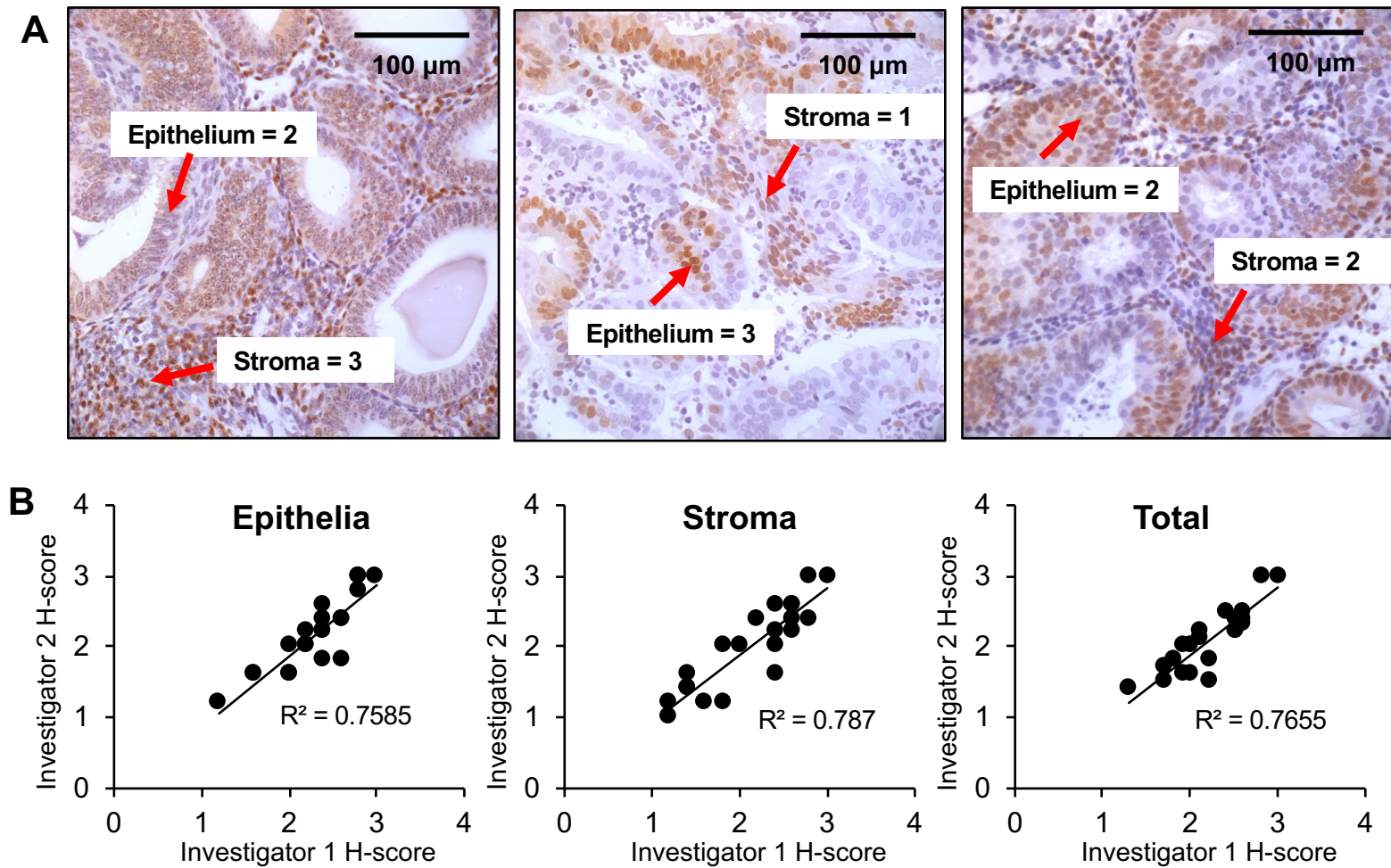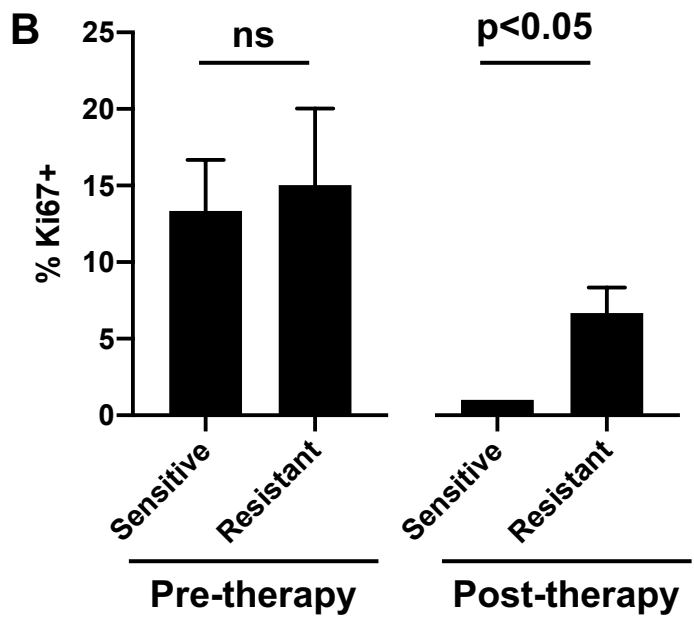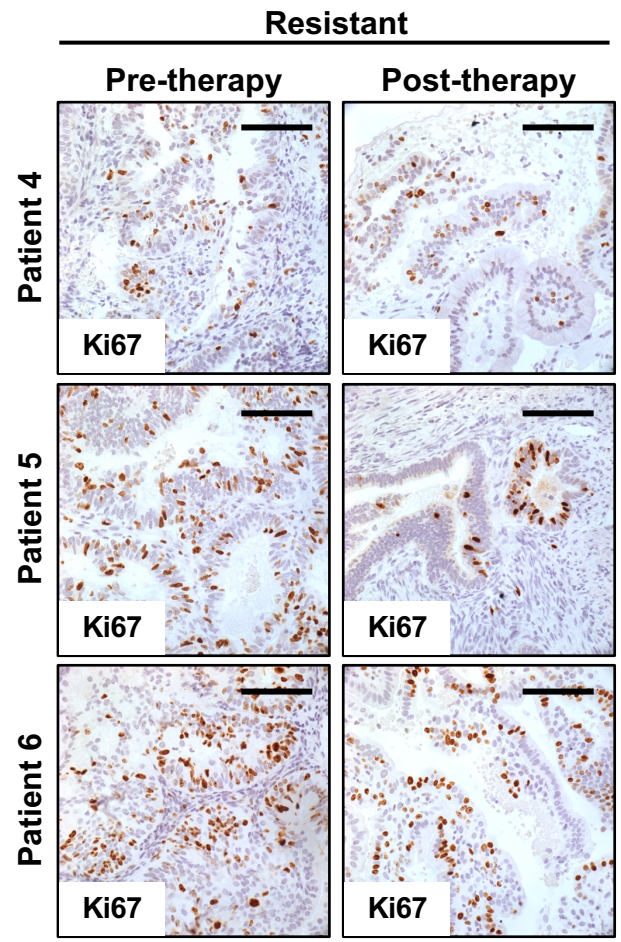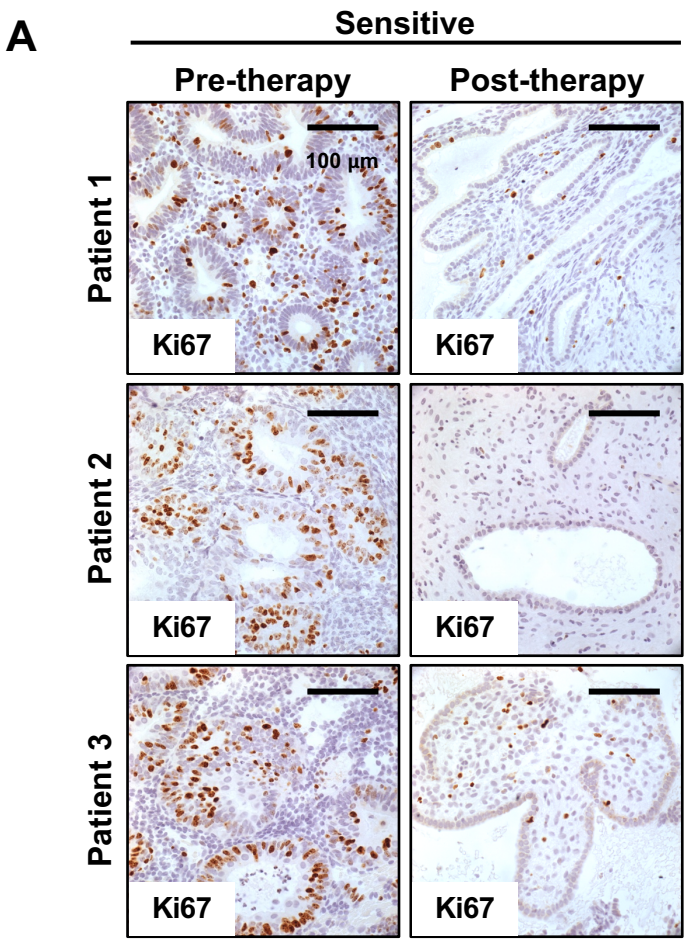**Supplementary Figure 1. Calculation of H-score for manual progesterone receptor expression scoring**

Supplementary Figure 1. Calculation of H-score for manual progesterone receptor expression scoring. (A) Stromal and epithelial H-scores for progesterone receptor (PR) expression were determined using a qualitative scoring system (0-3) determined by 2 independent investigators in 12 sensitive and 9 resistant samples. Independent H-score values for each patient sample were averaged for the epithelium and stroma separately. A score of 3=intense/dark staining of nuclei, 2=average staining of nuclei, 1=light staining of nuclei, 0=no staining of PR. Total endometrial H-scores were calculated by averaging the stromal and epithelial scores for each sample. **(B)** Correlation between two investigator reported H-scoring for PR in epithelial, stromal, and in total endometrial tissue shown.
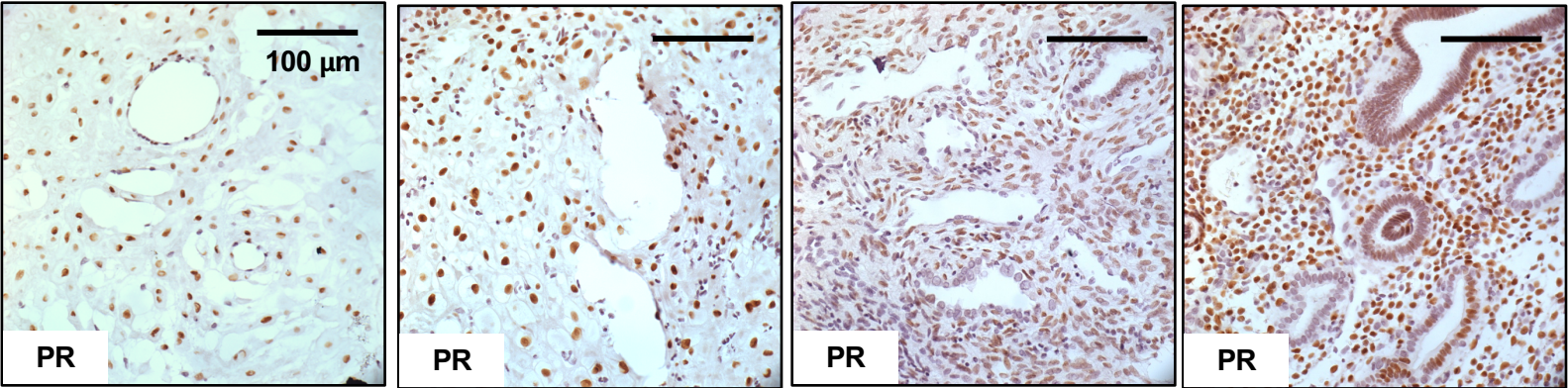
Supplementary Figure 2. Representative images for Ki67 in pre- and post-therapy endometrial biopsies

A

Sensitive

Pre-therapy	Post-therapy

Patient 1 — Ki67 · 100 µm

Patient 2 — Ki67

Patient 3 — Ki67

Resistant

Pre-therapy	Post-therapy

Patient 4 — Ki67

Patient 5 — Ki67

Patient 6 — Ki67

B

ns · p<0.05

% Ki67+

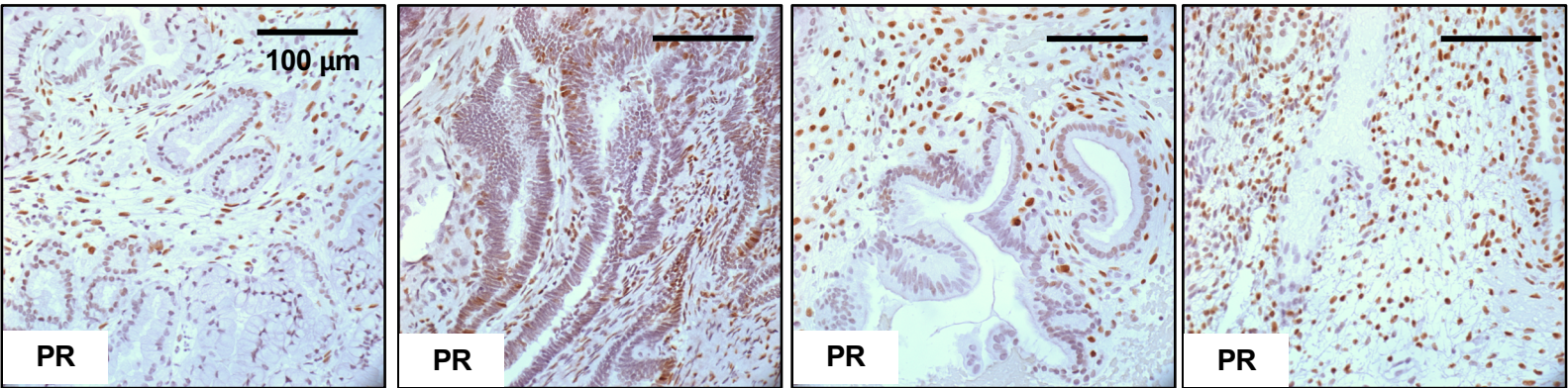Pre-therapy: Sensitive, Resistant
Post-therapy: Sensitive, Resistant

Supplementary Figure 2. Expression of Ki67 in pre- and post-therapy endometrial biopsies (A) Representative images of matched pre- and post-therapy endometrial biopsies stained for Ki67. Data shown for three patients sensitive to progesterone therapy and three patients resistant to treatment. **(B)** Quantification of Ki67 in endometrial glands in sensitive and resistant samples (n=3 each). Data demonstrate similar levels of Ki67 expression in endometrial glands in both sensitive and resistant pre-therapy samples with a diminution of Ki67 in post- compared to pre-therapy samples.

Supplementary Figure 3. Expression of PR after administration of progesterone

Sensitive

Resistant

Supplementary Figure 3. Expression of PR after administration of progesterone. Representative images of PR staining in post-therapy biopsies obtained after administration of progesterone hormonal therapy.