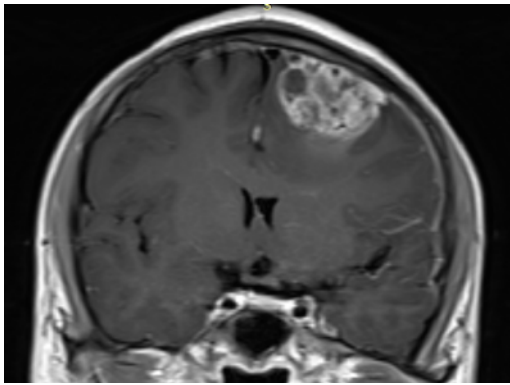
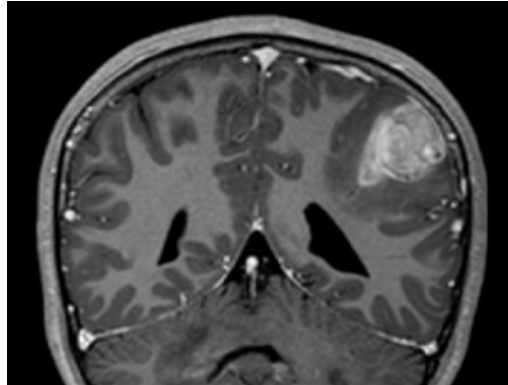


a

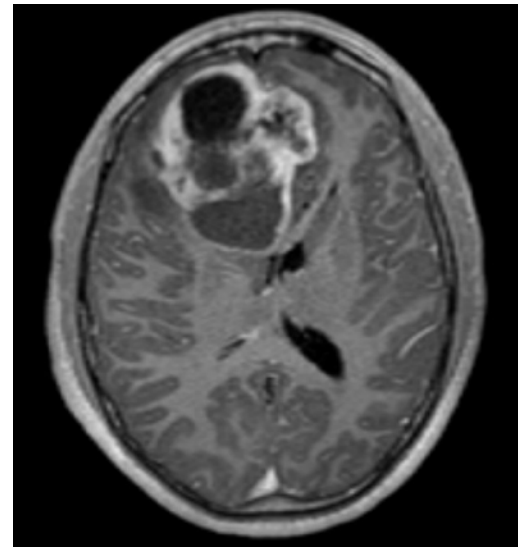
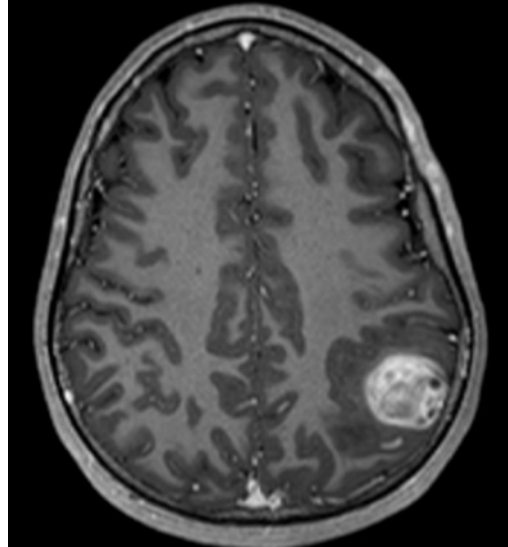
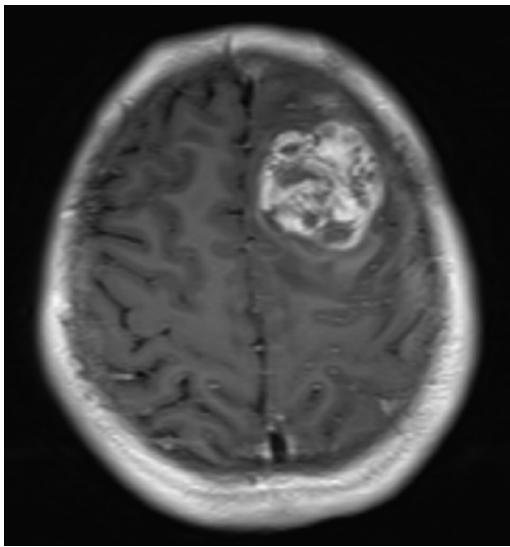
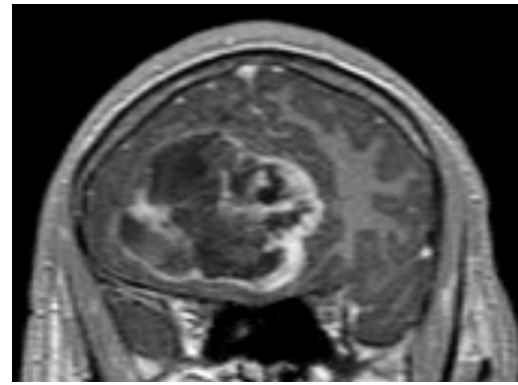
patient #1



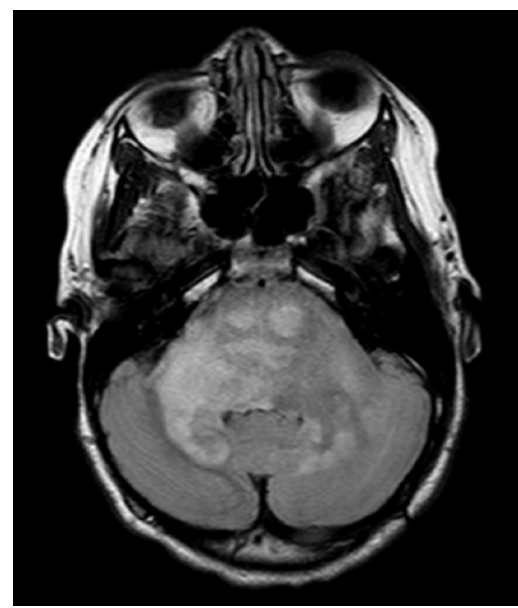
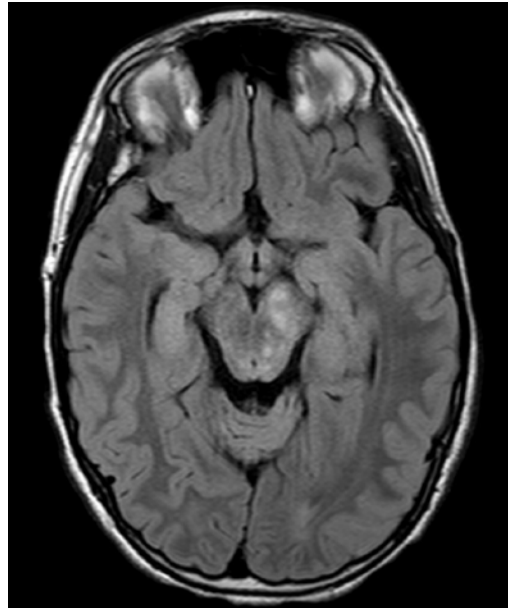
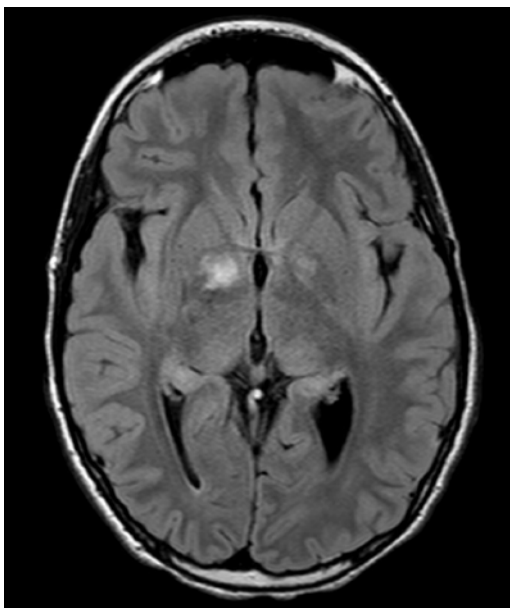
patient #2



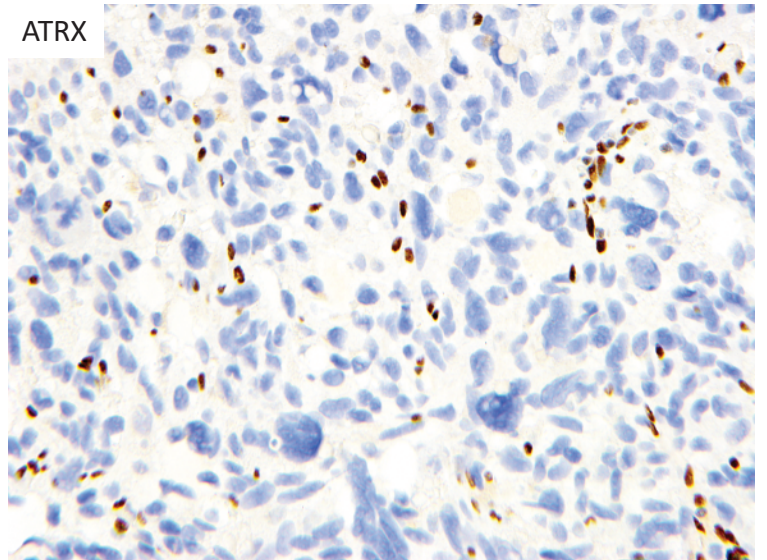
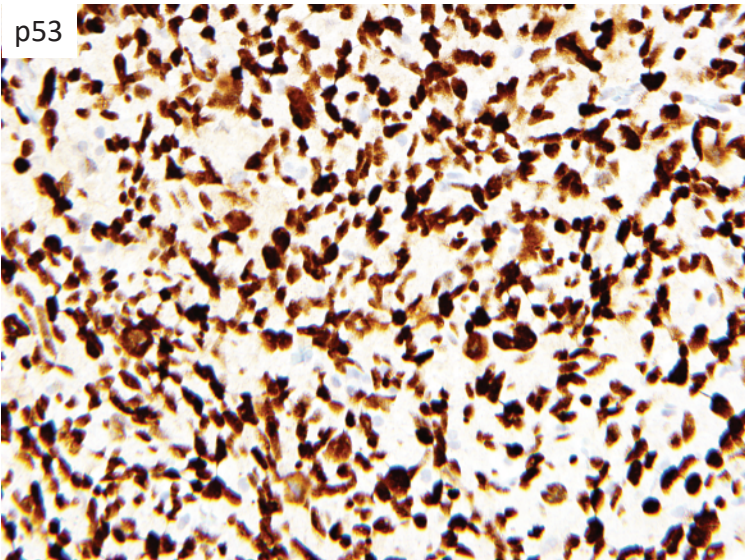
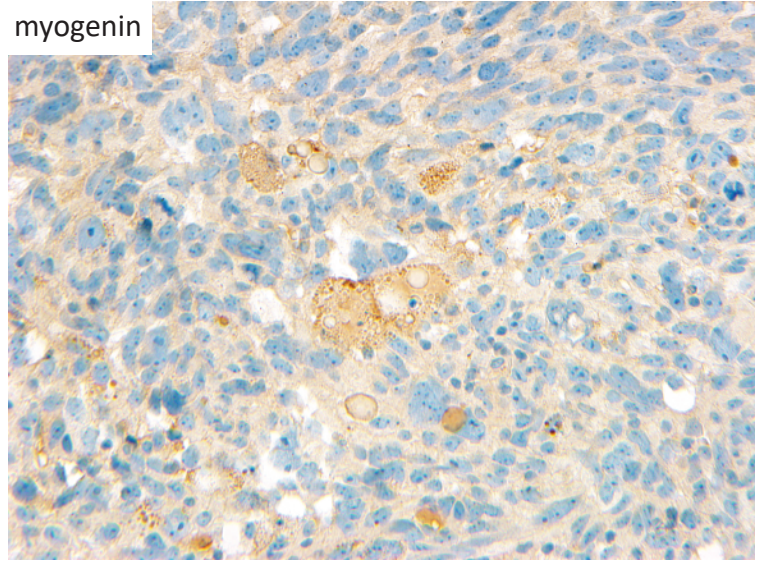
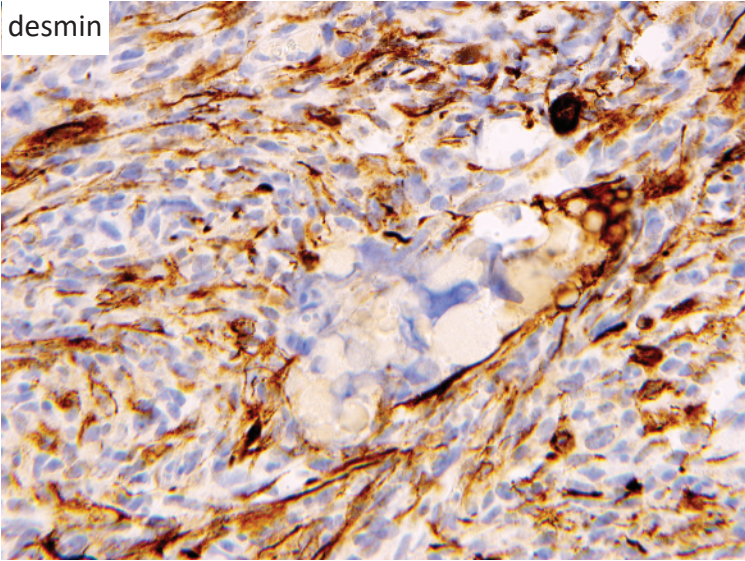
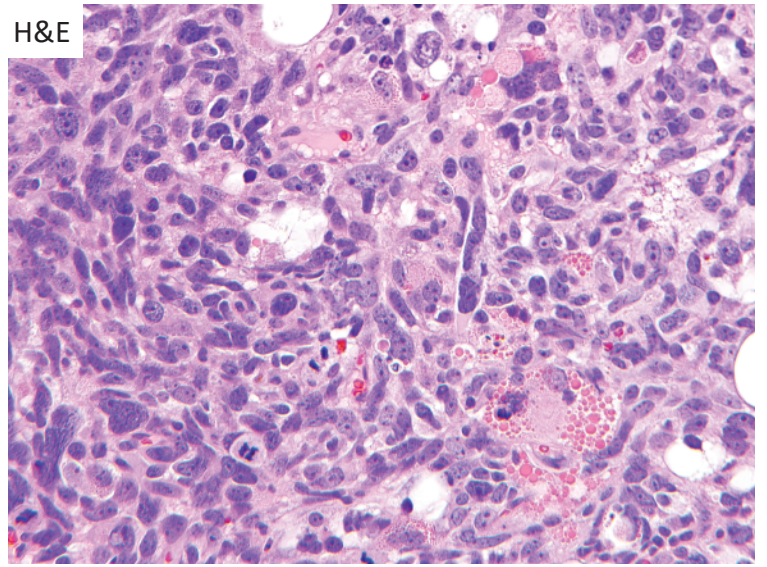
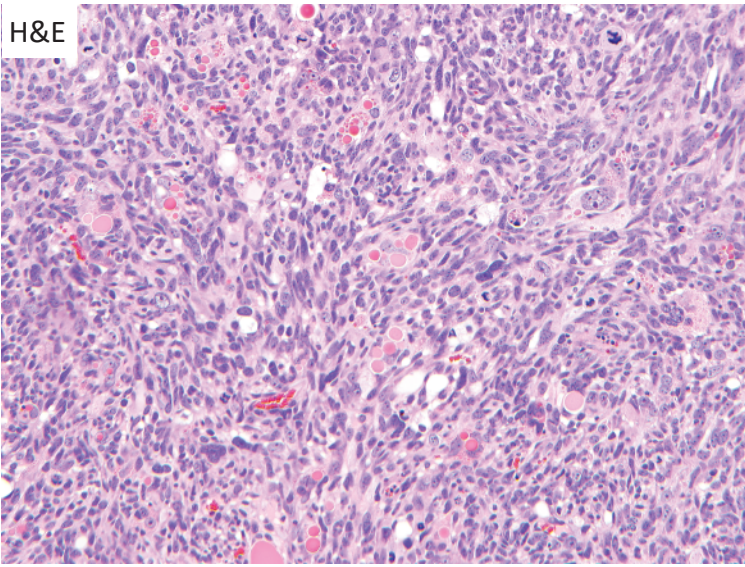
patient #3

**b**

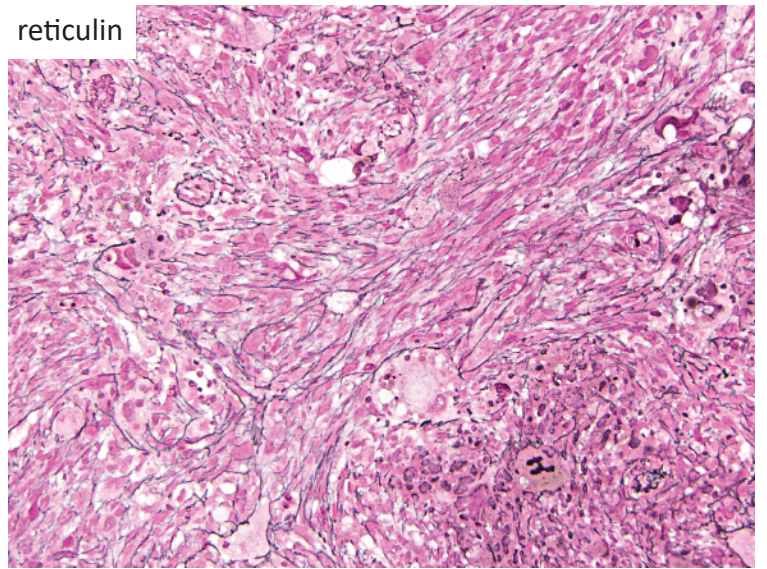
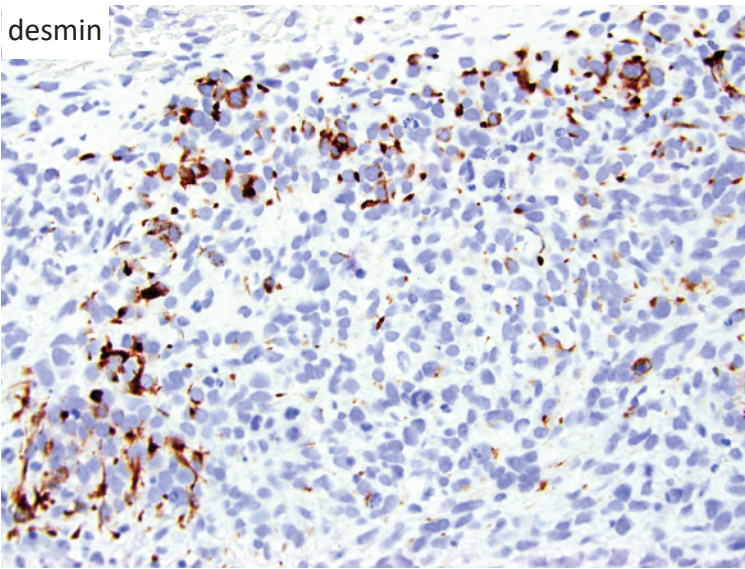
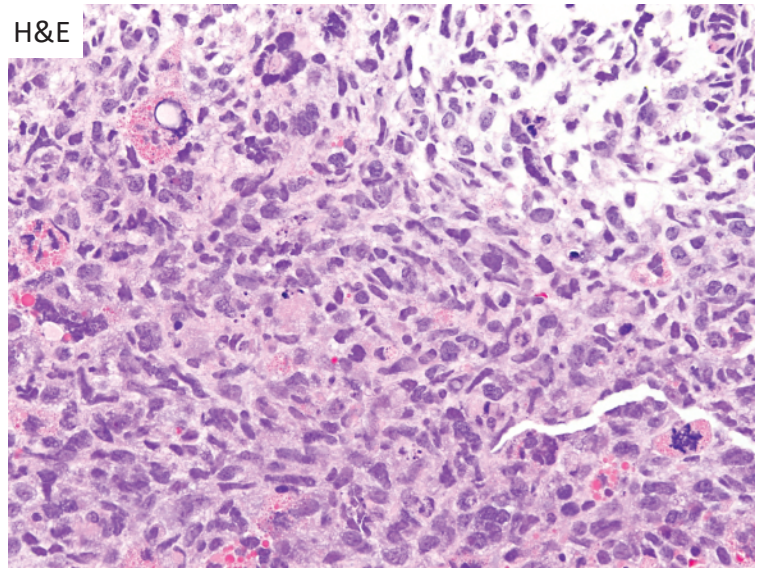
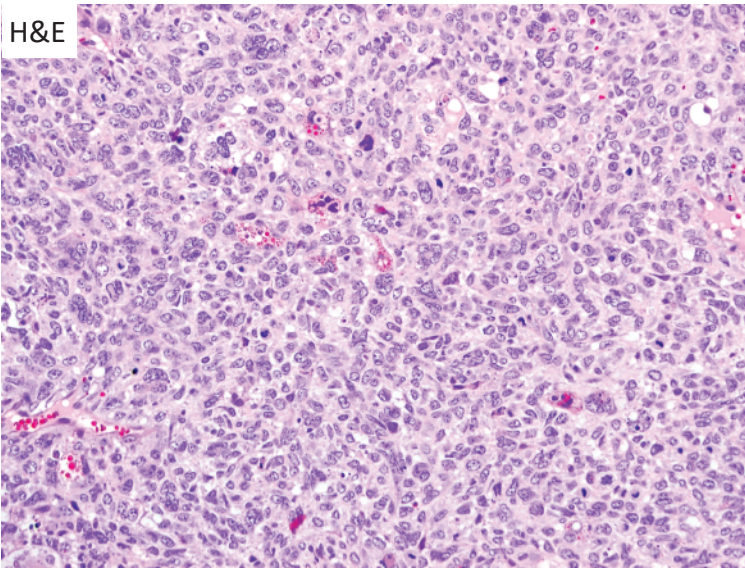
patient #2, other brain lesions characteristic of neurofibromatosis type 1



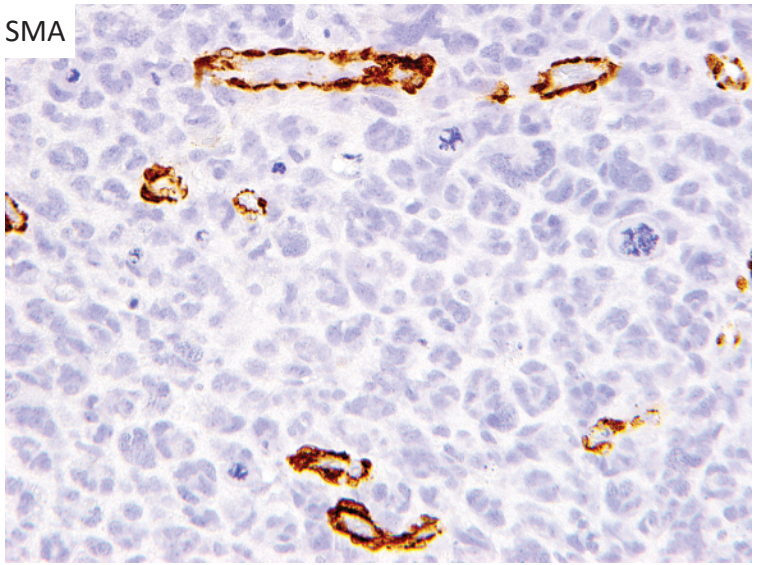
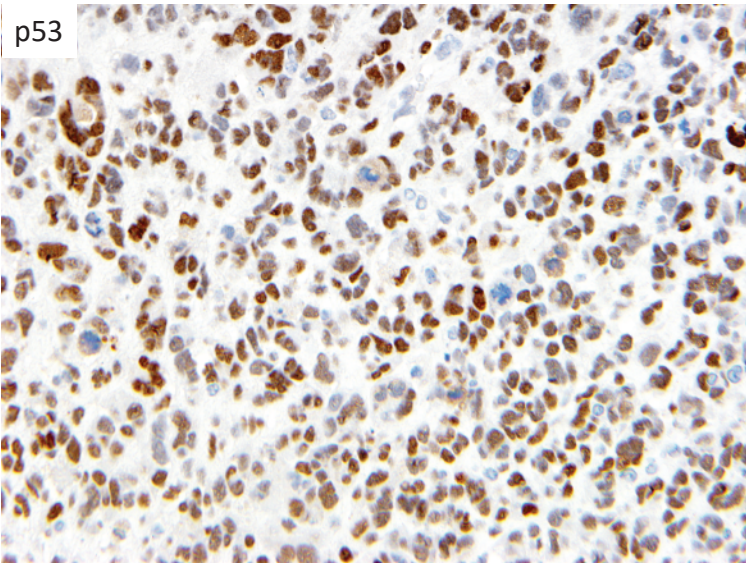
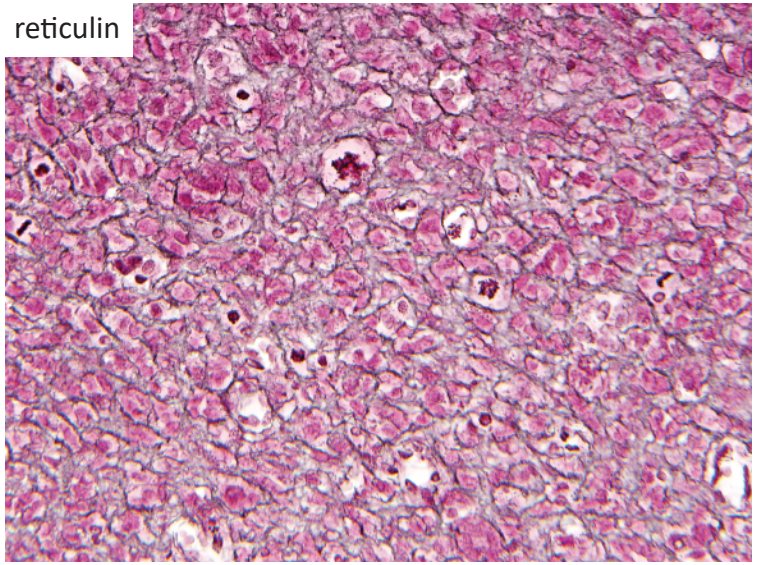
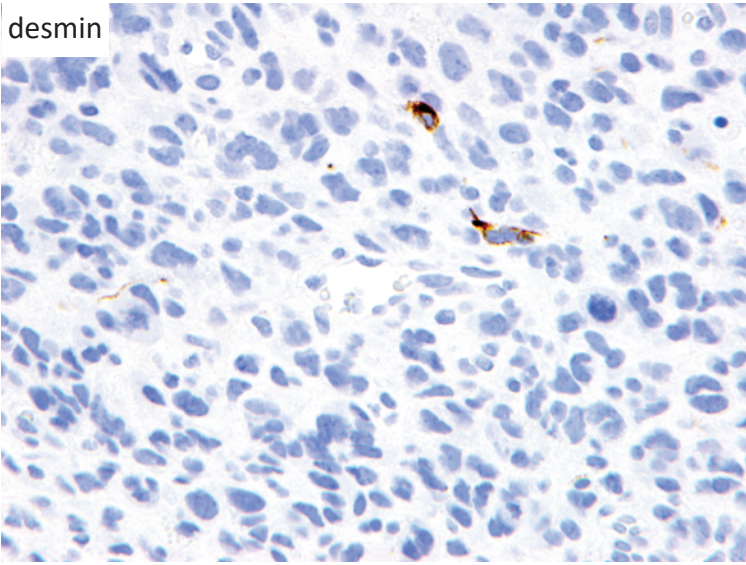
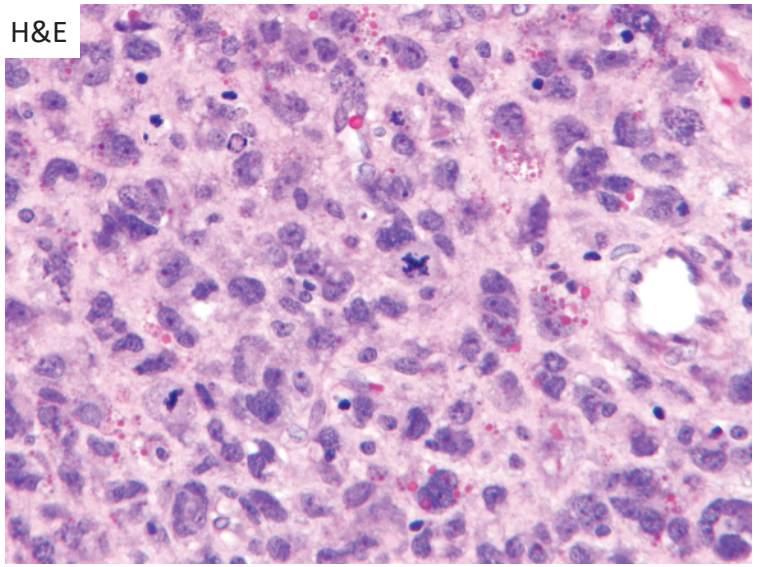
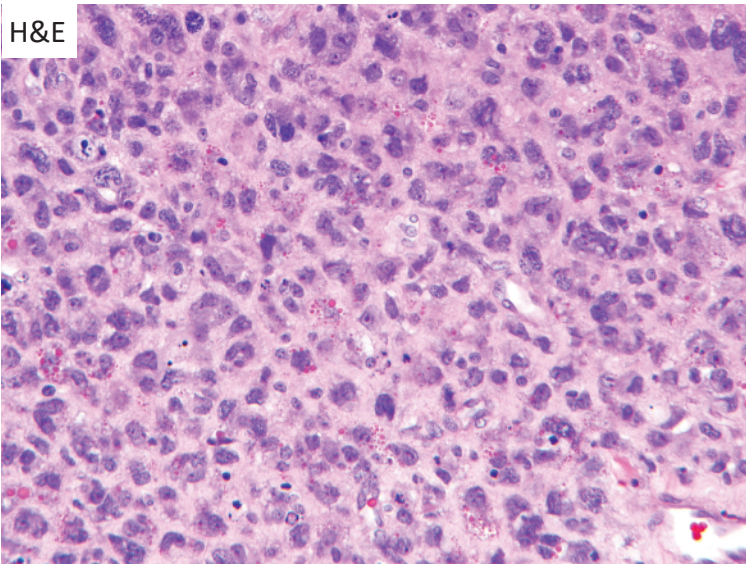
Supplementary Figure 1. Imaging features of the three patients with primary intracranial sarcomas with focal myogenic differentiation and *DICER1* mutation. **a** Coronal and axial T1-weighted post-contrast MR images showing the neoplasms prior to resection. **b** Axial T2-weighted fluid-attenuated inversion recovery images from patient #2 showing multiple other brain lesions characteristic of neurofibromatosis type 1.



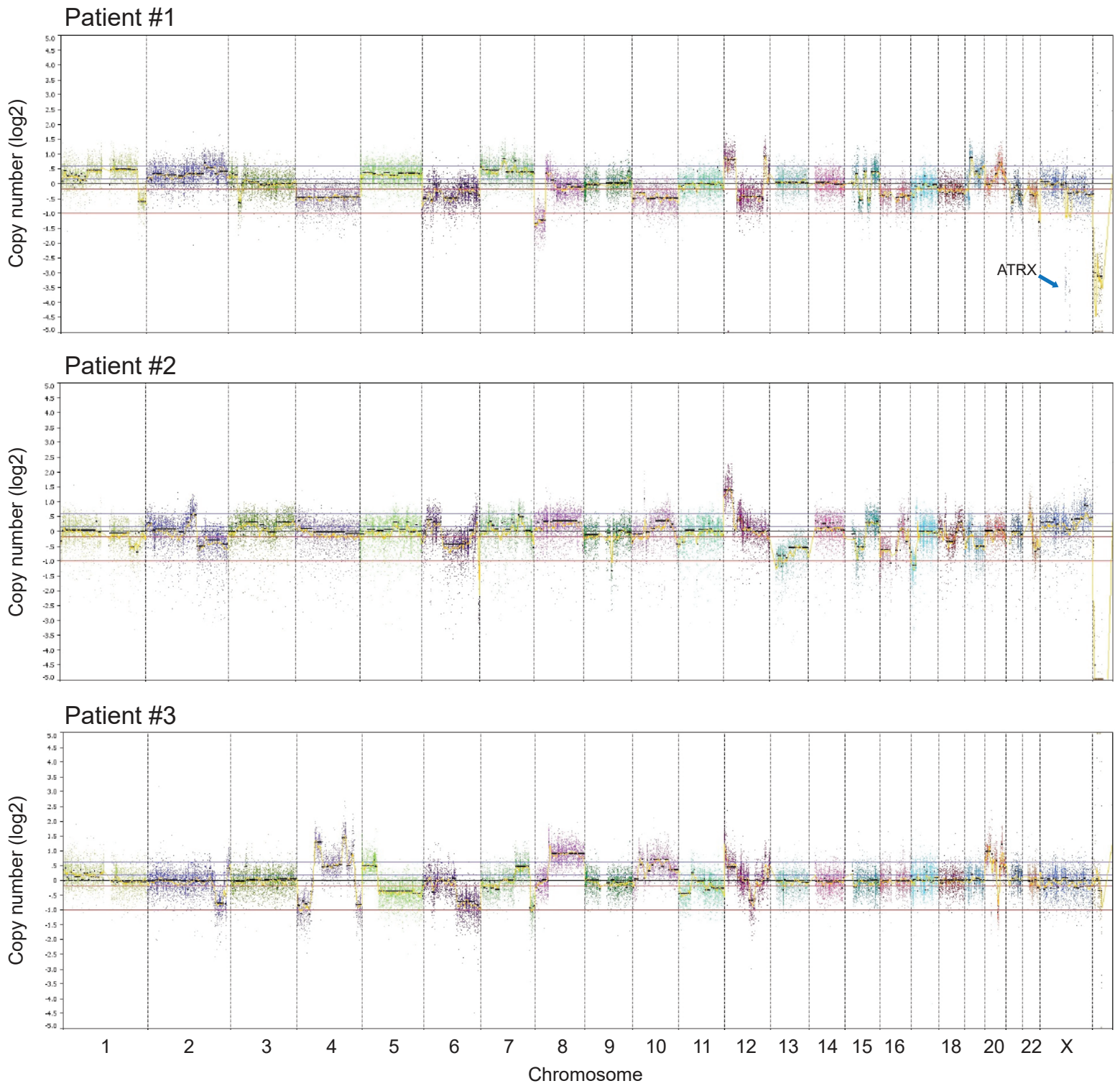
Supplementary Figure 2. Histologic features of the primary intracranial sarcoma with focal myogenic differentiation and *DICER1* mutation from patient #1.



Supplementary Figure 3. Histologic features of the primary intracranial sarcoma with focal myogenic differentiation and *DICER1* mutation from patient #2.



Supplementary Figure 4. Histologic features of the primary intracranial sarcoma with focal myogenic differentiation and *DICER1* mutation from patient #3.



Supplementary Figure 5. Chromosomal copy number plots for the three primary intracranial sarcomas with focal myogenic differentiation and *DICER1* mutation.



Supplementary Figure 6. Unsupervised clustering of DNA methylation patterns for cases #1 and #2 (black circles with blue shading), alongside previously characterized cohorts of sarcomas and neuroepithelial tumors. Shown is a two-dimensional representation of pairwise sample correlations using the 10,000 most variably methylated probes by t-distributed stochastic neighbor embedding (tSNE) dimensionality reduction. Reference methylation classes are:

SCS-RMSlike-DICER1, spindle cell sarcoma with RMS-like features, DICER1 mutant

RMS (emb), embryonal rhabdomyosarcoma

RMS (alv), alveolar rhabdomyosarcoma

SFT, solitary fibrous tumor/hemangiopericytoma

Men (ana), anaplastic meningioma

CNS EFT CIC, CNS Ewing sarcoma family tumor with CIC alteration

NB FOXR2, CNS neuroblastoma with FOXR2 activation

MEPL, medulloepithelioma

ETMR, embryonal tumor with multilayered rosettes, C19MC altered

PB, pineoblastoma

HGNET BCOR, CNS high-grade neuroepithelial tumor with BCOR alteration

HGNET MN1, CNS high-grade neuroepithelial tumor with MN1 alteration

GBM/GS, glioblastoma and gliosarcoma, IDH-wildtype

GBM G34, glioblastoma, H3.3 G34R/V mutant

GBM K27, diffuse midline glioma, H3 K27M mutant