The Jackson Laboratory
Leading the search for tomorrow's cures

# Standard DSS-Induced IBD Protocol

Two JAX® Mice strains, C57BL/6J (000664) or BALB/cJ (000651) have shown to be effective models for acute Inflammatory Bowel Disease (IBD). Compared with the BALB/cJ strain, the C57BL/6J mice show a more severe IBD phenotype, thus requiring higher doses of reference compound to ameliorate the symptoms and prevent mortality (Aharoni, *et al.* 2006).

The Dextran Sulfate Sodium-induced (DSS-induced) mouse model of IBD is used for screening novel compounds for efficacy in Inflammatory Bowel Disease. The rapid induction of colonic inflammation and predictable progression of symptoms supports low cost, high throughput protocols.

This study is designed to answer the question "How well does my test compound suppress intestinal inflammation?" Not only can we provide an answer to this question, but at the lowest possible cost and in the shortest time possible. Typically, we can complete a study and submit a report to you within 10 weeks of receiving your purchase order and the safety data on your compound.

## Base Study Design:

In this study, 36 seven- to eight-week old C57BL/6J mice are imported into our Jackson Laboratory–West facility in Sacramento, California. Mice are randomly placed in groups once a natural enteric flora transfer step is performed to reduce the variability in disease onset and severity.

All mice have *ad libitum* access to drinking water containing 3.5 - 5% DSS for five days.

## Treatment:

| Group (n=12) | Treatment | Route Options | Schedule | Duration |
|---|---|---|---|---|
| 1 | Vehicle | po, ip, sc | daily | 7 days |
| 2 | Reference compound (commonly used: sulfasalazine, cimetidine) | po, ip, sc | daily | 7 days |
| 3 | Test compound 1 | po, ip, sc | daily | 7 days |

Mice are weighed twice weekly until dosing begins, and daily thereafter (weight loss and subsequent gain profiles are useful indicators of DSS-induced IBD progression). Once-daily dosing begins on day six and continues for seven days.

Mice are observed daily and clinical measurements, including IBD severity scoring, are conducted twice weekly. The IBD scoring system assigns severity scores of zero to three for three parameters: stool consistency, fecal blood, and anal prolapse.

Blood is drawn twice prior to dosing and once again at the end of the study. At study termination, colons are harvested, measured, flushed, weighed, and fixed for histopathological analysis and scoring.

## Procedures (all groups):

| Measure | Day | Total # of measures per animal |
|---|---|---|
| Body weight | -7, 1, 6-12 | 9 |
| Blood draw | 6, 12 | 2 |
| Clinical Observations | 1, 4, 6, 8, 10, 12 | 6 |
| Colon harvest | Test compound 1 | 1 |

**Contact us today:** ▶

**Phone:** 1-800-422-6423 or 1-207-288-5845
**Email:** jaxservices@jax.org
**Web:** *www.jax.org/jaxservices/invivo*

5/07/09

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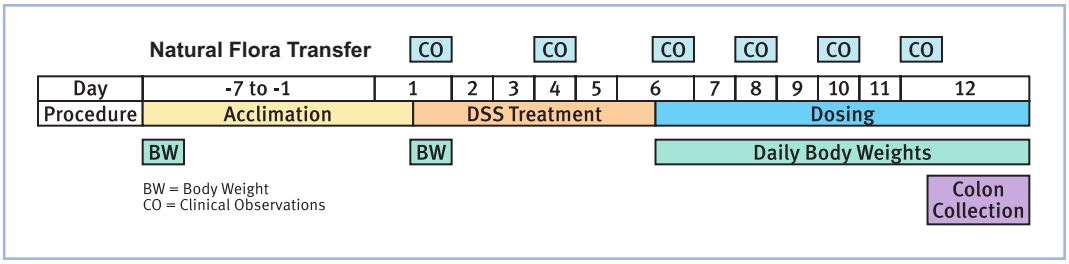
## Study Timeline:

The base study may be expanded to include two additional test cohorts, up to a maximum study size of 60 animals.



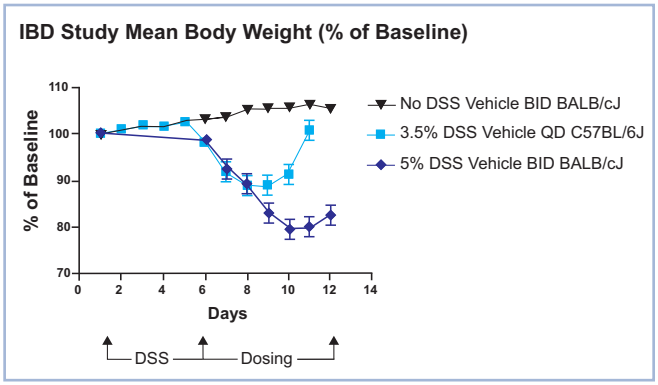

## Deliverables:

- Blood (serum or plasma)
- Histology blocks and slides
- Written report providing the following information:
  - Body weights changes
  - Clinical scoring of IBD symptom severity
  - Colon lengths and weights
  - Histopathology scoring of colons

## Representative data:

3.5 % and 5% DSS-Induced body weight loss

This graph shows that treatment with 3.5% to 5% DSS results in a rapid loss of body weight. This marked loss of body weight and subsequent recovery are reproducible key indicators of onset and severity of DSS-induced colitis. Due to the severity of the 5% DSS model, saline is administered on day 10 to combat dehydration; saline administration is not required in the 3.5% DSS model.




## Pricing:

For pricing or additional information please contact jaxservices@jax.org and refer to the "Standard DSS - Induced IBD Protocol".

**To begin the study we need the following information:**

- Preferred models: C57BL/6J or BALB/cJ
- Preferred dosing route: PO, IP or SC
- Vehicle — standard vehicles include**:** saline, PBS, carboxymethyl cellulose/tween suspension, DMSO
- Test compound name and dosing concentration
- MSDS for each test compound
- Signed Quote
- Purchase Order

### Reference:


Aharoni R, Kayhan B, Brenner O, Domev H, Labunskay G, Arnon R. 2006. Immunomodulatory therapeutic effect of glatiramer acetate on several murine models of inflammatory bowel disease. *J Pharmacol Exp Ther* 318:68-78.



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