

Supplementary Figure 1. Increased mortality of GF mice with high concentrations of DSS. A. Survival curves for GF and SPF mice after treatment with AOM/DSS at DSS concentrations of 2.5% (N=7 mice SPF group, 11 mice GF group, left) and 2% (N=9 mice SPF group, 8 mice GF group, right). B. Weight changes in SPF and B6 mice with AOM and 2.5% DSS treatment. C. Representative micrographs of colons from AOM-DSS treated of moribund GF and SPF mice after AOM/2.5% DSS treatment (200X magnification). Arrows denote areas of complete crypt loss.

Supplementary Figure 2. Tumors in GF mice have similar nuclear beta-catenin localization as tumors in SPF mice. Representative micrographs of normal and tumor tissue from SPF and GF mice at 600X magnification.

Supplementary Figure 3. Percent weight change from baseline (start of DSS) for GF and SPF mice with AOM and 1.5% DSS. Black bars indicate time of DSS treatment. Data expressed as means \pm S.E.M., *p<0.05, Student's t-test.

Supplementary Figure 4. Increased inflammatory cell recruitment in SPF mice early after DSS-induced intestinal injury. A. Graph of percentages of colon lamina propria cells as measured by flow cytometry in untreated SPF and GF mice (N=4 mice/group). B. (top left) FACs plots of Gr-1+, CD11b+, CD11c+ colon lamina propria cells in GF and SPF on day 10 and day 12 of AOM/DSS treatment (end of first round of DSS and 2 days after, respectively). Data is representative of at least 3 independent experiments. (top right) Graph showing percentage of colon lamina propria cells as measured by flow cytometry. Data expressed as means \pm S.E.M., *p<0.05, Student's t-test (N=3 mice/group) (bottom) Representative micrographs of indicated sorted cells after Wright-equivalent staining (400X magnification).

Supplementary Figure 5. Tumors in GF mice have similar proliferative activity as tumors in SPF mice. Sections containing tumor from SPF or GF mice were stained with Ki67 and number of cells were counted in 1-3 HPFs (right). Representative micrographs of Ki67-stained tumors at 400X magnification are shown on left. Data expressed as means \pm S.E.M., *p<0.05, Student's t-test (N=4 tumors/group).

Supplementary Figure 6. Recolonization of GF mice with the gut microbiota reduces mortality to DSS. A. 100% survival was achieved with AOM given with 2% DSS. (N=5 mice/group) B. Weight change from baseline (start of DSS) of GF mice after co-housing with SPF for three weeks followed by AOM/DSS treatment. Data expressed as means \pm S.E.M., *p<0.05, Student's t-test (N=5 mice/group)

Supplementary Figure 7. Recolonization of GF mice with the gut microbiota restores ability of GF mice to induce reparative inflammation. A. Histologic scores of GF mice naturally recolonized by cohousing with SPF mice for 3 weeks prior to treatment with AOM and one round of 2% DSS. B. Representative micrographs of jelly-rolled colons of SPF and GF mice on day 12 and 18 of AOM/2% DSS. C. Measurement of cytokines, chemokines, and proliferative markers on days 12 and 18 by real-time PCR. Ct values were normalized against β -actin. N=5 mice/group/timepoint. Data expressed as means \pm S.E.M., *p<0.05.