**Liu et al., SUPPLEMENTAL FIGURE LEGENDS**

**Supplemental Figure 1. Overview of experimental cohorts.** Three distinct cohorts of mice were used for in vivo studies of intra-peritoneal metastasis. Mice were weighed bi-weekly or weekly, as shown until a statistically significant difference in group weight within the cohort was achieved. ***Cohort one*** was a DIO cohort comprised of two groups of nu/nu mice (n=13 per group) fed either control diet (control; Research Diets #98121701i) or western diet (western; Research Diets #D12079Bi, 40% fat) for 16 weeks. Nude mice were maintained in temperature controlled housing at 84 oF, 27% humidity. ***Cohort two*** was a DIO cohort comprised of two groups of C56BL/6 mice (n=9 western, n=8 control) fed either control or western diet for up to 26 weeks. ***Cohort three*** was a genetic obesity cohort comprised of two groups of mice (n=10 per group) including B6.Cg-*Lepob* (designated *ob/ob*) or wild type BL6 colony controls. Both groups were fed a diet of normal mouse chow for 13 weeks. All animal procedures were conducted in accordance with University of Notre Dame Institutional Animal Care and Use Committee regulations.

**Supplemental Figure 2. Representative histology of *Cohort 2* metastatic implants in control or DIO C57/Bl6 mice.** **(A,K)** liver, **(B,L)** small intestine, **(C,M)** stomach, **(D,N)** spleen, **(E,O)** omentum, **(F,P)** ovaries, **(G,Q)** diaphragm, **(H,R)** colon, **(I,S)** peritoneum, **(J,T)** mesentery.

**Supplemental Figure 3. Representative histology of *Cohort 3* metastatic implants in wild type control or *ob/ob* mice.** **(A,K)** liver, **(B,L)** small intestine, **(C,M)** stomach, **(D,N)** spleen, **(E,O)** omentum, **(F,P)** ovaries, **(G,Q)** diaphragm, **(H,R)** colon, **(I,S)** peritoneum, **(J,T)** mesentery.

**Supplemental Figure 4. Immunohistochemical analysis of proliferation in murine tumor tissues.**  **(A-D)** Representative images showing proliferating cell nuclear antigen (PCNA) staining in metastatic tumors grown in (A) control diet or (B) western diet C57Bl/6 mice or (C) wild type control or (D) *ob/ob* mutant mice. Tissues were stained for PCNA using anti-PCNA antibody (1:1200 dilution), peroxidase conjugated secondary antibody and DAB chromogen detection as described in Methods. **(E)** Quantitation of PCNA. Staining was quantified using an Aperio Image Scope digital pathology system as described in Methods. (differences not significant)