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Dye-Based Intestinal Transit Assay

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Alexandria White[1]

[1]Emory University

Alexandria White
Emory University

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Protocol status: Working
We use this protocol and it's working

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Disclaimer

All experimental procedures were performed in accordance with Emory University's Institutional Animal Care and Use Committee (IACUC) protocol #**201900030**.

Abstract

A protocol for assessing the intestinal motility of mice.

Intestinal Transit Assay

1 Prepare 6% carmine red dye in 0.5% methyl cellulose. Filter-sterilize and aliquot into 1 mL preparations. Store at 4C.

1.1 Prior to use, remove required amount (according to number of mice) of carmine mixture from 4C storage and allow to reach room temperature.

2 Exactly 1.5h prior to sacrifice, gavage each mouse with 100 uL carmine red mixture via intragastric gavage, using a sterile plastic feeding needle.

2.1 In order to achieve highest accuracy when measuring intestinal motility and ensure each mouse has exactly 1.5h for the dye to travel through the gut, it will be necessary to stagger gavages to align with sacrifice times (e.g., gavage with carmine every 7 minutes to account for perfusion time).

3 Upon sacrifice, carefully remove the intestines and measure the entire length of the small intestine (duodenum to ileum) and the entire length of the colon (cm).

4 Finally, measure how far the red carmine dye has traveled into the gut (cm).

4.1 If the dye is located inside the cecum, count it as having traveled the total length of the small intestine.

5 Using the added measurements recorded for the lengths of the small and large intestine, calculate the percentage of the total GI tract that the dye has traveled. This value is a representation of intestinal motility.