

**Figure S1. MCN-like lesions induced in *elastase-tva*, *Ptf1a-cre*, *LSL-Kras*<sup>G12D</sup> compound transgenic mice injected with RCAS-*Wnt1*.**

Resected cystic lesions containing serous (A) or hemorrhagic contents (B). (C) dPAS and (D) alcian blue staining indicate the presence of small amounts of mucin in the apical membrane (arrowheads). (E) The ovarian-type stromal cells are positive for vimentin.

**Figure S2. Detection of RCAS and TVA in MCN-like lesions using PCR.**

RCAS and TVA were PCR amplified from MCN-like lesions in *elastase-tva*, *Ptf1a-cre*, *LSL-Kras*<sup>G12D</sup> compound transgenic mice injected with RCAS-*Wnt1* (lanes 2 through 9). Meanwhile, RCAS was not detected in a cystic lesion observed in a RCAS-*Wnt1*-injected *tva*-negative mouse (lane 10). No band was observed in non-injected *elastase-tva*, *Ptf1a-cre*, *LSL-Kras*<sup>G12D</sup> male (lane 11) and female (lane 12) mice. No template sample is shown in lane 13. 100-bp marker is shown in lanes 1 and 14.

**Figure S3. Characterization of pleiomorphic stromal cells.**

Pleiomorphic stromal cells are focally positive for FZD6 (A; arrowhead); display diffuse and weak FZD1 staining (B), and faint staining for FZD4 (C; arrowhead).

**Figure S4. Wnt signaling in human MCN.**

(A) Nuclear accumulation of  $\beta$ -catenin, (B) cytoplasmic Wnt1, and (C) FZD3 immunostaining are seen in ovarian-type stromal cells in human MCN lesions. (D) The Wnt receptor FZD1 is localized to the cyst epithelium.