

# Does 19- HETE Reduce Human Airway Smooth Muscle (HASM) Cell Proliferation?

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## INTRODUCTION:

- 850,000 Canadian children under 14 are affected by asthma.
- Most of current asthma research has left out the HETEs, or hydroxyeicosatetraenoic acids, a family of oxylipins naturally made by the lungs.
- HETEs are known to be important signaling molecules, acting through the prostacyclin receptor, regulating cell proliferation.

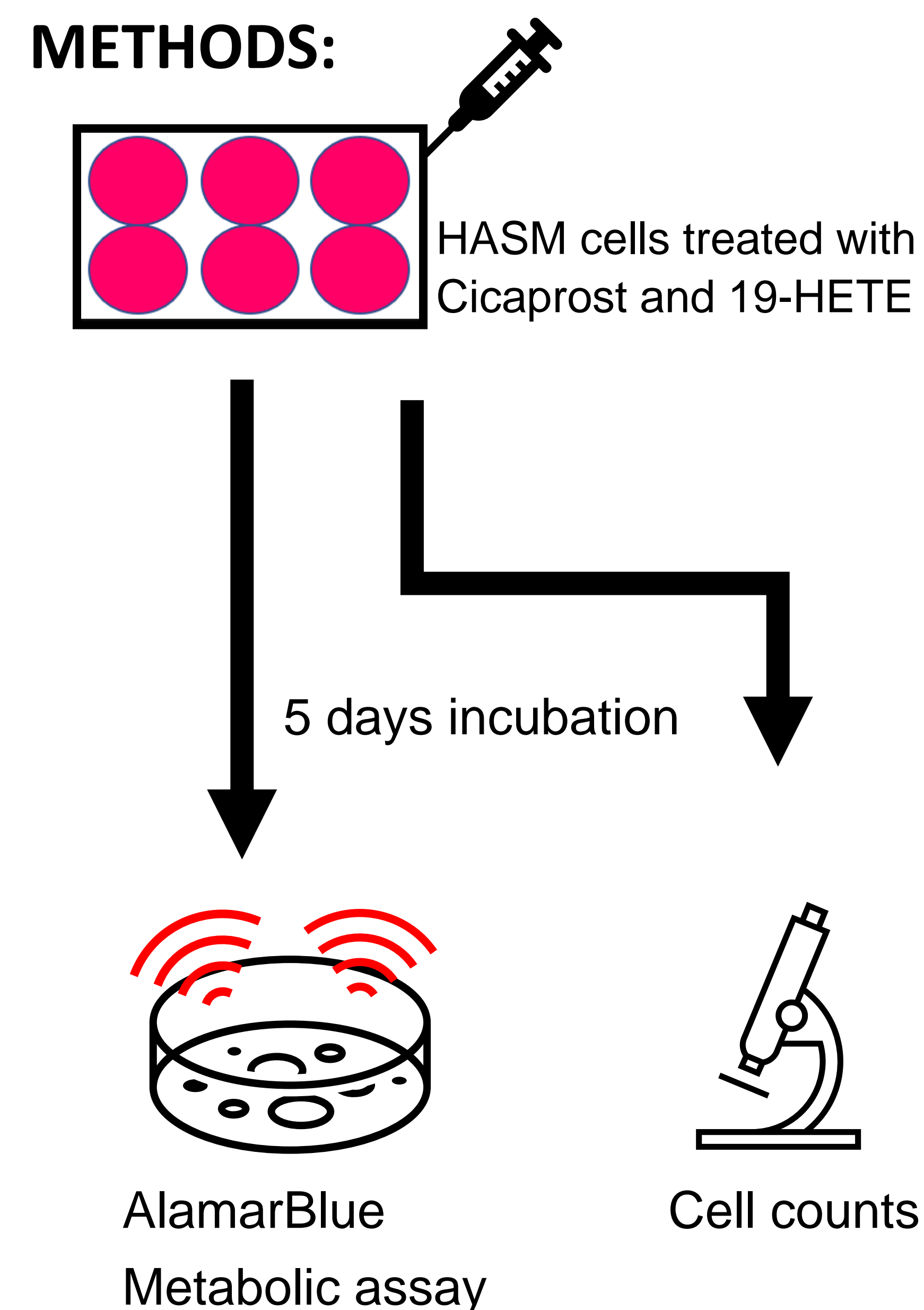
## AIM:

- The objective is to measure the effect of 19-HETE on HASM cell proliferation.

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## METHODS:



- Working concentrations of 1.0  $\mu$ M. DMSO as vehicle control
- Cell numbers done via hemocytometer as a proxy to cell count
- Cell count reported as a percent reduction in proliferation (mean  $\pm$  SD) and significance determined as  $p < 0.05$  in an uncorrected Dunn's test in Graphpad Prism.

## RESULTS:

### Metabolic Assay:

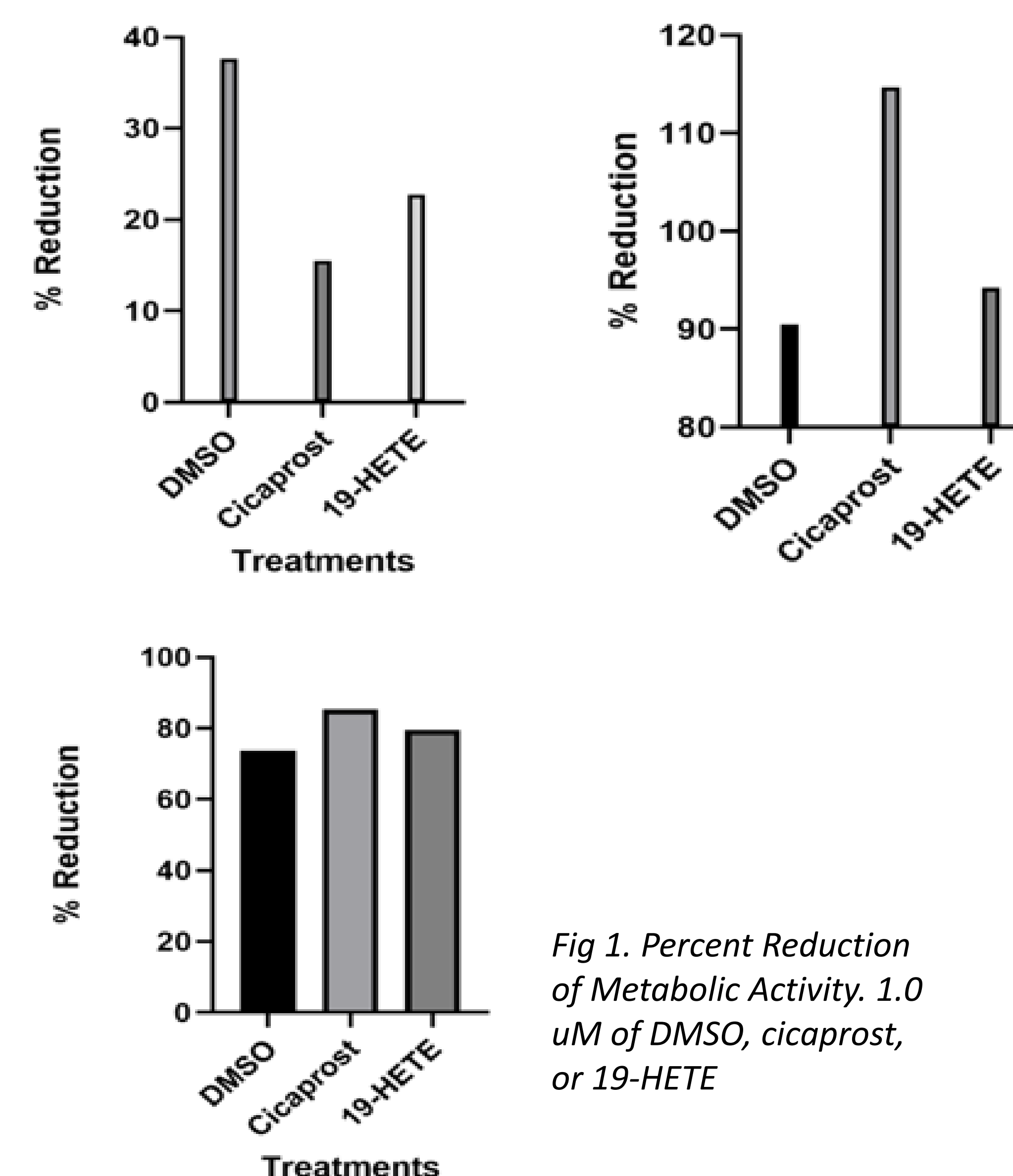


Fig 1. Percent Reduction of Metabolic Activity. 1.0  $\mu$ M of DMSO, cicaprost, or 19-HETE

### Cell count:

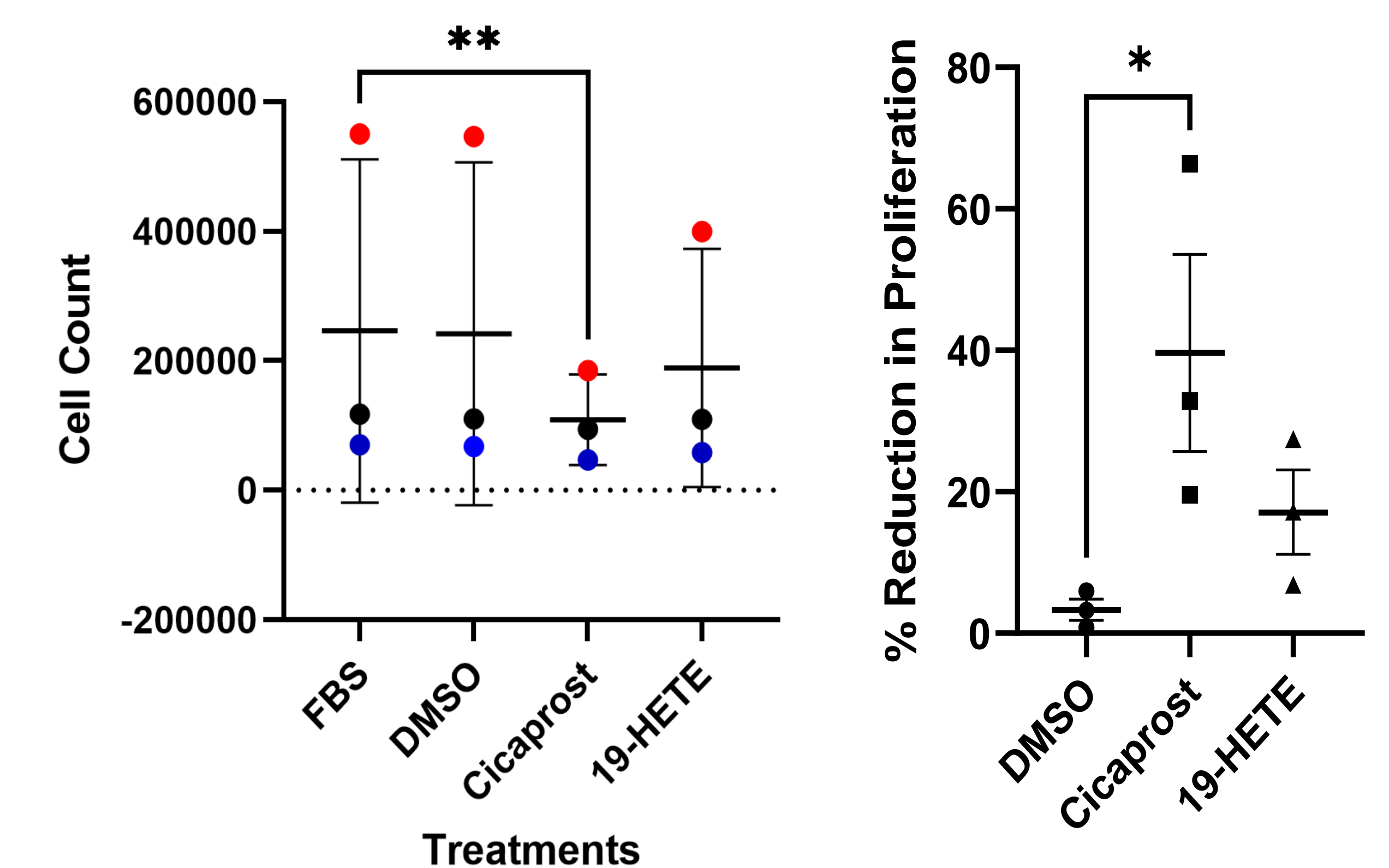


Fig 2. Fold increase in cell count from different treatments. Each cell line represented as a different colour.

Fig 3. Percent reduction of ASM proliferation. Normalized to FBS media.

- $39.5 \pm 24.1\%$  reduction with cicaprost ( $p < 0.05$ ).
- $17.1 \pm 10.3\%$  reduction with 19-HETE ( $p = 0.0578$ ).

## CONCLUSIONS:

- AlamarBlue dye results not an effective proxy for cell count.
- Proliferation rates can vary between cell lines.
- 19-HETE is trending towards a reduction of ASM proliferation in FBS. However, 19-HETE deemed not statistically significant.
- Due to small sample size, more data is needed.

