

Evaluation of Molecular Hydrogen in the Treatment of Intestinal Inflammation in a Murine Model

Oumaima Anachad*, Wafaa Taha, Imad Fenjar, Hicham Wahnou, Faiza Bennis and Fatima Chegiani

Laboratory of Immunology and Biodiversity, Faculty of Sciences Ain Chock, Hassan II University of Casablanca, Morocco

*Corresponding author: email: oumaimaanachad86@gmail.com

INTRODUCTION & AIM

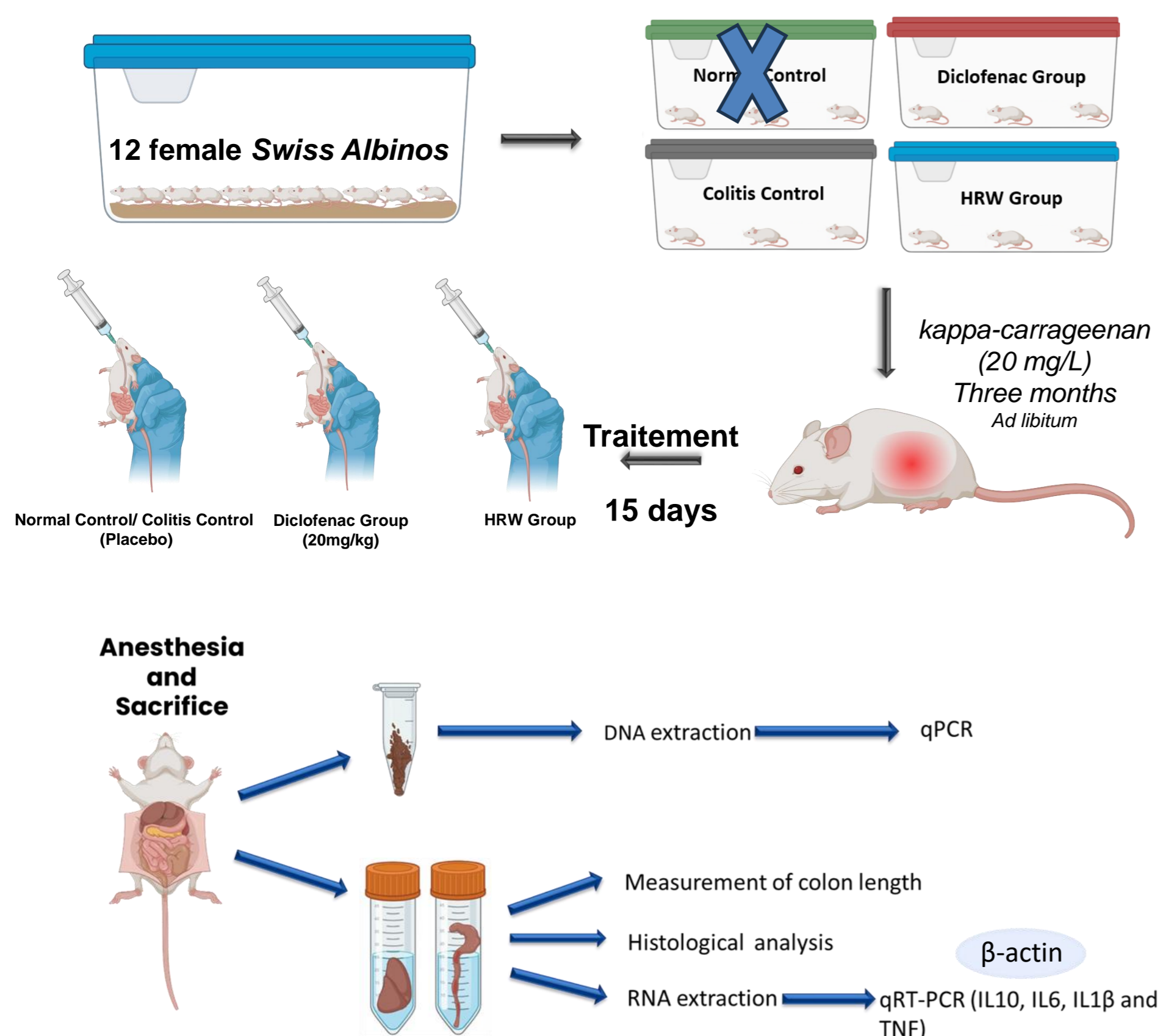
Intestinal inflammation is a key factor in gastrointestinal disorders like Crohn's disease, and ulcerative colitis. It results from an excessive immune response that damages the intestinal lining, causing pain, discomfort, and long-term complications. Millions of people worldwide suffer from chronic intestinal inflammation, which severely impacts their quality of life. Current treatments, such as corticosteroids and Non-Steroidal Anti-Inflammatory Drugs, often have significant side effects, making alternative therapies a priority. One dietary factor linked to inflammation is carrageenan, a common food additive found in processed foods and plant-based milk alternatives. Studies suggest that carrageenan can trigger gut inflammation, which, if persistent, may become chronic. This raises concerns about its long-term effects and highlights the need for strategies to counteract them. One promising approach is molecular hydrogen, known for its anti-inflammatory and antioxidant properties. Research suggests it may help regulate oxidative stress and inflammation, but its impact on gut health remains largely unexplored.

Our study aims to investigate its potential as a therapeutic agent in mitigating intestinal inflammation.

METHOD

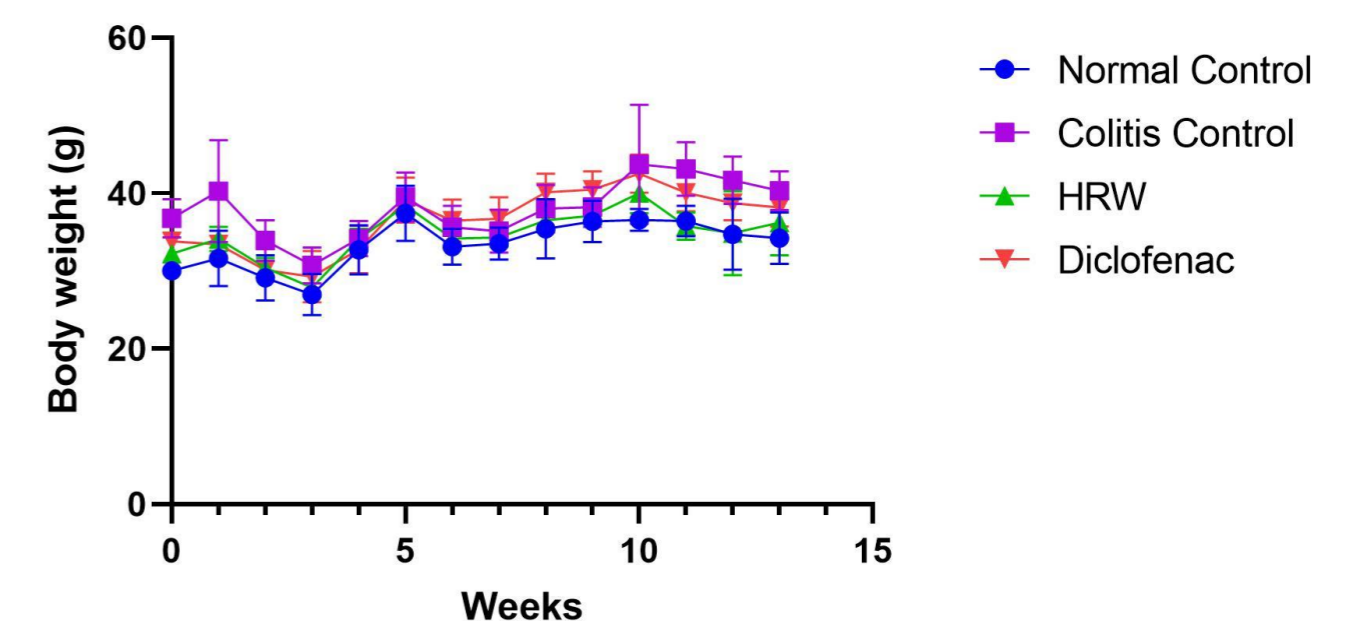
To explore this potential, we designed an experiment to evaluate the effects of molecular hydrogen in a murine model of chronic intestinal inflammation.

Experimental Design



RESULTS & DISCUSSION

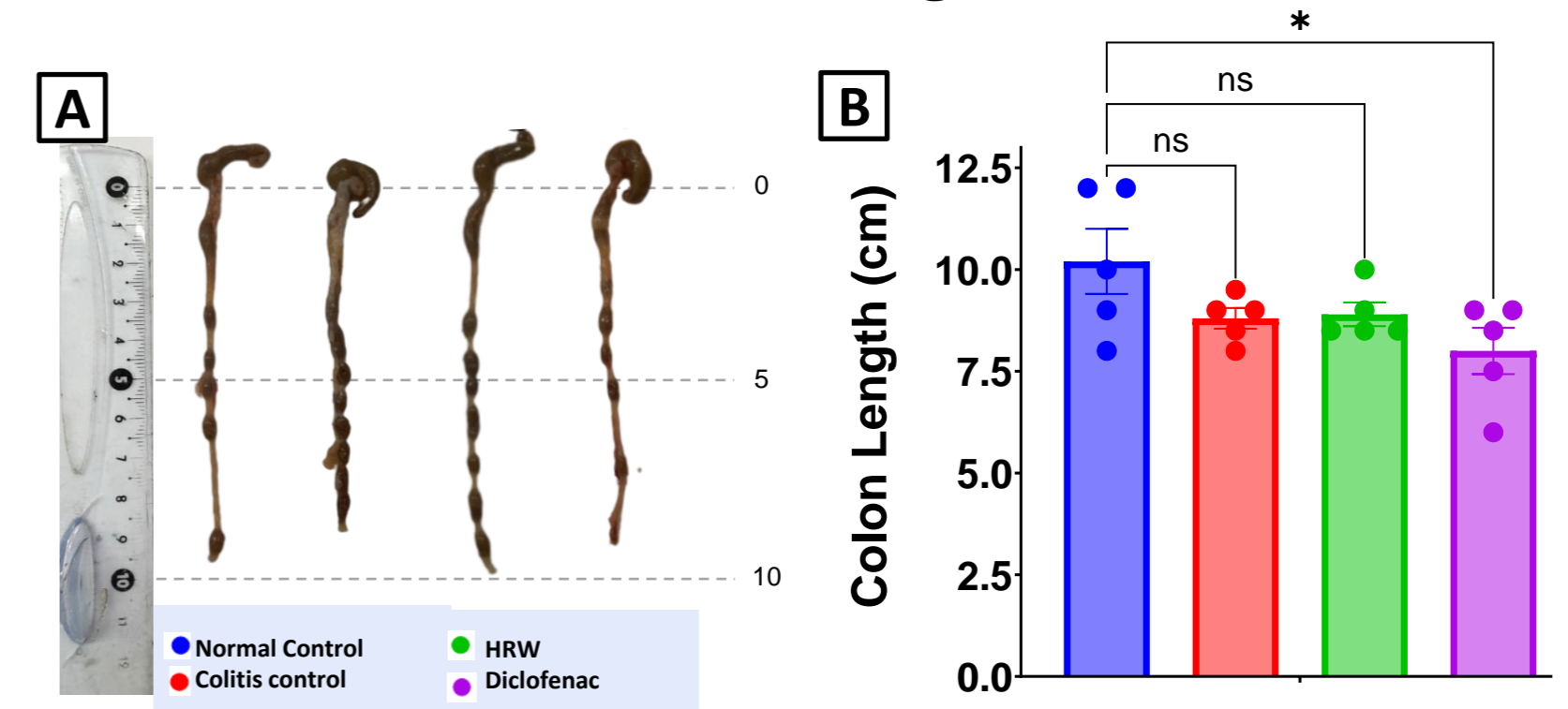
Body weight



Body weight throughout the study in female mice

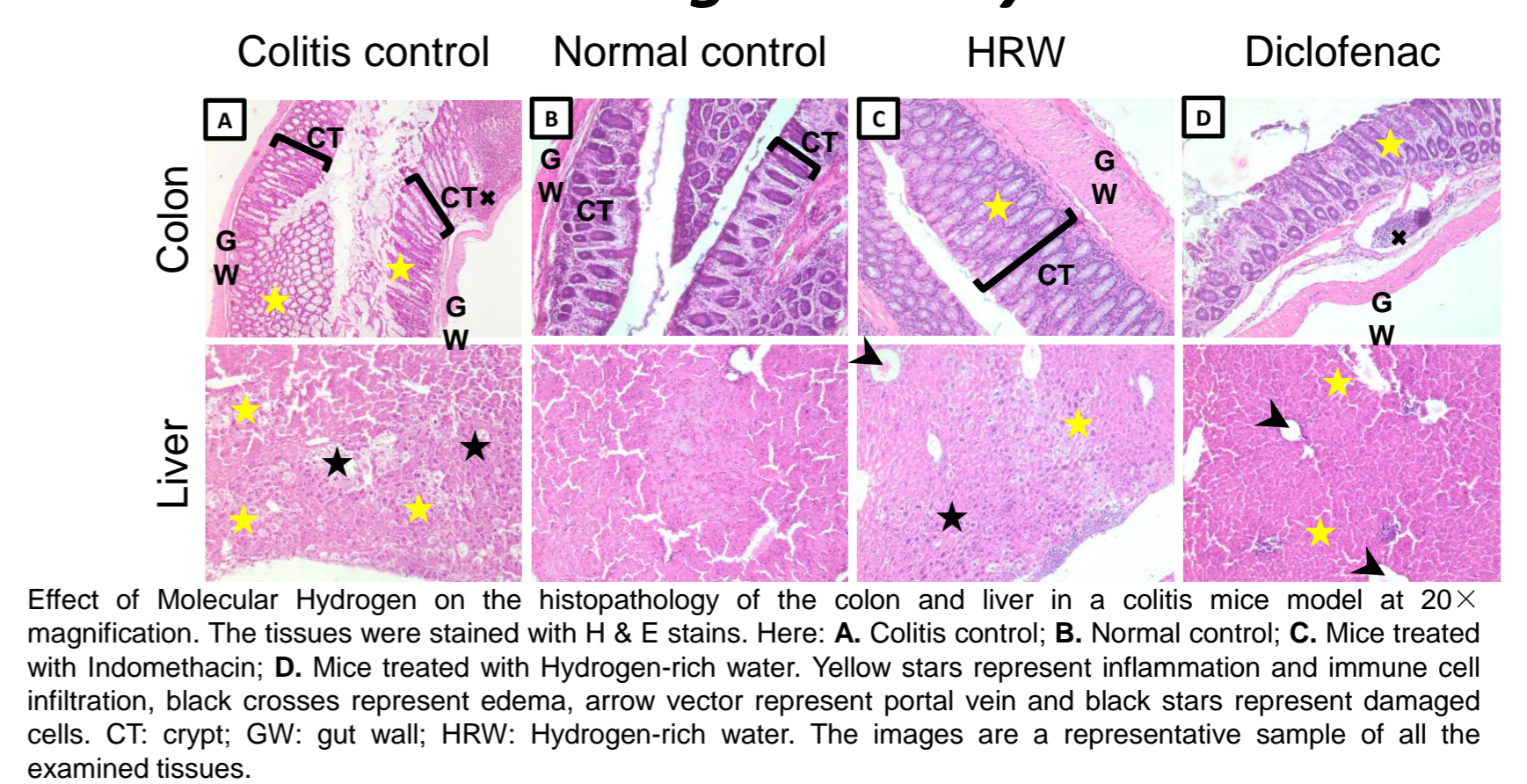
GraphPad Prism 9.4.0 software
One-way ANOVA test

Colon length



A. Representative picture of colon tissue length and morphology. B. Measurement of colon length (cm). Data are mean \pm SEM of five mice. *p < 0.05 versus normal control group. The colon images are a representative sample of all the colon tissues.

Histological analysis



CONCLUSION

Our findings suggest that molecular hydrogen could serve as a promising alternative to conventional anti-inflammatory drugs, offering stable immunomodulation with potentially fewer side effects.

FUTURE WORK / REFERENCES

To confirm these results, we are finalizing qRT-PCR analysis and will soon begin qPCR experiments. Future studies should focus on optimizing dosages, expanding sample sizes, and ultimately, conducting clinical trials to assess its therapeutic potential for inflammatory bowel diseases.