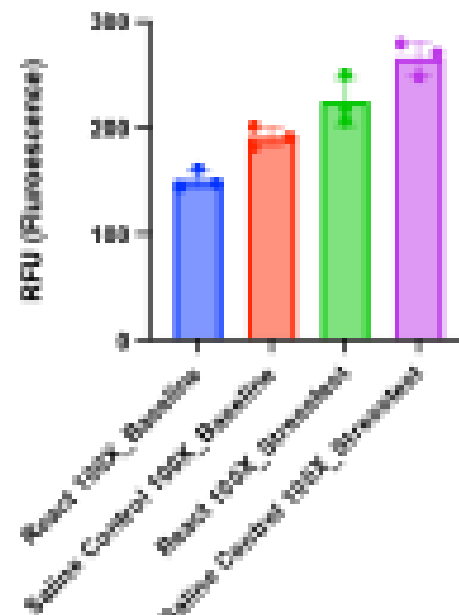
REACT ROS 1 DROP



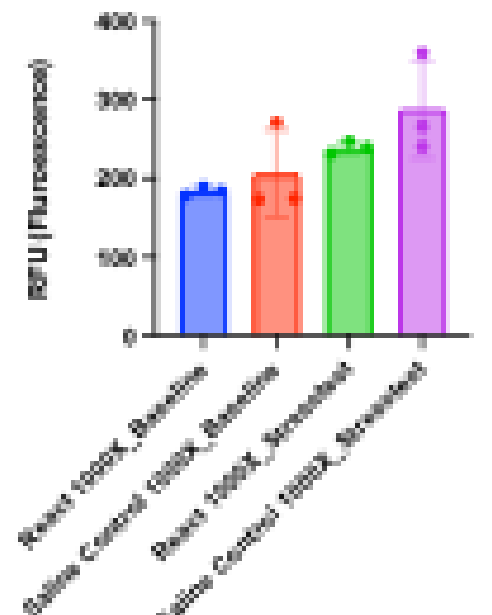
REACT ROS 10X



REACT ROS 100X

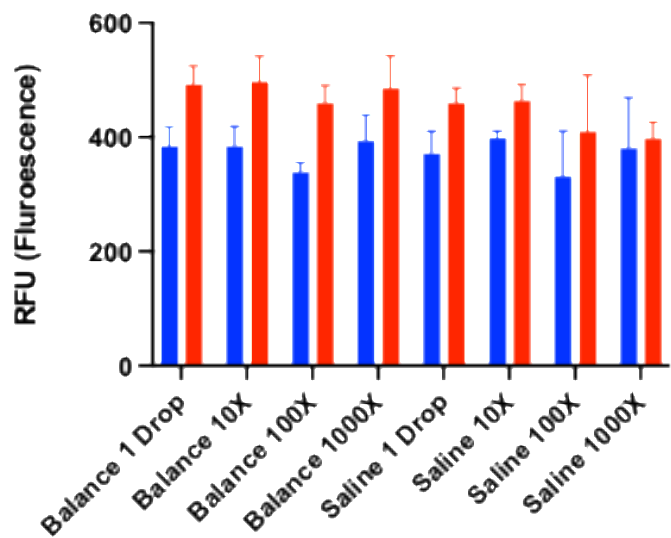


REACT ROS 1000X

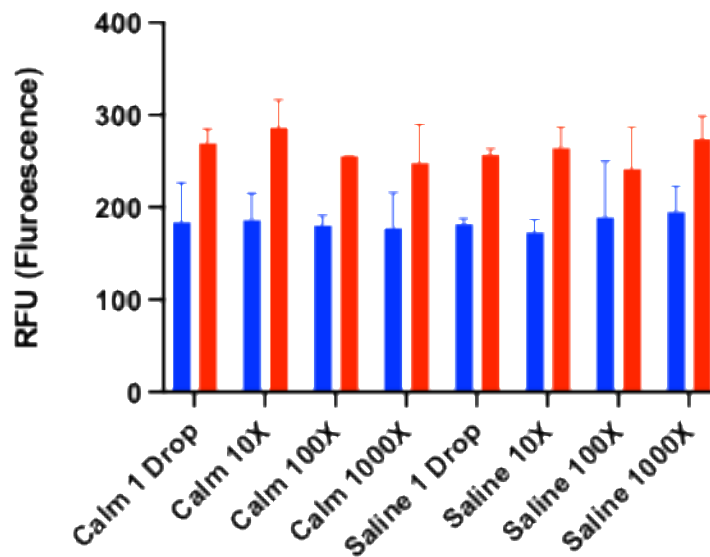


ROS Mean Data

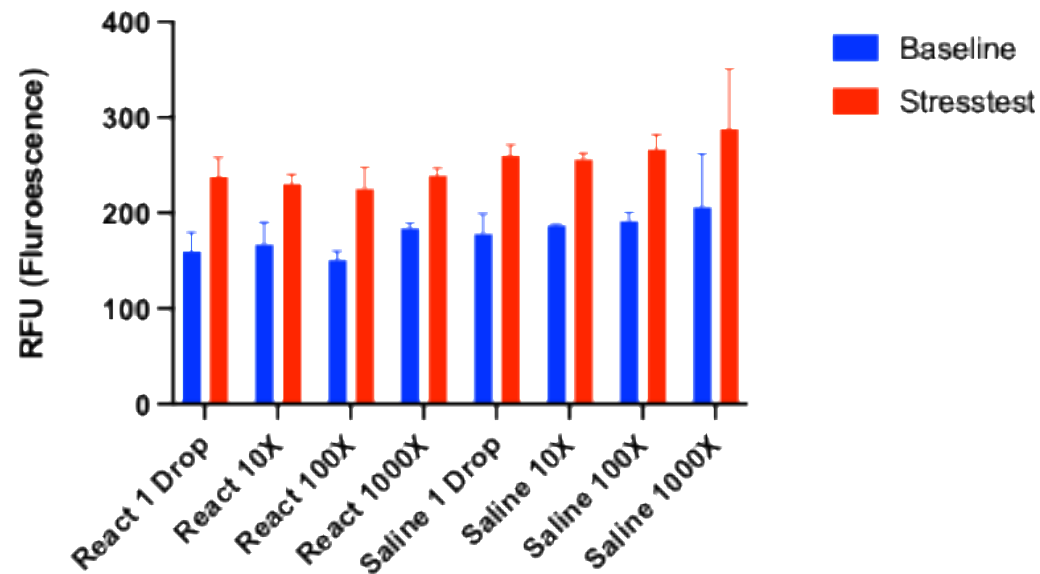
BALANCE ROS



CALM ROS



REACT ROS



Baseline
Stresstest