

Diagnosis	Immunohistochemical & Molecular Markers									
Alveolar soft part sarcoma	TFE-3 (at Phenopath)	PAS/D positive crystals	MSA	SMA	CD99					
	t(X;17) TFE3-ASPL fusion (no FISH available)									
Angiomyolipoma	HMB45	Melan-A								
Angiosarcoma	CD31	CD34	Factor VIII	ERG	CKCKT					
Atypical fibroxanthoma (Skin tumor)	CD68	CD10	CD99	CKCKT	CD34	S100	P63	CD31	desmin	
Chordoma	CKCKT	EMA	S100							
Clear cell sarcoma	SOX10	S100	HMB45	Melan A	SMA	CD99				
	FISH for EWS translocation (>75%)									
Dermatofibroma	Factor 13a	CD34								
Dermatofibrosarcoma protuberans	CD34	Factor 13a								
	FISH for t(17;22) PDGFB-COL1A1 fusion									
Endometrial stromal sarcoma	CD10	Inhibin	b-catenin (nuclear; 40%)	Desmin						
	t(7;17) JAZF1-JJAZ1 fusion (no FISH available)									
Epithelioid sarcoma	CKCKT	EMA, CD34 (60%)	INI1 (loss)	Vimentin	ERG (38%)					
Extraskeletal myxoid chondrosarcoma	S100 (~20%)	SOX10	INI loss (50%)							
	FISH for EWS translocation (>50%); also t(9;17) & t(9;15)									
Fibromatosis (desmoid)	β-catenin (nuclear)	SMA								
Fibrosarcoma	Vimentin									
GI Stromal Tumor	CD117	DOG1	CD34	SMA	Desmin	S100				
	Mutations in KIT (80%) & PDGFRA (8%)									
Inflammatory myofibroblastic tumor	ALK1									
	FISH for ALK translocation									
Kaposi's sarcoma	HHV8	ERG	CD31							
Leiomyosarcoma	Desmin	H-Caldesmon	SMA	MSA	Calponin	CD117	DOG1	CD34	S100	CD10
	Uterine leiomyosarcs are ER (30-80%) and PR positive (40-80%) vs other (0-25% and (0-13%) respectively									
Liposarcoma, well-diff.	MDM2	CDK4	SMA	Desmin	S100					
	FISH for MDM2, Ring chromosomes/markers from 12q13-15									
Liposarcoma, de-diff.	MDM2	CDK4	SMA	Desmin	S100					
	FISH for MDM2, Ring chromosomes/markers from 12q13-15									
Liposarcoma, myxoid	t(12;16) or t(12;22)	FISH for FUS gene translocation								
Low grade fibromyxoid sarcoma	FISH for t(7;16) (FUS gene translocation, 75% of cases)									
Lymphangioma	D2-40	LYVE1	CD31	CD34	ERG					
Malignant Peripheral Nerve Sheath Tumor	S100 (40%)	SOX10 (27%)	INI1 loss	TLE						
	Lost in 50% of epithelioid variant									
Mesenchymal chondrosarcoma	CD99	SOX10								
Neurofibroma	S100	SOX10								
Neurothekeoma (skin tumor)	NK1/C3, NSE, CD68	S100								
Osteosarcoma	CDK4	MDM2								
Perineurioma	EMA	GLUT1	S100							
PEComa	SMA	Calretinin	HMB45	Desmin (50%)	Melan A (50%)	S100 (25%)				
Pleomorphic rhabdomyosarcoma	Desmin	MSA	Myogenin (10-30% cells)							
Schwannoma	S100	SOX10								
Solitary fibrous tumor	CD34	BCL-2	β-catenin (nuclear; in 40%)	CD117	DOG1	S100				
Synovial sarcoma	TLE	EMA	CKCKT	CD99	INI1 (loss)	SOX10				
	FISH for t(X;18) (SYT gene translocation)									