

**Title:**

Sex-specific difference on IL-10<sup>-/-</sup> mice colitis phenotype and microbiota

**Authors:**

Maite Casado-Bedmar, Maryline Roy and Emilie Viennois \*

**Affiliations:**

INSERM, U1149, Center of Research on Inflammation, Université de Paris, Paris, 75018,  
France

**\*Correspondence:** emilie.viennois@inserm.fr (E.V.)

**ORCID iD:**

M.C-B. 0000-0003-0569-6361

E.V. 0000-0002-3104-620X

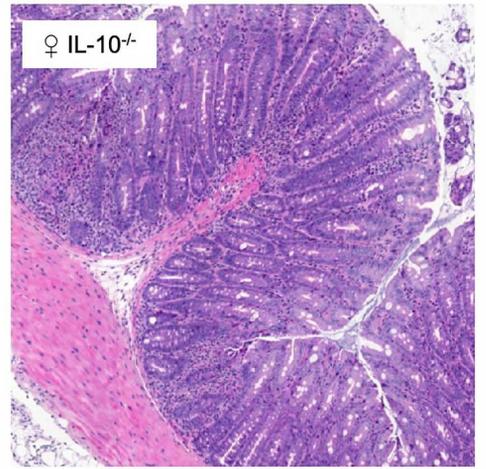
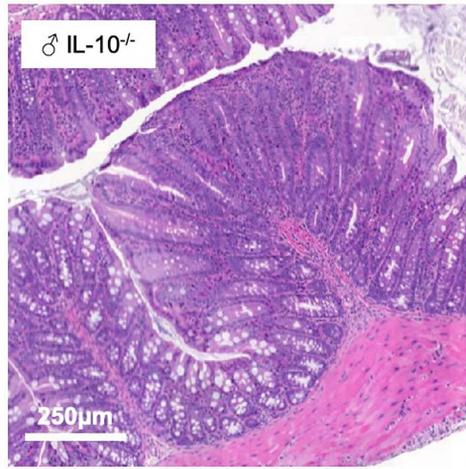
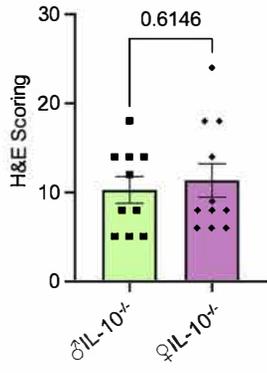
**Supplementary Figure S1. Histological analysis of colonic samples of IL-10<sup>-/-</sup> mice.**

Representative images of the histopathological score of H&E stained colonic samples of male (♂) and female (♀) IL-10<sup>-/-</sup> mice during severe colitis at 17 weeks of age. Scale bar = 250 μm.

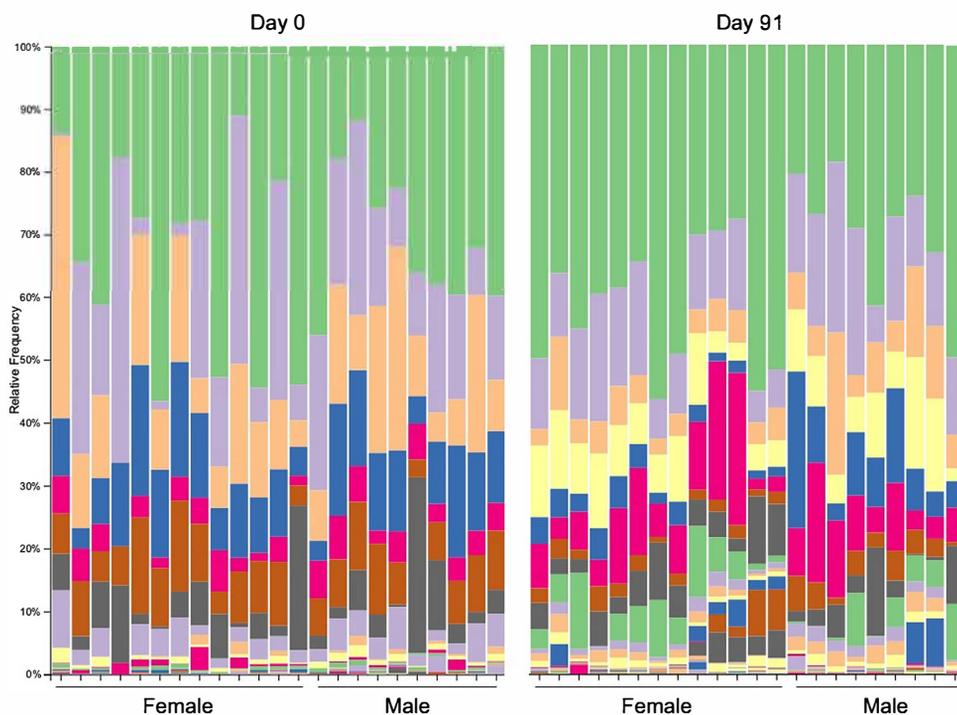
**Supplementary Figure S2. Taxonomy showing the dysbiosis associated with colitis in IL-10<sup>-/-</sup> mice.** Taxonomic relative abundance at specie level (level 7) for both females and males before colitis (day 0) and during severe colitis (day 91) from fecal samples of IL-10<sup>-/-</sup> mice.

**Supplementary Figure S3. Correlation matrix summarizing all the most relevant variables tested in IL-10<sup>-/-</sup> mice after 91 days of follow-up, 17 weeks of age.** Analysis performed per sex using the Spearman correlation coefficient R, with R = 1 (positive correlation) and R = -1 (negative correlation) displayed with blue or orange, respectively. W/L: weight/length ratio; W/BW: weight/body weight ratio; LPCN-2: fecal lipocalin-2; MPO: colonic myeloperoxidase; TNF: tumor necrosis factor; IL: interleukin; FLGN: flagellin, LPS: lipopolysaccharides; Akkermansia mun.: fecal *Akkermansia muciniphila* at day 91.

# Supplementary Figure S1.



# Supplementary Figure S2.



- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_S24-7;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_;
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Rikenellaceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_;
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_;
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_Oscillospira;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Lactobacillales;f\_\_Lactobacillaceae;g\_\_Lactobacillus;s\_\_
- k\_\_Bacteria;p\_\_Verrucomicrobia;c\_\_Verrucomicrobiae;o\_\_Verrucomicrobiales;f\_\_Verrucomicrobiaceae;g\_\_Akken
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_Ruminococcus;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_Coproccoccus;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_[Ruminococcus];s\_\_gnavus
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Bacteroidaceae;g\_\_Bacteroides;s\_\_acidifaci
- k\_\_Bacteria;p\_\_Tenericutes;c\_\_Mollicutes;o\_\_Anaeroplasmatales;f\_\_Anaeroplasmataceae;g\_\_Anaeroplasma;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Lactobacillales;f\_\_Lactobacillaceae;g\_\_Lactobacillus;g\_\_
- k\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Bacteroidaceae;g\_\_Bacteroides;g\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_;
- k\_\_Bacteria;p\_\_Cyanobacteria;c\_\_4C0D-2;o\_\_YS2;f\_\_g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Lactobacillales;f\_\_Lactobacillaceae;g\_\_Lactobacillus;s\_\_vaginalis
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Clostridiaceae;g\_\_Clostridium;s\_\_
- k\_\_Bacteria;p\_\_Proteobacteria;c\_\_Beta proteobacteria;o\_\_Burkholderiales;f\_\_Comamonadaceae;g\_\_;
- k\_\_Bacteria;p\_\_Tenericutes;c\_\_Mollicutes;o\_\_RF39;f\_\_g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_Dorea;s\_\_
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Dehalobacteriaceae;g\_\_Dehalobacterium;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Christensenellaceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Erysipelotrichi;o\_\_Erysipelotrichales;f\_\_Erysipelotrichaceae;g\_\_Clostridium;s\_\_cox
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Bacteroidaceae;g\_\_Bacteroides;s\_\_
- k\_\_Bacteria;p\_\_Proteobacteria;c\_\_Alphaproteobacteria;o\_\_RF32;f\_\_g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Clostridiaceae;g\_\_;
- k\_\_Bacteria;p\_\_Actinobacteria;c\_\_Coriobacteria;o\_\_Coriobacteriales;f\_\_Coriobacteriaceae;g\_\_Adlercreutzia;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Turricbacteriales;f\_\_Turricbacteraceae;g\_\_Turricbacter;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_[Mogibacteriaceae];g\_\_s\_\_
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Porphyromonadaceae;g\_\_Parabacteroides;g\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_Faecalibacterium;s\_\_prausnit
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_Butyrivibrio;s\_\_pullicaeor
- k\_\_Bacteria;p\_\_Actinobacteria;c\_\_Actinobacteria;o\_\_Bifidobacteriales;f\_\_Bifidobacteriaceae;g\_\_Bifidobacterium;g\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Bacillales;f\_\_Staphylococcaceae;g\_\_Staphylococcus;g\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Erysipelotrichi;o\_\_Erysipelotrichales;f\_\_Erysipelotrichaceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_Anaerostipes;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Erysipelotrichi;o\_\_Erysipelotrichales;f\_\_Erysipelotrichaceae;g\_\_Coproccoccus;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Erysipelotrichi;o\_\_Erysipelotrichales;f\_\_Erysipelotrichaceae;g\_\_Allobaculum;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_Blautia;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_Clostridium;s\_\_methylpentos
- k\_\_Bacteria;p\_\_Actinobacteria;c\_\_Actinobacteria;o\_\_Bifidobacteriales;f\_\_Bifidobacteriaceae;g\_\_Bifidobacterium;g\_\_
- k\_\_Bacteria;p\_\_Actinobacteria;c\_\_Actinobacteria;o\_\_Bifidobacteriales;f\_\_Bifidobacteriaceae;g\_\_Bifidobacterium;g\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_Clostridium;g\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Lachnospiraceae;g\_\_Roseburia;s\_\_faecis
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Bacteroidaceae;g\_\_Bacteroides;s\_\_ovatus
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Prevotellaceae;g\_\_Prevotella;s\_\_copri
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Porphyromonadaceae;g\_\_Parabacteroides;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Ruminococcaceae;g\_\_Ruminococcus;s\_\_bromii
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Prevotellaceae;g\_\_Prevotella;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Lactobacillales;f\_\_Streptococcaceae;g\_\_Streptococcus;s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Bacilli;o\_\_Lactobacillales;f\_\_Enterococcaceae;g\_\_Enterococcus;s\_\_
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_Bacteroidaceae;g\_\_Bacteroides;s\_\_uniformis
- k\_\_Bacteria;p\_\_Deferribacteres;c\_\_Deferribacteres;o\_\_Deferribacterales;f\_\_Deferribacteraceae;g\_\_Mucisipillum
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Veillonellaceae;g\_\_Megamonas;s\_\_
- k\_\_Bacteria;p\_\_Proteobacteria;c\_\_Gamma proteobacteria;o\_\_Enterobacteriales;f\_\_Enterobacteriaceae;g\_\_;
- k\_\_Bacteria;p\_\_Actinobacteria;c\_\_Coriobacteria;o\_\_Coriobacteriales;f\_\_Coriobacteriaceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Firmicutes;c\_\_Clostridia;o\_\_Clostridiales;f\_\_Peptostreptococcaceae;g\_\_s\_\_
- k\_\_Bacteria;p\_\_Bacteroidetes;c\_\_Bacteroidia;o\_\_Bacteroidales;f\_\_[Paraprevotellaceae];g\_\_[Prevotella];s\_\_

# Supplementary Figure S3.

