Stevia rebaudiana: Characteristics and Use
- Herbaceous plant in the sunflower family; leaves excrete glycosides with potent sweetness
- Categorized by the FDA as 'generally recognized as safe'
- Cultivated for its sweetener qualities

Potential Effects of Stevia Extract and Steviol on the Biochemistry of Cancer Cells
- Polyphenols can often demonstrate CDK4 inhibitory effects
- Polyphenols have been speculated to be cytotoxic to cancer cells
- One study observed selective CDK4 inhibitory effect in stevia extract

Methods and Materials
- Cultured rat osteosarcoma cells were examined in twelve 24-well trays over 9 days with varying exposure to steviol dissolved in ethanol
- Six conditions, two control groups:
  - V1: 0uM steviol
  - V2: 10uM steviol
- Treated cells were harvested on days 3, 6, and 9 and assayed for overall protein and alkaline phosphatase, and quantified via spectrophotometry

Discussion: Does Steviol have an Effect On the Growth and Differentiation of Cancer Cells?
- Results are not surprising, with alkaline phosphatase assay suggesting less differentiation while measures of cell density suggest proliferation of osteosarcoma cells
- Differentiation needs to decrease in order to cells to proliferate, hence the inverse relationship between alkaline phosphatase and cell density
- An interesting observation was also made in the first two trials for cell density as pictured in Figure 4

Results: Cell Density

Results: Alkaline Phosphatase Concentrations
- Cells exhibit response to treatment in no particular trend
- Low correlations (R²) values and p>0.05; no definitive conclusions can be made regarding this study on humans or even live rats.

What does this mean for the industry?
- It is important to remember the microscopic scale of this study and the risk factors of diet, such as sugar consumption
- Aspartame and erythritol have been linked to increased appetite which can further increase risk factors of diet-related ailments associated with over-consumption

Citations and Acknowledgments
- (British Journal of Medical Research) (2021) 1-8. doi: 10.1159/000508844

Figure 7: shown on left is a photo of an earlier trial, with only four treatment conditions (vehicle, low, medium, high concentrations).
Day 6 cells following fixation in methanol and staining with crystal violet. Cells appeared to ‘slough’ off the cell culture wells with no evidence of alkaline phosphatase or cell detection.