

**Table S1:** Fifty-nine sarcoma subtypes and their sample sizes.

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Index	Class name (Abbreviation)	Sample size
1	angiomatoid fibrous histiocyte (AFH)	12
2	atypical fibroxanthoma (AFX)/pleomorphic dermal sarcoma PDS	15
3	angioleiomyoma (ALMO)/myopericytoma (MPC)	16
4	angiosarcoma (AS)	44
5	alveolar soft part sarcoma (ASPS)	27
6	chondroblastoma (CB)	10
7	clear cell sarcoma of soft parts (CCS)	12
8	clear cell sarcoma of the kidney (CCSK)	12
9	chordoma (CHORD)	74
10	chondrosarcoma (CSA)	69
11	clear cell chondrosarcoma (CSA (CC))	8
12	mesenchymal chondrosarcoma (CSA (MES))	11
13	control (CTRL)	10
14	dermatofibrosarcoma protuberans (DFSP)	39
15	desmoplastic small round cell tumour (DSRCT)	42
16	desmoid-type fibromatosis (DTFM)	13
17	epithelioid haemangioendothelioma (EHE)	10
18	extraskeletal myxoid chondrosarcoma (EMCS)	10
19	epithelioid sarcoma (ES)	32
20	high-grade endometrial stromal sarcoma (ESS (HG))	11
21	low-grade endometrial stromal sarcoma (ESS (LG))	18
22	Ewing sarcoma (EWING)	77
23	fibrous dysplasia (FDY)	14
24	giant cell tumour of bone (GCTB)	14
25	gastrointestinal stromal tumour (GIST)	52
26	infantile fibrosarcoma (IFS)	14
27	inflammatory myofibroblastic tumour (IMT)	13
28	Kaposi sarcoma (KS)	8
29	Langerhans cell histiocytosis (LCH)	12
30	low-grade fibromyxoid sarcoma (LGFMS)	8
31	lipoma (LIPO)	10
32	leiomyoma (LMO)	7
33	leiomyosarcoma (LMS)	69
34	melanoma (MEL)	12
35	myxoid liposarcoma (MLS)	38
36	myositis ossificans (MO)	8
37	myositis proliferans (MP)	8
38	malignant peripheral nerve sheath tumour (MPNST)	39
39	malignant rhabdoid tumour (MRT)	24

40	muscle tissue (MUS)	8
41	nodular fasciitis(NFA)	10
42	neurofibroma (NFB)	9
43	plexiform neurofibroma (NFB (PLEX))	7
44	osteoblastoma (OB)	8
45	ossifying fibromyxoid tumour (OFMT)	13
46	high-grade conventional osteosarcoma (OS (HG))	86
47	reactive tissue (REA)	10
48	rhabdomyosarcoma (RMS)	10
49	alveolar rhabdomyosarcoma (RMS (ALV))	67
50	embryonal rhabdomyosarcoma (RMS (EMB))	49
51	sarcoma (SARC)	19
52	small blue round cell tumour (SBRCT)	23
53	cutaneous squamous cell carcinoma (SCC (CUT))	10
54	sclerosing epithelioid fibrosarcoma(SEF)	10
55	solitary fibrous tumour (SFT)	31
56	schwannoma (SWN)	30
57	synovial sarcoma (SYSA)	59
58	undifferentiated sarcoma (USARC)	55
59	well differentiated liposarcoma (WDLS)/dedifferentiated liposarcoma (DDLs)	37

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