



The Role of Inhalant Cannabidiol (CBD) in the Treatment of Malignant Melanoma in a Murine Model

Jennine E. Jarrett, DDS, MS

The Dental College of Georgia, Augusta University



INTRODUCTION

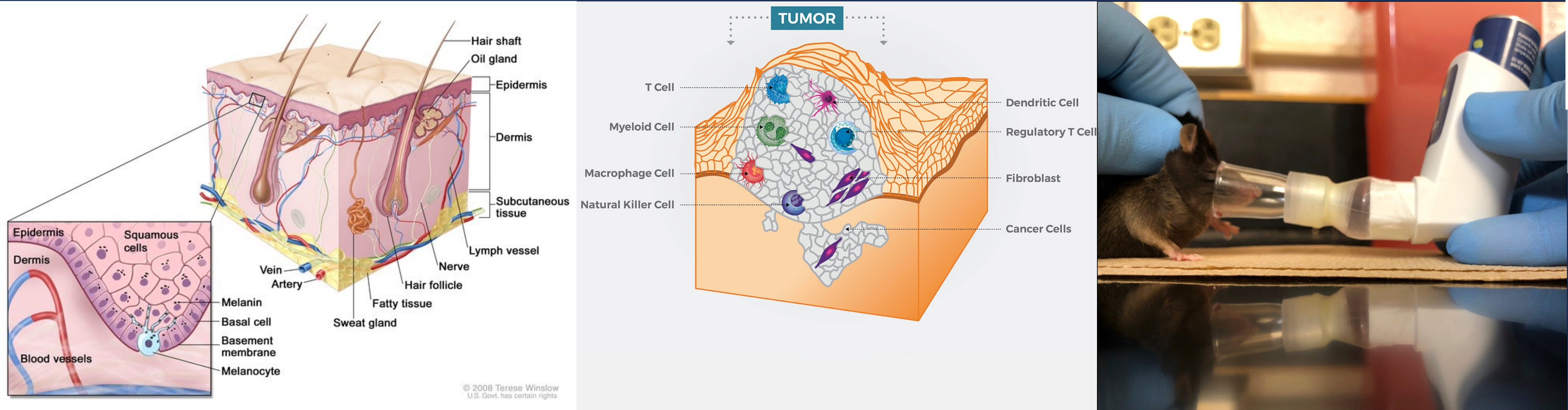
Skin cancer is the most common type of cancer worldwide, and many skin cancers are found in the Head & Neck region^{1,3}. Dentists are in an advantageous position to be among the first to identify these conditions. Many clinicians recommend a complementary approach to treating skin cancer, in which adjunct therapies are used in conjunction with conventional medical treatment². Recently, studies have begun to examine the effects of cannabidiol in slowing the growth of cancer cells³. The objective of this research is to determine if cannabidiol results in alterations of the tumor size by modifying the inflammatory mediators found in malignant melanoma.

HYPOTHESIS

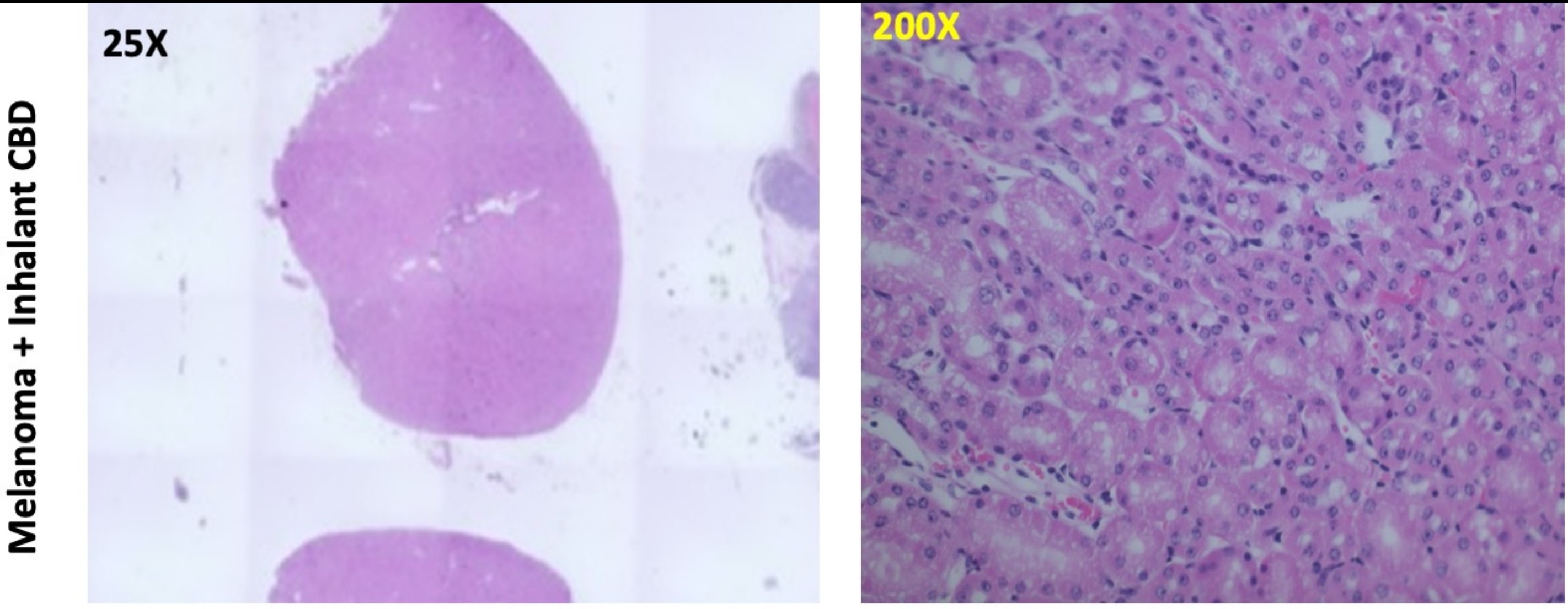
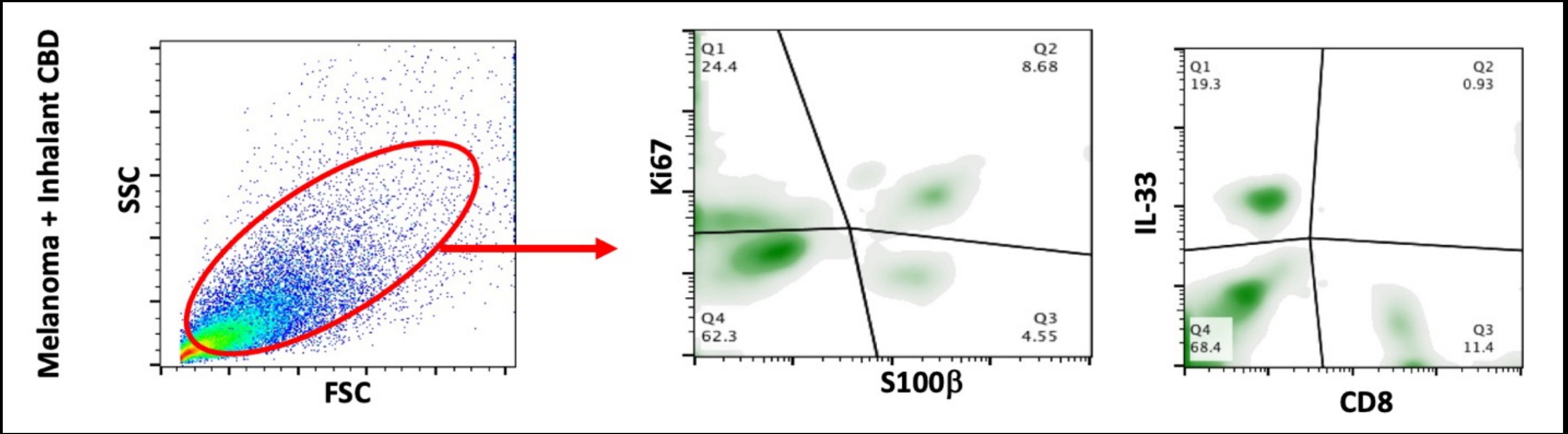
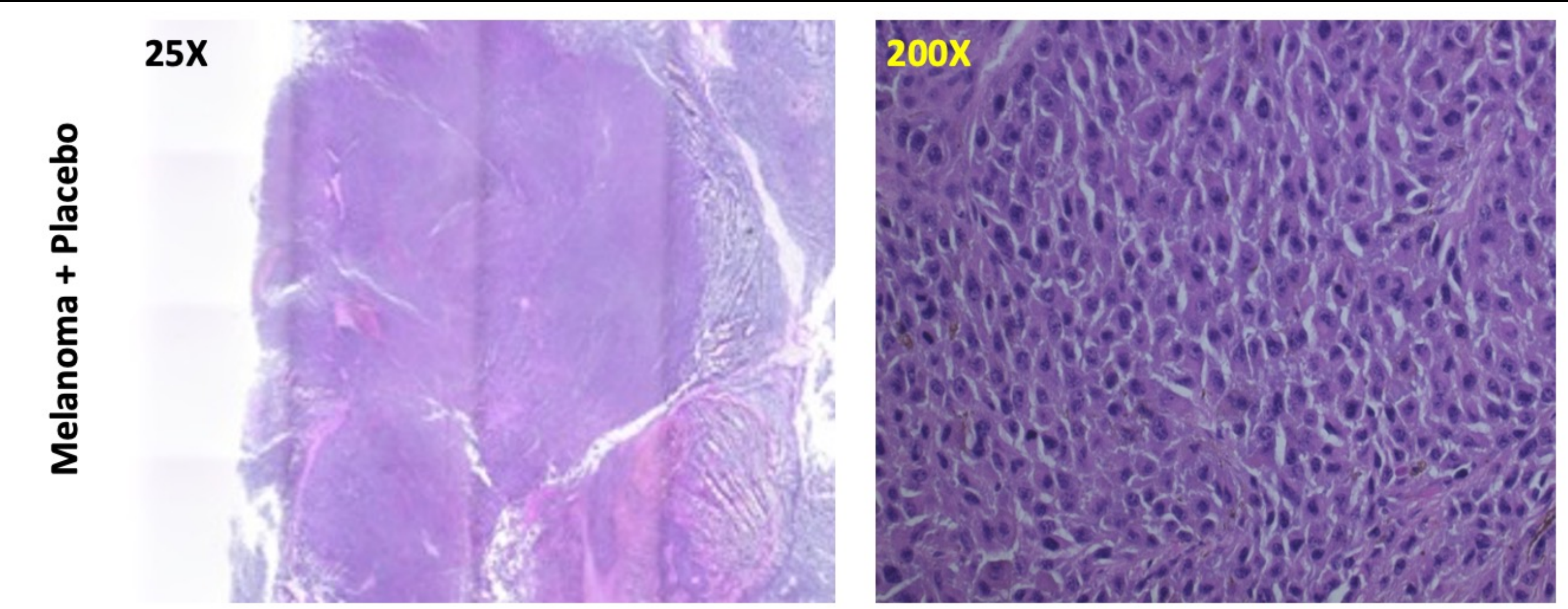
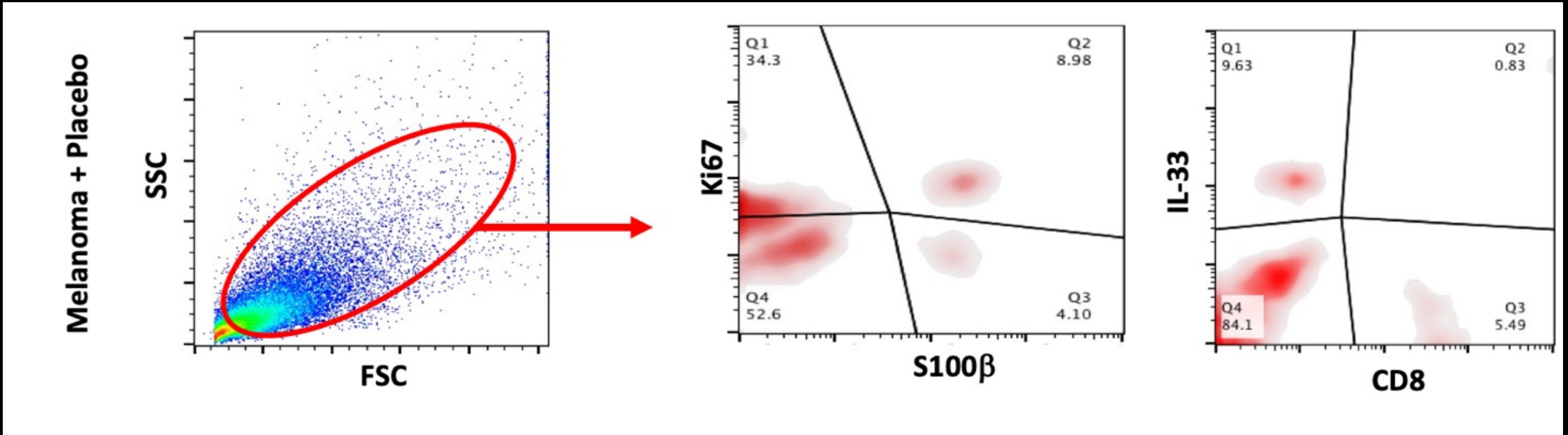
1. The tumor size will be decreased in the experimental group than that of the control group
2. CBD will result in the experimental group having a higher ratio of inflammatory cytokines to anti-inflammatory cytokines than in the control group

METHODS

There were 2 groups of mice—1 experimental and 1 control. Each group consisted of 5 male mice aged 8-12 weeks. A proprietary CBD tincture was formulated and delivered via a pressurized metered dose inhaler to the experimental group with a treatment dose of 4 inhaler puffs per animal per day.



RESULTS



The cells from both groups were H&E stained as well as had flow cytometry analysis completed. Both of these tests helped identify and quantify immune cells as well as provide information about the cell pattern, shape, and structure. Analysis was completed to measure Ki67, S100-beta, and IL-33 expression.

CONCLUSIONS

Cannabidiol was successful in altering the tumor microenvironment and also resulted in decreased tumor size. The experimental group resulted in more infiltration and follicle development of inflammatory mediators. The experimental group was also shown to reduce tumor growth by increasing the number of cytotoxic T-cells, which are responsible for destroying the cancerous cells.