

ADDITIONAL FILE 1

Supplementary Table S1. Microarray accession codes. The files which composes the RefDB were obtained at 100 different experiments from *ArrayExpress* online platform.

Tumor Superclasses (25)	Experiments Sources Accession Codes - <i>ArrayExpress</i> (100)
Adrenal	E-GEOD 2109, E-GEOD 33371 , E-TABM 311 and E-GEOD 19750
Breast	E-GEOD 2109, E-GEOD 5460, E-TABM 185 , E-GEOD 5847 and E-GEOD 1006
Gastroesophageal	E-GEOD 2109, E-GEOD 15459, E-GEOD 22377, E-GEOD 26886, E-GEOD 37203, E-GEOD 1420 and E-GEOD 29272
Germ Cell - Nonseminomatous	E-GEOD 2109, E-GEOD 18155, E-GEOD 3218, E-GEOD 10615 and E-TABM 185
Germ Cell - Seminomatous	E-GEOD 2109, E-GEOD-18155, E-GEOD 3218, and E-GEOD 10615
GIST	E-GEOD 20708, E-GEOD 17743 and E-GEOD 8167
Head and Neck (Salivary Gland)	E-GEOD 28996
Intestine	E-GEOD 14333, E-GEOD 20916 and E-GEOD 4459
Kidney	E-GEOD 2109, E-GEOD 15641, E-GEOD 12090, E-GEOD 19982 and E-GEOD 2748
Liver	E-GEOD 2109, E-GEOD 14520, E-GEOD 9829, E-GEOD 6465 and E-TAMB 36
Lung Adenocarcinoma / Large Cell Carcinoma	E-GEOD 2109, E-GEOD 14520, E-GEOD 9829, E-GEOD 6465 and E-TABM 36
Lung Small Cell Carcinoma	E-GEOD 15240, E-GEOD 20189, E-GEOD 43346, E-GEOD 302019 and E-GEOD3141
Lymphoma	E-GEOD 2109, E-GEOD 10524, E-GEOD 34339, E-GEOD 19246, E-GEOD 17920, E-GEOD 12453, E-GEOD 19069, E-GEOD 6338 and E-GEOD 34171
Melanoma	E-GEOD 2109, E-GEOD 19234, E-GEOD 22138, E-GEOD 27831, E-GEOD 7553 and E-GEOD 3189
Mesothelioma	E-GEOD 29211, E-GEOD 12345 and E-GEOD 2549
Neuroendocrine	E-MTAB 733, E-GEOD 2841 and E-GEOD 39612
Ovary	E-GEOD 2109, E-GEOD 29450, E-GEOD 6008, E-GEOD 9899 and E-GEOD 18520
Pancreas	E-GEOD 32688, E-GEOD 22780, E-GEOD 2109, E-GEOD 17951, E-MEXP 1121 and E-MEXP 950
Prostate	E-GEOD 2109 and E-GEOD 17951
Sarcoma	E-GEOD 2109, E-GEOD 21122, E-GEOD 30929, E-GEOD 14325, E-GEOD 32375, E-GEOD 12865, E-GEOD 16088, E-GEOD 16091, E-GEOD 37552, E-GEOD 17679, E-GEOD 34620, E-GEOD 6481, E-MEXP 353, E-GEOD 21050, E-GEOD 2719, E-TABM 185 and E-GEOD 21222
Squamous Cell Carcinoma	E-GEOD 2109, E-GEOD 7803, E-GEOD 28571, E-GEOD 10245, E-GEOD 3141, E-GEOD 30784, E-GEOD 23036, E-TABM 185, E-GEOD 20347, E-GEOD 29001 and E-GEOD 26886
Thymus	E-GEOD 29695
Thyroid	E-GEOD 15045, E-GEOD 27155, E-GEOD 2109, E-TABM 185, E-MEXP 97, E-MEXP 2442 and E-GEOD 6004
Urinary (bladder)	E-GEOD 31684, E-GEOD 24152, E-GEOD 3167, E-MEXP 1220 and E-GEOD 2109
Uterus	E-GEOD 6791, E-GEOD 2109, E-GEOD 5787 and E-GEOD 17025

Supplementary Table S2. The 95 genes used by the gene-expression classifier. The three normalizer genes are highlighted in **BOLD**. The remaining 92 are discriminator genes.

Gene (Official Symbol)	Access Code (RefSeq - NCBI)	Probe IDs (Affymetrix)			Amplicon Length (RT-PCR)	Reference
ARF5	NM_001662.3	201526_at			77	1
BATF	NM_006399.3	205965_at			79	1
BCL11B	NM_022898.1	219528_s_at			66	1
C14orf105	NM_018168.2	220084_at			111	1
C6	NM_000065.2	210168_at			60	1
CA2	NM_000067.2	209301_at			77	1
CADPS	NM_003716.3	204814_at			86	1
CAPN6	NM_014289.3	202965_s_at	202966_at		69	1
CAPSL	NM_001042625.1	236085_at			99	1
CCNA1	NM_003914.3	205899_at			68	1
CDCA3	NM_031299.4	221436_s_at			82	1
CDH16	NM_004062.3	206517_at			69	2
CDH17	NM_004063.3	209847_at			72	1
CELSR2	NM_001408.2	204029_at	36499_at		92	1
CHRM3	NM_000740.2	214596_at			72	1
COX11	NR_027942.1	211727_s_at	214277_at	203551_s_at	67	1
CPEB1	NM_001079535.1	219578_s_at			84	1
CSF2RB	NM_000395.2	205159_at			73	1
CX3CR1	NM_001337.3	205898_at			84	1
CYorf15A	NR_045129.1	232618_at	236694_at		73	1
ELAC2	NM_018127.6	201767_s_at	201766_at		72	1
ELAVL4	NM_001144776.1	206051_at			73	1
ELFN2	NM_052906.3	1559072_a_at	1563108_at	1560713_a_at	79	3
EMX2	NM_004098.3	221950_at			92	1
EPS8L3	NM_024526.3	219404_at			132	1
ERN2	NM_033266.3	214372_x_at			65	1
ESR1	NM_000125.3	211233_x_at	215551_at	211234_x_at	62	1
FAM167A	NM_053279.2	226614_s_at	233641_s_at		90	1
FGA	NM_000508.3	205650_s_at	205649_s_at		74	2
FGF9	NM_002010.2	206404_at			83	1
FOXA1	NM_004496.3	204667_at			59	1
FOXP1	NM_005249.4	206018_at			71	1
GFAP	NM_002055.4	203539_s_at	203540_at		59	2
GJB6	NM_006783.4	231771_at			122	1
HLF	NM_002126.4	204753_s_at	204755_x_at	204754_at	72	1
HOXA9	NR_037940.1	209905_at	214651_s_at		64	1
HOXC10	NM_017409.3	218959_at			60	1
HOXD11	NM_021192.2	214604_at			133	1
HSDL2	NM_001195822.1	209512_at	209513_s_at	215436_at	88	1
HTR3A	NR_046363.1	216615_s_at	217002_s_at		57	1
IBSP	NM_004967.3	207370_at			95	1
KCNJ12	NM_021012.4	208567_s_at	207110_at	208566_at	62	2
KDELR2	NM_006854.3	200700_s_at	200699_at	200698_at	91	1
KIF13A	NM_001105568.2	220777_at			99	1
KIF15	NM_020242.2	219306_at			63	1
KIF2C	NM_006845.3	209408_at	211519_s_at		74	1

KLHDC8A	NM_018203.1	219331_s_at			75	1
LAMP2	NM_002294.2	200821_at	203042_at	203041_s_at	84	4
LY6D	NM_003695.2	206276_at			116	1
LY6E	NM_002346.2	202145_at			61	1
LY6H	NM_001135655.1	206773_at			118	1
MAP2K6	NM_002758.3	205698_s_at	205699_at		68	1
MEIS1	NM_002398.2	204069_at			88	1
NBLA00301	NC_000004.11	219791_s_at			60	1
NKX2-1	NM_003317.3	211024_s_at	210673_x_at		96	2
ODZ1	NM_001163278.1	205728_at			105	1
PANX1	NM_015368.3	204715_at			65	1
PAX8	NM_013953.3	221990_at	207923_x_at	214528_s_at	77	1
PPARG	NM_015869.4	208510_s_at			90	1
PRAME	NM_206956.1	204086_at			70	1
PRDM5	NM_018699.2	220792_at			88	1
PRDM8	NM_020226.3	219835_at			66	1
PRKCQ	NM_001242413.1	210038_at	210039_s_at		60	1
PRKRA	NM_001139518.1	209139_s_at			71	1
PRM1	NM_002761.2	206358_at			99	2
PYCR1	NM_153824.1	202148_s_at			73	1
RAX	NM_013435.2	208242_at			106	1
RGS17	NM_012419.4	220334_at			113	1
RNLS	NM_018363.3	220564_at			76	1
RTDR1	NM_014433.2	220105_at			161	1
S100BPB	NM_001256121.1	218370_s_at			97	1
SDC1	NM_002997.4	201286_at	201287_s_at		120	1
SELENBP1	NM_001258288.1	214433_s_at			63	1
SH2D1A	NM_001114937.2	211210_x_at	211211_x_at	210116_at	93	1
SLC35F2	NM_017515.4	218826_at			57	1
SLC35F5	NM_025181.2	220123_at			74	1
SLC43A1	NM_003627.5	204394_at			70	1
SLC45A3	NM_033102.2	228696_at	238499_at		66	1
SLC6A1	NM_003042.3	205152_at			89	1
SLC7A5	NM_003486.5	201195_s_at			87	1
SP2	NM_003110.5	204367_at			89	1
SPRED2	NM_001128210.1	212466_at	214026_s_at	212458_at	75	1
STC1	NM_003155.2	204595_s_at	204596_s_at	204597_x_at	81	5
STC2	NM_003714.2	203439_s_at	203438_at		72	5
TMPRSS3	NM_032404.2	220177_s_at			88	1
TMPRSS4	NM_001173551.1	218960_at			75	1
TRAJ17	NC_000014.8	217412_at			91	1
TRIM15	NM_033229.2	36742_at	210885_s_at	210177_at	66	1
TSHR	NM_000369.2	215442_s_at	210055_at	215443_at	84	2
TSSC4	NM_005706.2	218612_s_at			99	1
UPK1B	NM_006952.3	210064_s_at	210065_s_at		85	1
VGLL1	NM_016267.3	215729_s_at	215730_at	205487_s_at	62	1
VPS33B	NM_018668.3	218415_at	44111_at		73	1
WWC1	NM_015238.2	213085_s_at	216074_x_at		75	1
ZNF365	NM_014951.2	206448_at			67	1

RefSeq – NCBI = Reference Sequence obtained from the National Center for Biotechnology Information; RT-PCR = Real Time PCR.

Supplementary Table S3. Confusion Matrix generated by the 10-fold cross-validation of the RefDB itself. The diagonal black cell highlights the number of correctly classified samples.

Tumor SuperClass	In/Out	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	W	X	Y	Z
Adrenal	A	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0
Breast	B	1	104	0	2	0	0	0	2	10	0	1	0	0	0	0	1	8	1	0	2	7	0	1	1	1
Gastroesophageal	C	0	1	61	0	0	0	1	9	1	1	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0
Germ Cell NonSeminomatous	D	0	1	0	121	3	0	0	0	1	0	0	0	0	0	0	1	1	0	0	4	1	0	0	0	0
Germ Cell Seminomatous	E	0	0	0	2	37	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
Gastrointestinal Stromal Tumor	F	0	0	0	0	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Head and Neck (Salivary Gland)	G	0	1	1	0	0	0	14	0	3	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Intestine (Colorectal Adenocarcinoma)	H	0	0	1	0	0	0	0	210	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Kidney	I	0	5	0	1	0	0	0	0	346	0	0	0	1	0	0	0	3	1	0	0	1	0	0	0	2
Liver	J	1	4	1	0	0	0	0	3	1	120	2	0	4	1	0	0	1	0	1	0	0	0	0	0	0
Lung AC/Large Cell Carcinoma	K	0	3	1	0	0	0	0	0	0	2	302	3	0	0	0	2	1	1	0	0	12	0	0	0	0
Lung Small Cell Carcinoma	L	0	2	1	0	0	0	0	1	1	0	10	27	0	0	1	6	1	0	0	0	4	0	0	0	0
Lymphoma	M	1	0	1	0	0	0	0	1	4	1	0	1	136	0	1	0	1	1	0	0	1	0	2	0	0
Melanoma	N	0	1	0	0	0	0	0	1	3	0	0	1	2	71	0	0	0	0	0	1	4	0	0	1	0
Mesothelioma	O	0	2	0	2	0	0	0	1	2	0	1	0	1	0	90	0	1	0	0	0	2	0	0	0	0
Neuroendocrine	P	1	0	0	1	0	0	0	0	0	0	1	2	1	0	0	326	2	0	0	0	0	0	0	0	0
Ovary	Q	0	4	2	0	0	1	0	1	5	3	0	2	0	0	0	1	519	1	0	0	2	0	1	1	83
Pancreas	R	2	0	4	0	0	0	0	3	1	6	6	0	0	0	0	1	3	79	0	2	0	0	0	0	0
Prostate	S	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	1	1	0	112	0	0	0	0	0	0
Sarcoma	T	0	3	1	2	0	0	0	1	6	0	0	1	0	1	1	2	3	0	1	105	0	0	1	0	2
Squamous Cell Carcinomas	U	0	6	0	0	1	0	0	0	3	0	12	1	1	1	0	1	6	0	0	1	422	0	1	0	4
Thymus	W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	34	0	0	0
Thyroid	X	1	3	0	0	0	0	0	1	1	0	5	0	0	0	1	0	5	1	1	1	4	0	205	1	0
Urinary (bladder)	Y	0	3	0	0	0	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	7	0	0	130	0
Uterus	Z	0	5	1	0	0	0	0	1	3	0	0	0	0	0	0	0	108	1	0	1	7	0	0	0	147

Supplementary Table S5. Detailed algorithm performance. Classification of the 105 metastatic FFPE samples by comparing the gene-expression classifier results with the reference diagnosis. Expected classifications are highlighted in grey.

Sample #	Gender	Reference Diagnosis	1st Classification		2nd Classification		3rd Classification		Corrected Classified ?	Position	Ruled out ?
			Tumor Superclass	Probability	Tumor Superclass	Probability	Tumor Superclass	Probability			
6	Male	Melanoma	Melanoma	44.7%	Gastroesophageal	20.1%	Sarcoma	19.0%	YES	1	NO
8	Female	Breast	Breast	32.0%	Squamous CC	28.0%	Sarcoma	23.8%	YES	1	NO
9	Male	Squamous CC	Squamous CC	41.0%	Melanoma	21.4%	Sarcoma	21.4%	YES	1	NO
10	Female	Melanoma	Melanoma	35.1%	Sarcoma	24.8%	Squamous CC	23.9%	YES	1	NO
11	Male	Melanoma	Melanoma	38.0%	Squamous CC	28.7%	Sarcoma	17.1%	YES	1	NO
12	Male	Squamous CC	Squamous CC	41.0%	Kidney	24.4%	Intestine	18.4%	YES	1	NO
13	Female	Breast	Breast	33.5%	Melanoma	30.6%	Squamous CC	19.7%	YES	1	NO
14	Female	Neuroendocrine	Lung SCC	28.9%	Sarcoma	27.9%	Neuroendocrine	27.1%	YES	3	NO
15	Female	Melanoma	Melanoma	57.7%	Squamous CC	14.0%	Sarcoma	12.1%	YES	1	NO
17	Female	Ovary	Ovary	42.6%	Uterus	25.6%	Kidney	15.7%	YES	1	NO
18	Female	Adrenal	Gastroesophageal	41.6%	Melanoma	22.8%	Lymphoma	19.3%	NO	23	YES
19	Male	Liver	Liver	39.5%	Gastroesophageal	23.5%	Lung - AC/LCC	20.8%	YES	1	NO
20	Female	Breast	Gastroesophageal	30.3%	Breast	29.0%	Squamous CC	24.5%	YES	2	NO
21	Male	Squamous CC	Squamous CC	36.4%	Melanoma	27.5%	Gastroesophageal	19.9%	YES	1	NO
22	Female	Squamous CC	Melanoma	48.4%	Squamous CC / Sarcoma	17.7%	Ovary	15.5%	YES	2	NO
23	Male	Prostate	Sarcoma	40.6%	Prostate	22.4%	Lung SCC	20.9%	YES	2	NO
24	Male	Thyroid	Thyroid	52.3%	Thymus	16.7%	Melanoma	14.8%	YES	1	NO
25	Female	Sarcoma	Melanoma	41.0%	Gastroesophageal	23.1%	Sarcoma / Lymphoma	19.8%	YES	3	NO
26	Male	Squamous CC	Squamous CC	38.1%	Urinary (Bladder)	25.5%	Kidney	20.2%	YES	1	NO
27	Male	Squamous CC	Kidney	31.8%	Squamous CC	29.0%	Sarcoma	23.0%	YES	2	NO
28	Male	Squamous CC	Squamous CC	42.4%	Intestine	21.9%	Melanoma	19.5%	YES	1	NO
29	Male	Sarcoma	Sarcoma	37.6%	Kidney	24.8%	Squamous CC	21.4%	YES	1	NO
30	Female	Breast	Gastroesophageal	32.8%	Breast	27.4%	Squamous CC	23.5%	YES	2	NO
31	Male	Squamous CC	Squamous CC	33.0%	Kidney	31.0%	Sarcoma	19.9%	YES	1	NO

32	Female	Breast	Breast	30.8%	Squamous CC	28.4%	Sarcoma	24.6%	YES	1	NO
33	Female	Breast	Breast	32.0%	Sarcoma	26.4%	Lung SCC	25.4%	YES	1	NO
34	Male	Kidney	Sarcoma	30.9%	Kidney	28.6%	Mesothelioma	24.3%	YES	2	NO
35	Female	Uterus	Ovary	34.8%	Uterus	30.0%	Lung SCC	19.1%	YES	2	NO
36	Female	Melanoma	Melanoma	42.9%	Sarcoma	24.2%	Squamous CC	16.8%	YES	1	NO
37	Male	GIST	Sarcoma	33.9%	Neuroendocrine	29.6%	Mesothelioma	20.3%	NO	11	YES
41	Female	Sarcoma	Sarcoma	29.9%	Squamous CC	27.6%	Gastroesophageal	26.3%	YES	1	NO
42	Male	Sarcoma	Sarcoma	44.1%	Squamous CC	22.9%	Melanoma	16.8%	YES	1	NO
43	Male	Sarcoma	Kidney	28.5%	Neuroendocrine	28.1%	Sarcoma	27.1%	YES	3	NO
44	Male	Sarcoma	Sarcoma	39.7%	Squamous CC	23.4%	Melanoma	20.7%	YES	1	NO
45	Female	Thyroid	Thyroid	64.6%	Melanoma	10.5%	Thymus	8.7%	YES	1	NO
47	Female	Thyroid	Thyroid	39.8%	Thymus	32.2%	Sarcoma	11.9%	YES	1	NO
49	Female	Melanoma	Sarcoma	31.5%	Melanoma	30.4%	Squamous CC	21.9%	YES	2	NO
50	Male	Melanoma	Melanoma	29.6%	Sarcoma	28.5%	Squamous CC	25.7%	YES	1	NO
51	Female	Melanoma	Melanoma	37.2%	Thymus	24.1%	Liver	22.5%	YES	1	NO
52	Female	Ovary	Ovary	47.2%	Uterus	31.8%	Squamous CC	4.8%	YES	1	NO
53	Female	Ovary	Ovary	37.2%	Uterus	31.4%	Squamous CC	15.2%	YES	1	NO
54	Female	Ovary	Ovary	42.3%	Uterus	29.7%	Squamous CC	11.8%	YES	1	NO
55	Male	Kidney	Sarcoma	42.7%	Lung_Small	22.1%	Intestine	19.0%	NO	7	NO
56	Female	Kidney	Kidney	35.9%	Uterus	24.3%	Ovary	23.6%	YES	1	NO
57	Female	Sarcoma	Ovary	34.3%	Sarcoma	25.1%	Uterus	24.3%	YES	2	NO
58	Male	Thyroid	Thyroid	66.7%	Squamous CC / Thymus	8.6%	Lung - AC/LCC	8.4%	YES	1	NO
59	Male	Thyroid	Sarcoma	36.2%	Lung_Small	25.9%	Neuroendocrine	21.7%	NO	4	NO
60	Male	Neuroendocrine	Lung_Small	37.6%	Sarcoma	31.0%	Lymphoma	15.2%	NO	12	YES
61	Male	Melanoma	Sarcoma	35.6%	Squamous CC	24.7%	Melanoma	23.5%	YES	3	NO
62	Female	Melanoma	Melanoma	37.0%	Gastroesophageal	24.0%	Sarcoma	22.8%	YES	1	NO
65	Male	Melanoma	Sarcoma	33.3%	Melanoma	27.7%	Thymus	22.8%	YES	2	NO
67	Female	Melanoma	Melanoma	40.6%	Sarcoma	23.3%	Squamous CC	19.8%	YES	1	NO
68	Male	Lymphoma	Lymphoma	31.9%	Melanoma	30.8%	Gastroesophageal	21.1%	YES	1	NO

69	Male	Lymphoma	Melanoma	39.6%	Lymphoma	25.6%	Gastroesophageal	18.6%	YES	2	NO
70	Female	Breast	Breast	29.5%	Lung - AC/LCC	27.7%	Melanoma	26.6%	YES	1	NO
71	Female	Breast	Ovary	28.6%	Uterus	27.9%	Squamous CC	27.4%	NO	5	NO
72	Female	Breast	Melanoma	31.2%	Squamous CC	27.7%	Lung - AC/LCC	25.0%	NO	4	NO
74	Female	Breast	Breast	38.5%	Uterus	22.8%	Squamous CC	22.6%	YES	1	NO
75	Male	Head and Neck	Gastroesophageal	31.6%	Intestine	30.8%	Squamous CC	21.3%	NO	19	YES
76	Female	Breast	Breast	38.7%	Gastroesophageal	23.0%	Uterus	22.1%	YES	1	NO
77	Female	Breast	Squamous CC	35.0%	Breast	25.8%	Ovary	23.0%	YES	2	NO
78	Female	Sarcoma	Sarcoma	33.8%	Gastroesophageal	25.8%	Melanoma	24.2%	YES	1	NO
79	Female	Sarcoma	Melanoma	40.2%	Gastroesophageal	26.1%	Sarcoma	17.5%	YES	3	NO
80	Female	Sarcoma	Sarcoma	32.0%	Breast	26.5%	Gastroesophageal	25.3%	YES	1	NO
81	Female	Gastroesophageal	Intestine	33.5%	Gastroesophageal	29.2%	Squamous CC	21.1%	YES	2	NO
82	Male	Intestine	Intestine	37.8%	Gastroesophageal	36.1%	Squamous CC	9.9%	YES	1	NO
83	Female	Gastroesophageal	Gastroesophageal	30.7%	Melanoma	30.4%	Sarcoma	22.7%	YES	1	NO
84	Male	Gastroesophageal	Gastroesophageal	35.5%	Intestine	29.0%	Melanoma	19.3%	YES	1	NO
85	Female	Adrenal	Sarcoma	38.2%	Squamous CC	25.2%	Ovary	20.4%	NO	16	YES
86	Male	Gastroesophageal	Mesothelioma	28.5%	Thymus	28.0%	Thyroid	27.3%	NO	7	NO
87	Female	Intestine	Gastroesophageal	35.6%	Intestine	30.6%	Squamous CC	17.7%	YES	1	NO
88	Male	Intestine	Intestine	39.9%	Gastroesophageal	35.6%	Squamous CC	8.3%	YES	1	NO
89	Male	Intestine	Intestine	38.5%	Gastroesophageal	32.7%	Liver	12.6%	YES	1	NO
90	Male	Gastroesophageal	Prostate	46.4%	Sarcoma	19.6%	Squamous CC	17.8%	NO	4	NO
92	Male	Gastroesophageal	Prostate	43.7%	Gastroesophageal	24.8%	Squamous CC	15.3%	YES	2	NO
93	Female	Pancreas	Gastroesophageal	33.1%	Urinary	25.6%	Intestine	25.1%	NO	9	YES
94	Male	Intestine	Intestine	39.0%	Gastroesophageal	28.7%	Lung - AC/LCC	16.0%	YES	1	NO
96	Female	Gastroesophageal	Ovary	31.3%	Gastroesophageal	26.4%	Squamous CC	26.1%	YES	2	NO
98	Male	Gastroesophageal	Gastroesophageal	42.5%	Intestine	22.0%	Prostate	19.4%	YES	1	NO
99	Male	Gastroesophageal	Intestine	31.8%	Gastroesophageal	28.0%	Squamous CC	24.0%	YES	2	NO
100	Male	Gastroesophageal	Gastroesophageal	37.4%	Intestine	24.4%	Kidney	22.0%	YES	1	NO
101	Male	Gastroesophageal	Prostate	33.6%	Intestine	25.5%	Squamous CC	24.7%	NO	5	NO

102	Female	Intestine	Intestine	34.0%	Gastroesophageal	32.1%	Lung - AC/LCC	17.7%	YES	1	NO
103	Female	Intestine	Gastroesophageal	41.8%	Intestine	28.0%	Mesothelioma	14.0%	YES	2	NO
104	Male	Intestine	Intestine	32.7%	Gastroesophageal	27.9%	Sarcoma	23.2%	YES	1	NO
105	Male	Intestine	Intestine	43.5%	Gastroesophageal	32.0%	Thyroid	8.2%	YES	1	NO
106	Female	Intestine	Intestine	37.5%	Gastroesophageal	34.2%	Sarcoma	12.1%	YES	1	NO
107	Male	Gastroesophageal	Gastroesophageal	32.0%	Prostate	27.1%	Intestine	24.7%	YES	1	NO
108	Female	Gastroesophageal	Sarcoma	29.3%	Squamous CC	28.1%	Breast	26.4%	NO	7	NO
109	Female	Adrenal	Melanoma	44.2%	Squamous CC	21.4%	Sarcoma	18.2%	NO	10	YES
110	Male	Adrenal	Gastroesophageal	36.9%	Prostate	25.9%	Sarcoma	21.0%	NO	19	YES
111	Male	Squamous CC	Kidney	30.7%	Squamous CC	29.6%	Gastroesophageal	23.5%	YES	2	NO
112	Male	Squamous CC	Squamous CC	35.0%	Melanoma	29.4%	Sarcoma	19.5%	YES	1	NO
113	Male	Gastroesophageal	Thyroid	33.7%	Urinary (Bladder)	25.4%	Gastroesophageal	24.7%	YES	3	NO
114	Female	Intestine	Intestine	36.5%	Gastroesophageal	35.7%	Lung - AC/LCC	11.6%	YES	1	NO
115	Male	Squamous CC	Squamous CC	42.2%	Sarcoma	23.1%	Prostate	18.5%	YES	1	NO
116	Female	Squamous CC	Squamous CC	34.5%	Melanoma	27.7%	Gastroesophageal	21.5%	YES	1	NO
118	Male	Intestine	Intestine	38.2%	Gastroesophageal	29.5%	Sarcoma	16.1%	YES	1	NO
120	Female	Uterus	Ovary	40.3%	Uterus	35.5%	Squamous CC	7.9%	YES	2	NO
121	Male	Pancreas	Prostate	32.3%	Squamous CC	28.6%	Gastroesophageal	22.9%	NO	16	YES
122	Male	Squamous CC	Squamous CC	39.5%	Lung - AC/LCC	24.8%	Sarcoma	19.5%	YES	1	NO
123	Male	Kidney	Kidney	42.2%	Sarcoma	21.0%	Neuroendocrine	20.7%	YES	1	NO
124	Male	Intestine	Intestine	39.0%	Gastroesophageal	30.1%	Prostate	14.7%	YES	1	NO
126	Female	Uterus	Ovary	34.6%	Uterus	33.0%	Kidney	16.3%	YES	2	NO
127	Male	Squamous CC	Gastroesophageal	31.9%	Prostate	31.5%	Squamous CC / Melanoma	20.4%	YES	3	NO

Squamous CC = Squamous Cell Carcinoma; Lung-AC/LCC = Lung Adenocarcinoma / Large Cell Carcinoma.

Supplementary Table S6. Detailed reproducibility data. The Cts coefficient of variation from four randomly selected samples and overall.

Sample #	INTER-ASSAYS		INTRA-ASSAYS		INTER-LOTS	
	CV (%)	95% CI (%)	CV (%)	95% CI (%)	CV (%)	95% CI (%)
Sample #19	5.06	4.65 - 5.47	4.23	3.84 - 4.62	4.53	4.05 - 5.01
Sample #52	4.12	3.78 - 4.47	2.36	2.13 - 2.59	3.63	3.25 - 4.01
Sample #58	3.17	2.93 - 3.41	3.86	3.54 - 4.17	2.55	2.30 - 2.81
Sample #56	3.89	3.53 - 4.25	4.47	4.03 - 4.90	3.53	3.10 - 3.96
Overall	4.06	3.63 - 4.48	3.73	3.30 - 4.16	3.56	3.08 - 4.05

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