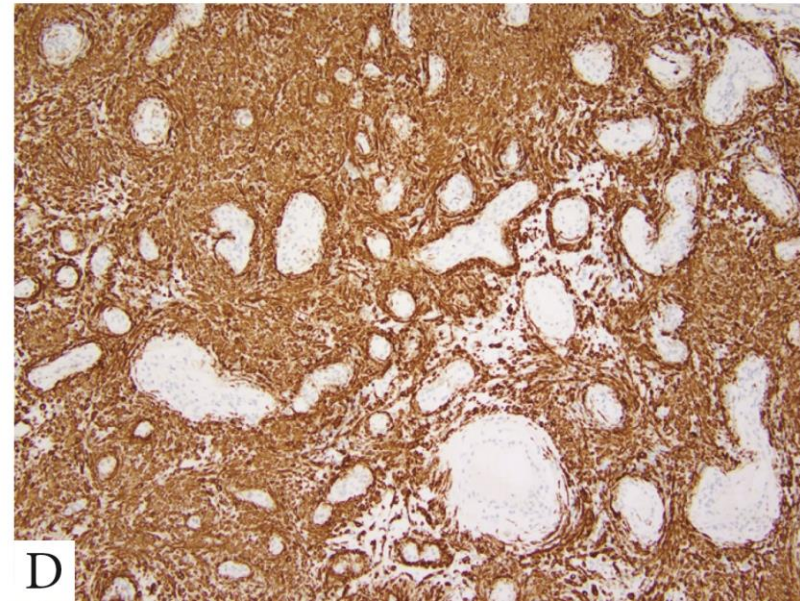
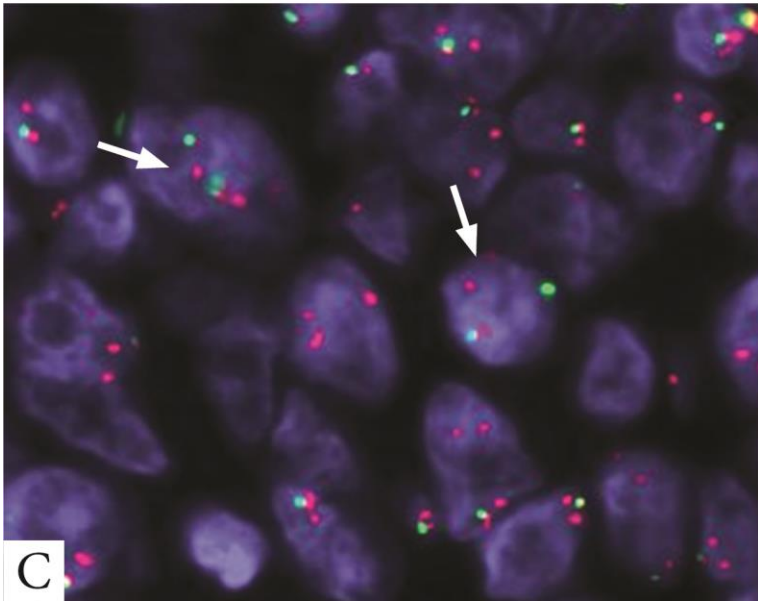
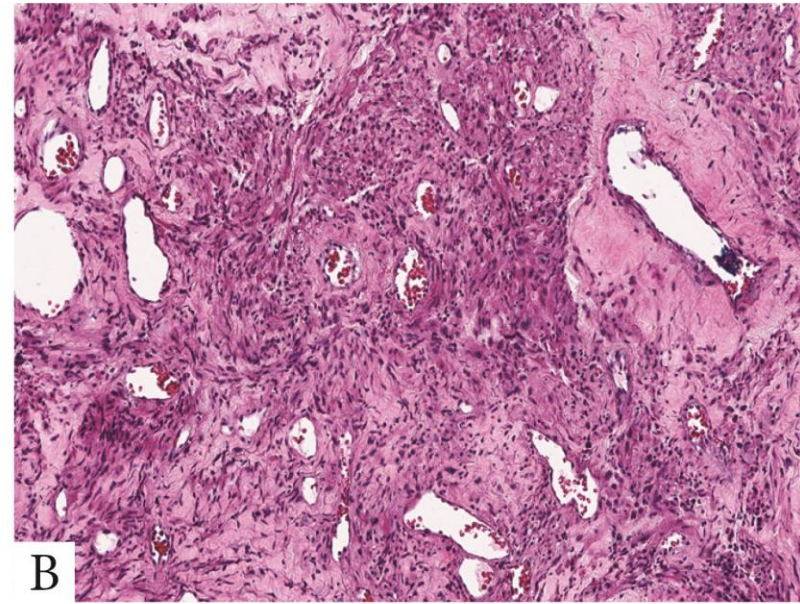
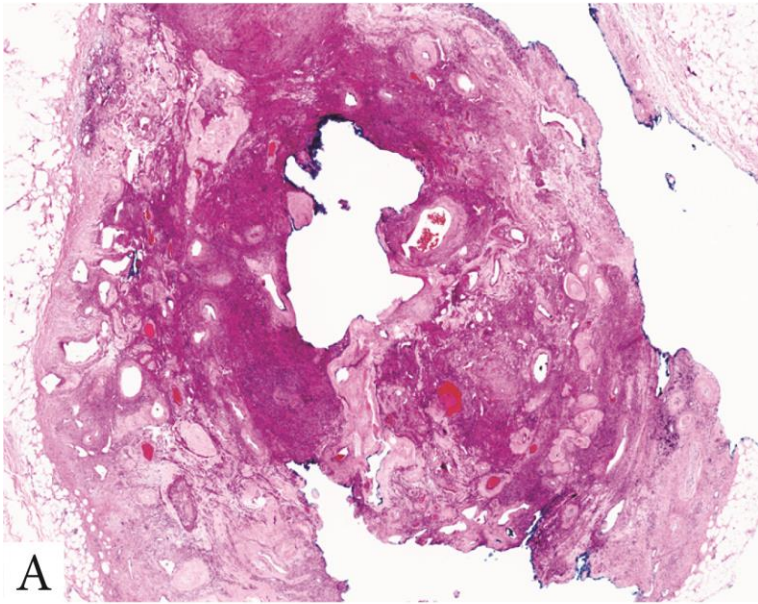
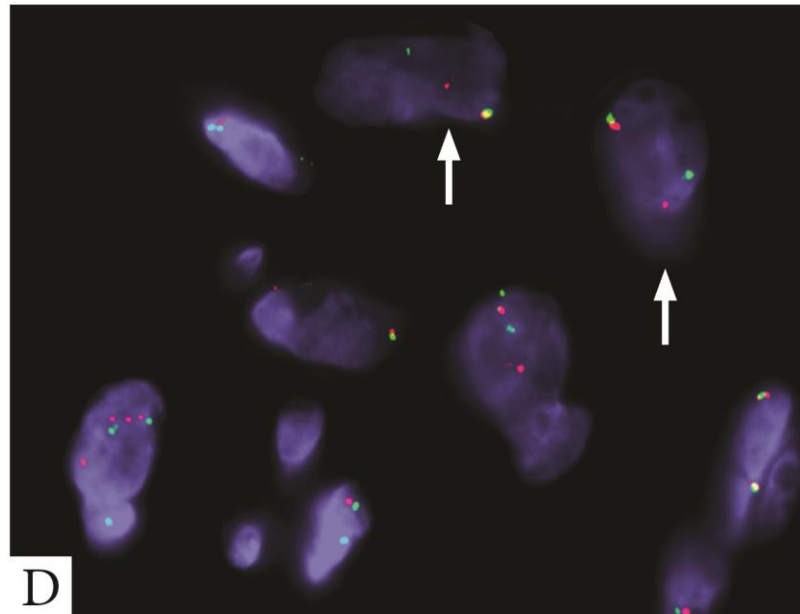
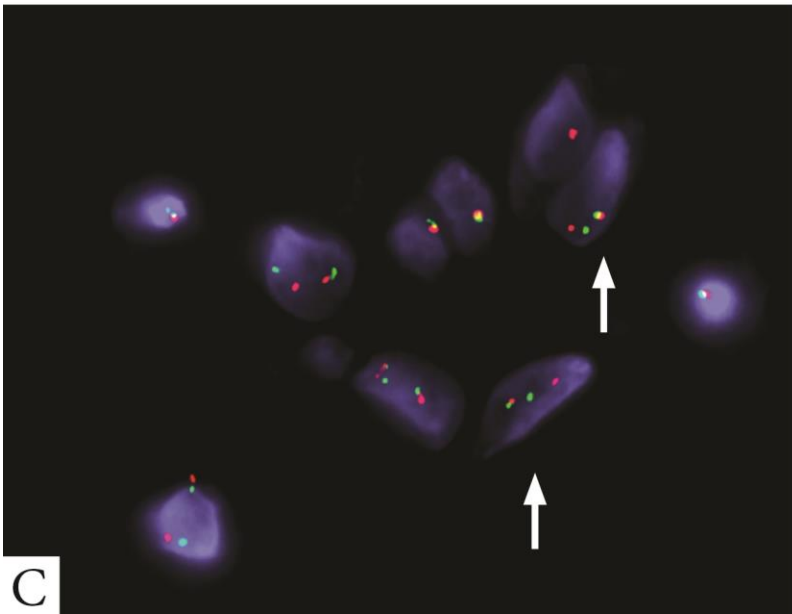
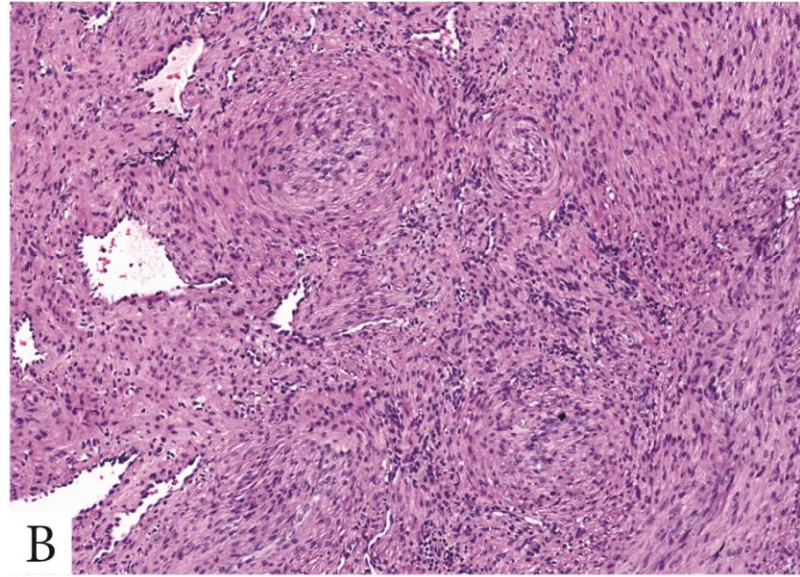
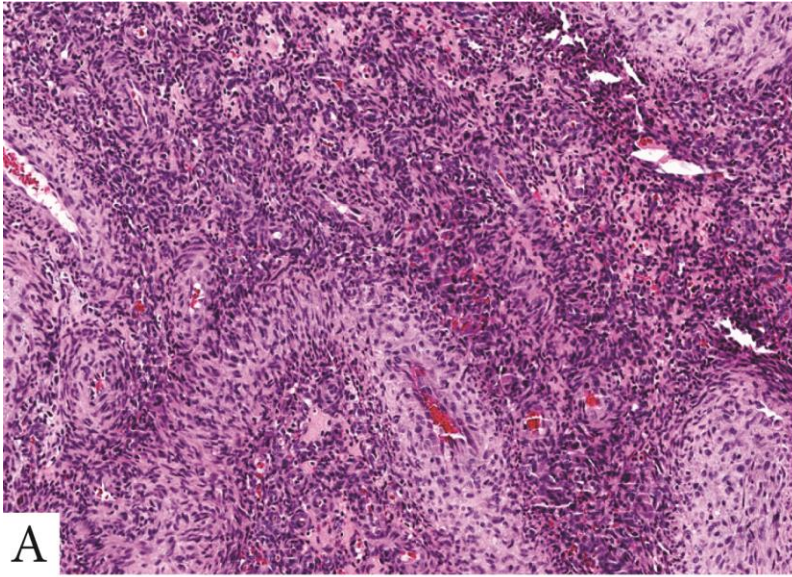


Supplementary Figure 1: Angioleiomyoma with *NOTCH2* gene fusion. (67/F, thigh) A. Low power image showing a well-circumscribed lesion with increased vascularity. B. High power image showing well-differentiated smooth muscle concentrically arranged around small and large vessels. C. FISH for *NOTCH2* showing break-apart red (c-) and green (t-) signals (arrows). D. Immunohistochemical stain for Desmin showing diffuse positivity in the lesional cells.



Supplementary Figure 2: Myopericytomas with *NOTCH2* rearrangement . A. (47/M, ankle) Low power image showing cellular spindle cell lesion with spindle cells arranged in whorled pattern around intermediate sized vessels. **and *NOTCH4-MIR143* gene fusion** B - D. (62yM, thumb) B. Low power image showing cellular lesion with spindle cells encircling the thin walled vasculature. FISH images for C. *NOTCH4* and D. *MIR143* gene probes showing break-apart red (c-) and green (t-) signals (arrows).



Supplementary Figure 3: Immunohistochemical stain for PDGFRB showing 3+ positivity in GT, including benign *NOTCH*-rearranged GTs (A, 41yM, mainstem bronchus, *NOTCH2-MIR143*; B, 38yF, kidney, *NOTCH2* rearranged), malignant *NOTCH*-rearranged GTs (C, 47yM, thigh, *NOTCH2* rearranged; D, 67yM, esophagus, *NOTCH2-MIR143*) and in *NOTCH*-negative GTs (E, 69yF, forearm; F, 55yM, calf).

