

Supplementary Table S1. Baseline characteristics of the patients with primary SFT/HPC

| | | <i>ex</i> SFT/HPC (No. of patients = 32) | <i>ic</i> SFT/HPC (No. of patients = 18) |
|--------------------------|-------------------|---|---|
| Age (yrs) | Median (range) | 53 (23–79) | 49 (22–78) |
| Sex | Male | 13 (41%) | 9 (50%) |
| | Female | 19 (59%) | 9 (50%) |
| Size (cm) | Median (range) | 8.5 (1.7–21.0) | 4.7 (1.5–7.0) |
| Histologic grade | Benign/grade 2 | 23 (72%) | 9 (50%) |
| | Malignant/grade 3 | 9 (28%) | 9 (50%) |
| Post-operative treatment | Chemotherapy | 1 (3%) | 1 (6%) |
| | Radiation | 3 (9%) | 10 (56%) |
| Recurrence | Local | 3 (9%) | 5 (28%) |
| | Distant | 2 (6%) | 3 (17%) |

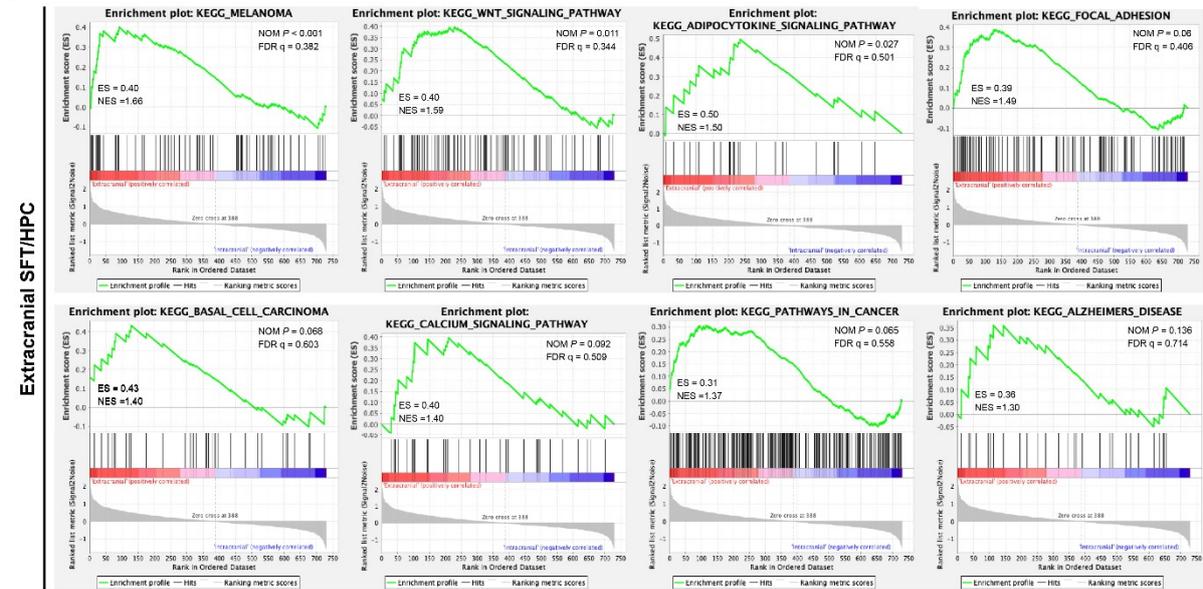
*ic*SFT/HPC, intracranial solitary fibrous tumor/hemangiopericytoma; *ex*SFT/HPC, extracranial solitary fibrous tumor/hemangiopericytoma.

Supplementary Table S2. Clinical information on intracranial SFT/HPC cases with extracranial metastasis

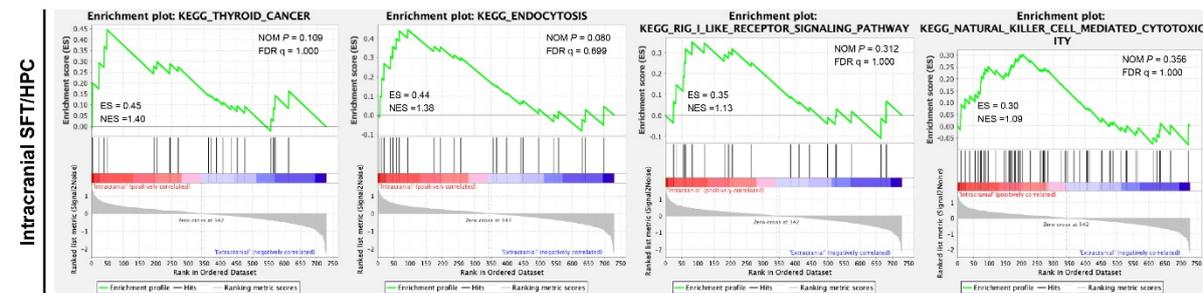
| | Case 1 | Case 2 | Case 3 | Case 4 | Case 5 | Case 6 |
|---------------------------------|-----------------|----------------|-----------------|------------------|----------------|--------------------|
| Age(yrs)/ Sex | 34/F | 55/F | 39/M | 36/F | 57/F | 29/F |
| Intracranial location | Right tentorium | Sphenoid ridge | Right tentorium | Right cerebellum | Occipital lobe | Temporal lobe |
| Metastatic organ | Liver | C7 vertebrae | T9 vertebrae | Lung | Lung | Pelvic soft tissue |
| Initial tumor grade | Grade 2 | NA | Grade 3 | Grade 2 | Grade 3 | Grade 3 |
| Duration to metastasis (months) | 216 | 116 | 45 | 65 | 32 | 84 |

Supplementary Figure S1.

A



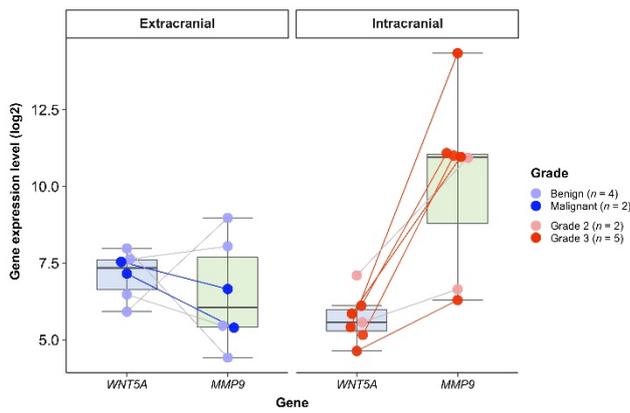
B



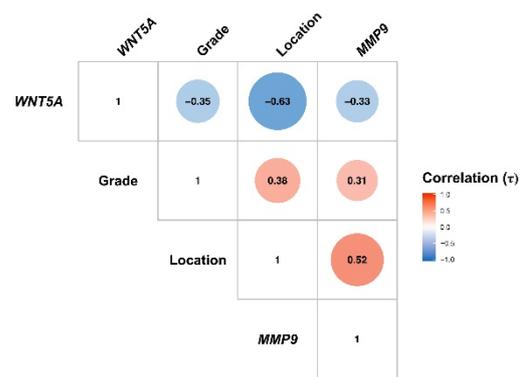
Supplementary Figure S1. Gene set enrichment analysis (GSEA) enrichment plot (score curves) using Nanostring data comparing *ic*SFT/HPC and *ex*SFT/HPC. (A) KEGG gene sets enriched in *ex*SFT/HPC. (B) KEGG gene sets enriched in *ic*SFT/HPC.

Supplementary Figure S2.

A

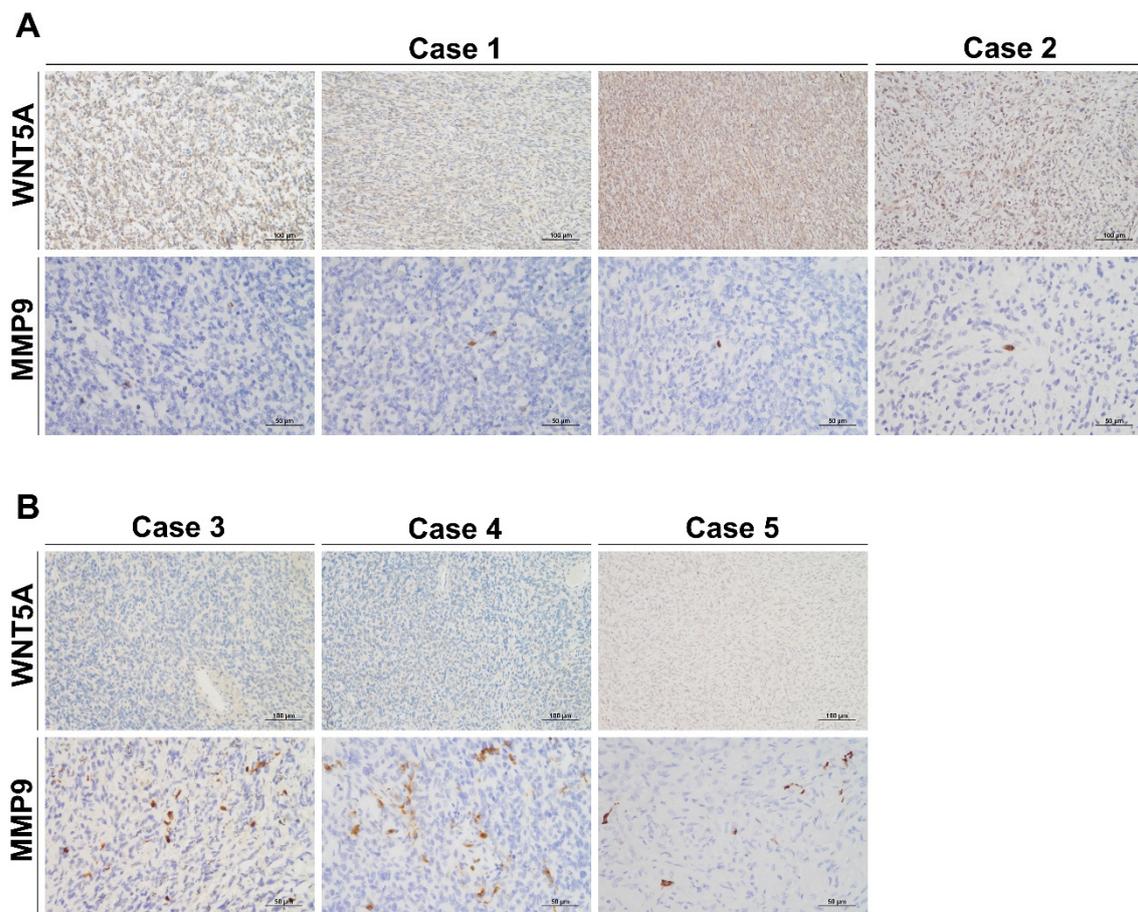


B



Supplementary Figure S2. Differential expression of *WNT5A* and *MMP9* according to tumor location and grade. (A) Paired boxplots of *WNT5A* and *MMP9* showed that the difference in the expression of *WNT5A* and *MMP9* was greater in *ic*SFT/HPC compared to *ex*SFT/HPC. (B) Correlogram showing that expression of *WNT5A* was positively correlated with an extracranial location and that expression of *MMP9* with an intracranial location. The intracranial location was coded as a positive value, and the extracranial location as a negative value.

Supplementary Figure S3.



Supplementary Figure S3. Immunohistochemistry of WNT5A and MMP9 in cases of *exSFT/HPC* and *icSFT/HPC* exhibiting local recurrence. (A) Two cases of *exSFT/HPC* (cases 1 and 2) with local recurrence maintained high expression of WNT5A and low expression of MMP9. Case 1 of *exSFT/HPC* showed multiple recurrences, and tumor samples were obtained three times after initial resection. (B) Three cases of *icSFT/HPC* (cases 3, 4, and 5) with local recurrence revealed low expression of WNT5A and high expression of MMP9.