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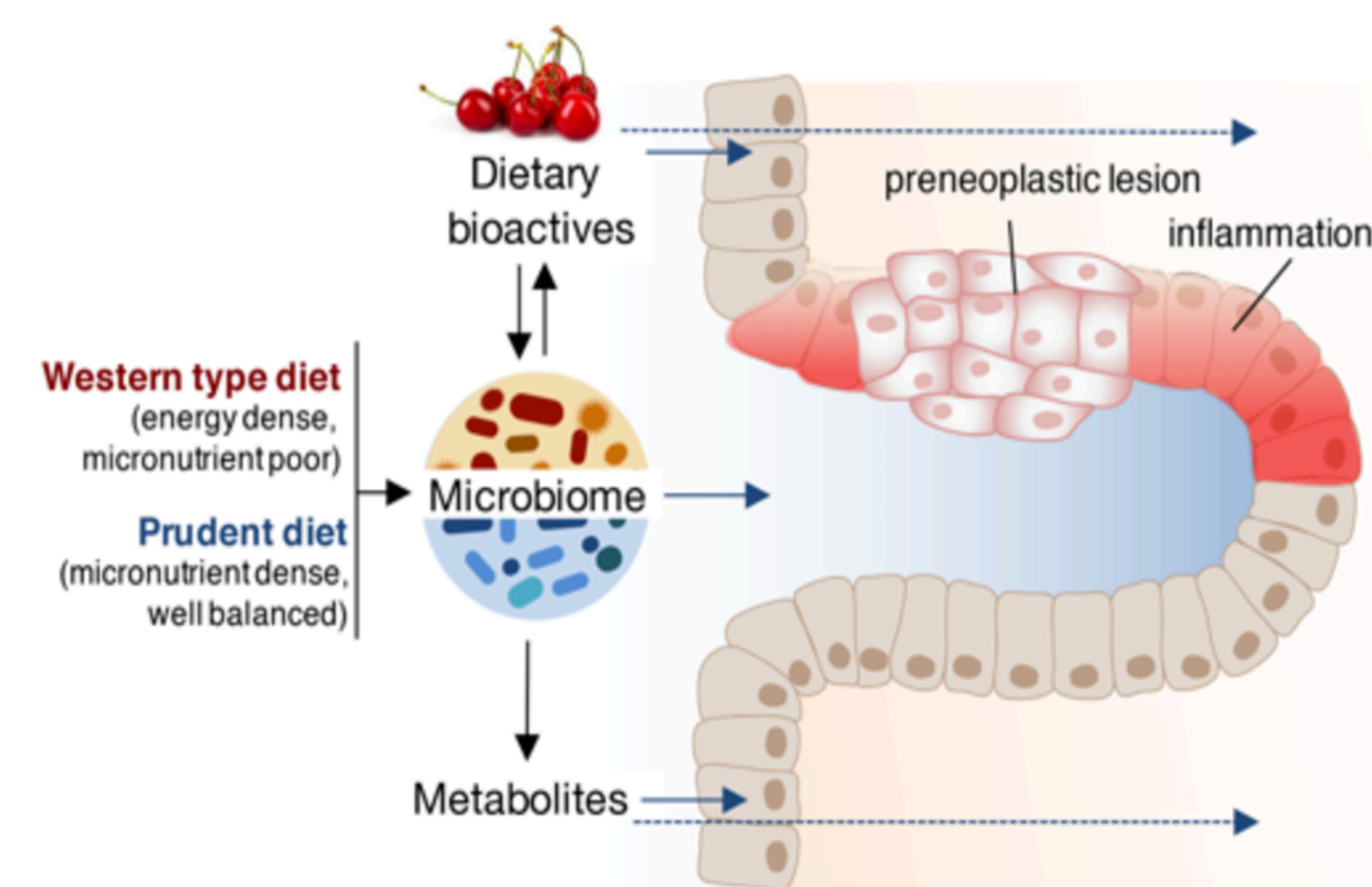
# Dietary supplementation with tart cherries for prevention of inflammation-associated colorectal cancer in mice

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## Introduction

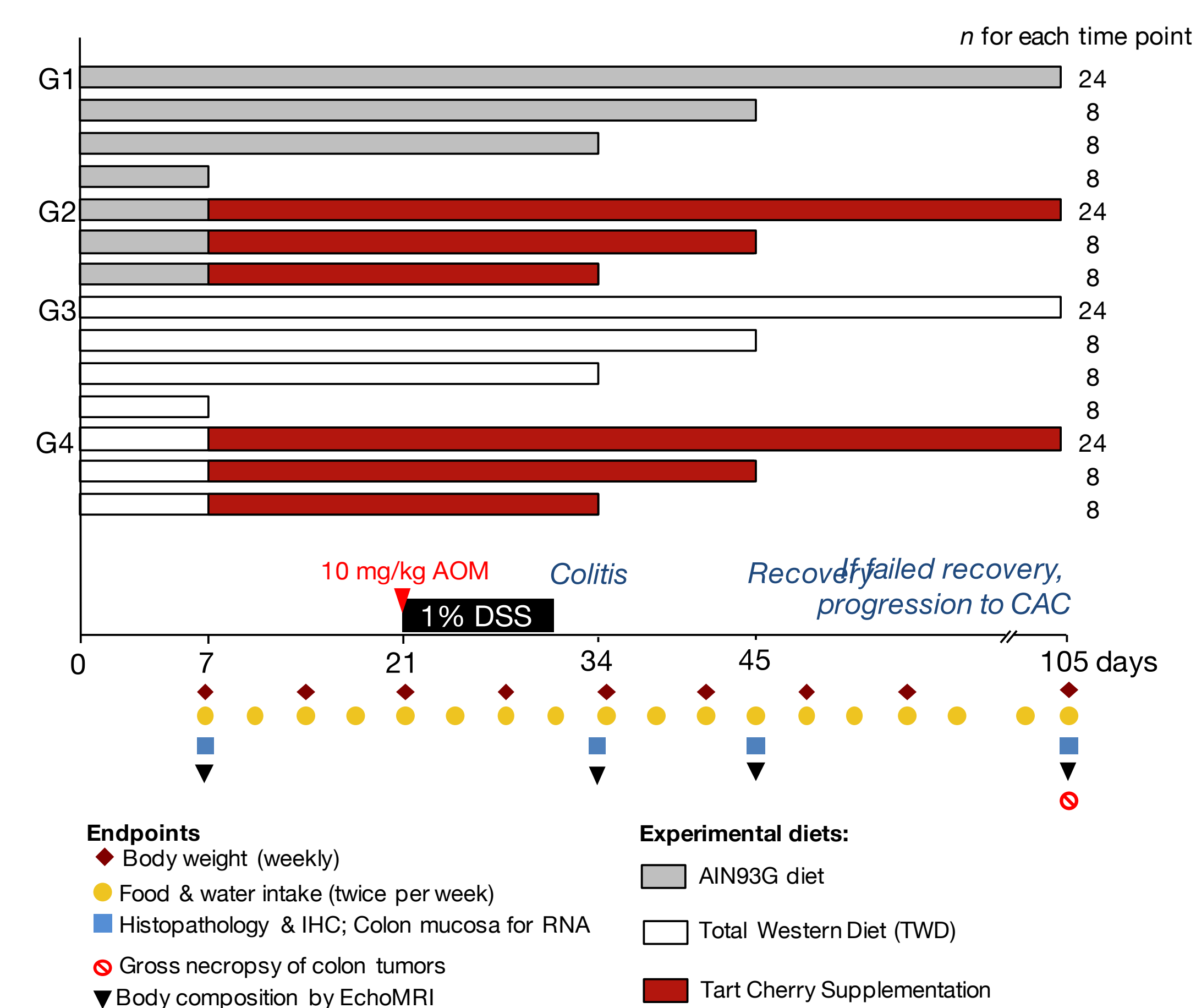
- Approx. 25% of deaths in Westernized countries are attributed to cancer.<sup>1</sup>
- The typical Western-diet is associated with higher risks of colorectal cancer (CRC) compared to a balanced diet.
- Tart cherries are rich in anthocyanins (a group of antioxidants) and have many benefits including prevention of cancer and inflammatory diseases.



Model for current investigations by our laboratory on the interactions between basal diet, functional foods & their bioactive chemicals and the gut microbiome and how these factors influence gut inflammation and development of inflammation-associated colorectal cancer in mice.

## Methods

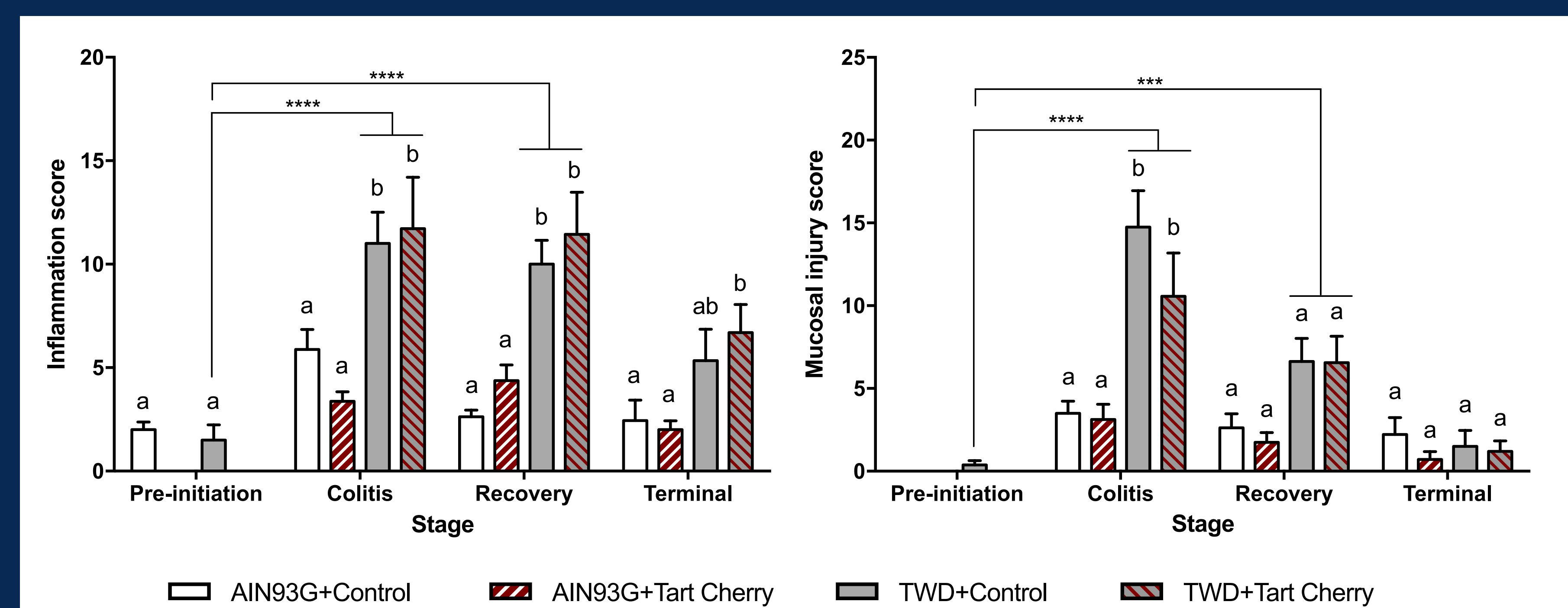
- Mice were fed a standard diet (AIN93G) or the total Western diet (TWD) with or without tart cherry supplementation (anthocyanin content at 188 ppm).
- Mice were injected with the carcinogen azoxymethane (AOM) and provided 1% dextran sodium sulfate (DSS) for 10 days.
- Mice from each dietary group were randomly selected to be necropsied at 1, 7, 9 and 15 weeks.
- Endpoints included food and water consumption, body weight and composition, feces, and tissues including the colon, liver, and cecum.



Design of pre-clinical study to test efficacy of tart cherry supplementation in mouse model of inflammation-associated CRC.

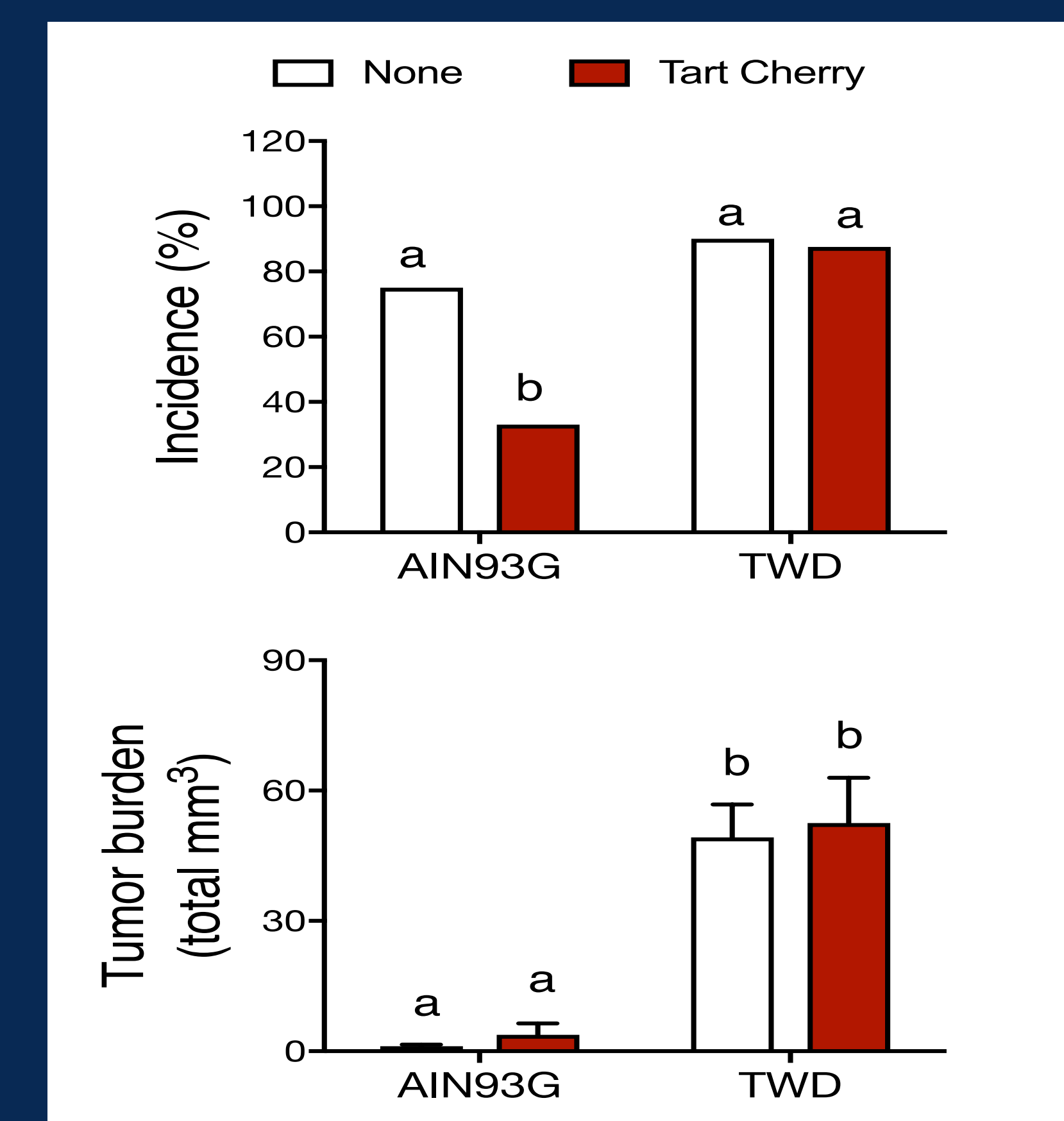
## Results

### Figure 1 – Colonic Inflammation and Mucosal Injury



Each colon was blindly scored based extent of inflammation, regeneration of the epithelium, crypt damage and percent of the colon involved. Within each disease stage, bars with different letters are statistically different.

### Figure 2 – Cancer outcome



Data shown are incidence (percentage of mice with colon tumors) and the mean + SEM tumor burden (total volume of tumor tissue per mouse) (n = 21 to 24 mice per group). Bars with different letters are statistically different.

## Conclusions

- Consumption of TWD markedly enhanced colitis, inflammation, mucosal injury and tumor burden in comparison to AIN93G.
- Consumption of AIN93G with tart cherries reduced tumor incidence, but did not affect other parameters measured.
- Careful consideration must be given to the role of basal diet in dietary chemoprevention studies in rodents.

