

Supplementary Table 2

Comparison of TBX3 somatic mutation rate to that in other TBX genes. The list of 38 somatic cancer genome projects from the ICGC data base with mutations in TBX genes (release 17) is sorted by decreasing TBX mutation number. Absolute mutations numbers are normalized to the total number of TBX mutation in a given cancer type. This normalized the effect of different number of tissue samples analysed and cancer-intrinsic differences in mutation rate. In the more significant top half of the table, TBX3 (grey shading) is the most frequently mutated TBX gene in breast cancer (TCGA, grey shading) but not in other types of cancer.

	EOM ES	T	TBR 1	T □	TBX 2	TBX 3	TBX 4	TBX 5	TBX 6	TBX 10	TBX 15	TBX 18	TBX 19	TBX 20	TBX 21	TBX 22	Σ	ave rage	total
Liver Cancer - RIKEN, JP	2	3	2.8	0	1.5	2.8	4.3	13.1	0.5	1.3	18.4	18.4	6.1	16.9	2.8	6.1	100	6.25	396
Esophageal Adenocarcinoma - UK	1.8	3.6	3	2.7	0.3	1.8	5.4	19.1	0.3	0.6	20.6	19.1	4.8	14.3	2.7	0	100	6.25	335
Pancreatic Cancer - AU	4.7	4.3	3.9	4.3	3.1	6.7	7.8	20	2	0	0	10.6	5.5	14.5	4.7	7.8	100	6.25	255
Skin Cutaneous melanoma - TCGA, US	5	5.9	6.3	2.5	3.3	3.8	5	6.3	4.6	7.5	15.9	9.2	6.3	10.5	3.3	4.6	100	6.25	239
Ovarian Cancer - AU	1.7	2.6	0.4	5.1	1.3	4.3	4.7	14.5	1.3	3.4	23.4	18.3	3.4	8.5	1.3	6	100	6.25	235
Gastric Adenocarcinoma - TCGA, US	4.4	9.4	7.5	3.1	6.3	5	5	11.9	10	6.3	1.9	12.5	6.3	1.9	3.8	5	100	6.25	160
Liver Cancer - FR	0.7	1.4	1.4	1.4	2.1	0.7	5.5	6.2	4.1	2.1	15.1	45.9	5.5	1.4	4.1	2.7	100	6.25	146
Colon Adenocarcinoma - TCGA, US	5.8	7.3	5.8	4.4	4.4	5.8	8.8	9.5	8	5.1	8	10.2	3.6	6.6	2.9	3.6	100	6.25	137
Liver Cancer - NCC, JP	5.6	2.4	5.6	7.3	3.2	3.2	5.6	17.7	2.4	1.6	8.1	11.3	5.6	9.7	4	6.5	100	6.25	124
Renal Cell Cancer - EU/FR	0.8	1.6	2.4	4	7.3	1.6	12.1	12.9	0.8	1.6	15.3	21.8	4	8.1	4	1.6	100	6.25	124
Lung Squamous Cell Carcinoma - TCGA, US	4	8.9	5	0	5.9	11.9	1	8.9	2	4	2	15.8	5	7.9	5	12.9	100	6.25	101
Pancreatic Cancer - CA	3.2	4.2	2.1	3.2	4.2	6.3	3.2	16.8	1.1	1.1	17.9	8.4	14.7	6.3	4.2	3.2	100	6.25	95
Breast Cancer - TCGA, US	3.3	4.3	4.3	2.2	3.3	29.3	4.3	8.7	1.1	5.4	4.3	7.6	4.3	4.3	2.2	10.9	100	6.25	92
Oral Cancer - IN	2.8	0	1.4	0	0	0	1.4	1.4	0	11.3	80.3	0	0	1.4	0	0	100	6.25	71
Breast Triple Negative/Lobular Cancer - UK	0	1.5	0	13.8	1.5	6.2	9.2	10.8	1.5	1.5	13.8	15.4	7.7	13.8	1.5	1.5	100	6.25	65
Malignant Lymphoma - DE	1.7	3.3	1.7	1.7	1.7	11.7	6.7	18.3	3.3	1.7	11.7	10	3.3	5	0	18.3	100	6.25	60
Lung Cancer - KR	0	10.5	1.8	3.5	12.3	1.8	0	14	5.3	1.8	12.3	7	3.5	10.5	0	15.8	100	6.25	57
Thyroid Cancer - SA	2	4	8	8	16	4	6	10	10	8	6	4	0	2	6	6	100	6.25	50
Pancreatic Cancer Endocrine neoplasms - AU	0	2.9	0	2.9	2.9	5.7	8.6	11.4	2.9	0	14.3	22.9	0	20	0	5.7	100	6.25	35
Bladder Urothelial Cancer - TCGA, US	6.3	12.5	6.3	0	9.4	12.5	9.4	21.9	6.3	3.1	6.3	0	3.1	0	0	3.1	100	6.25	32
Pediatric Brain Cancer - DE	0	0	3.4	0	0	0	6.9	13.8	0	0	17.2	34.5	6.9	6.9	0	10.3	100	6.25	29
Acute Myeloid Leukemia - KR	0	13.6	0	9.1	9.1	0	13.6	0	0	22.7	4.5	4.5	0	0	22.7	0	100	6.25	22
Rectum Adenocarcinoma - TCGA, US	0	4.5	9.1	4.5	18.2	9.1	9.1	0	0	9.1	4.5	4.5	0	9.1	4.5	13.6	100	6.25	22
Brain Glioblastoma Multiforme - TCGA, US	5.6	11.1	5.6	5.6	0	0	0	22.2	5.6	0	5.6	11.1	0	5.6	5.6	16.7	100	6.25	18
Prostate Adenocarcinoma - TCGA, US	12.5	0	0	0	0	25	0	6.3	0	0	0	25	6.3	25	0	0	100	6.25	16
Brain Lower Grade Glioma - TCGA, US	0	8.3	0	8.3	16.7	0	0	16.7	0	16.7	8.3	8.3	0	8.3	0	8.3	100	6.25	12
Kidney Renal Clear Cell Carcinoma - TCGA, US	16.7	0	8.3	0	0	0	16.7	0	25	0	0	8.3	16.7	0	8.3	0	100	6.25	12
Bladder Cancer - CN	9.1	9.1	0	0	0	9.1	27.3	18.2	0	18.2	0	0	0	9.1	0	0	100	6.25	11
Prostate Adenocarcinoma - CA	11.1	0	0	0	0	0	0	33.3	0	0	44.4	0	0	11.1	0	0	100	6.25	9
Kidney Renal Pap. Cell Carcinoma - TCGA, US	12.5	0	0	0	25	25	12.5	0	12.5	12.5	0	0	0	0	0	0	100	6.25	8
Prostate Adenocarcinoma - UK	12.5	12.5	0	0	0	25	12.5	0	0	0	0	25	0	0	0	12.5	100	6.25	8
Early Onset Prostate Cancer - DE	0	16.7	0	0	0	0	16.7	0	0	0	33.3	16.7	0	0	0	16.7	100	6.25	6
Ovarian Serous Cystadenoca. - TCGA, US	33.3	0	16.7	16.7	0	0	0	16.7	16.7	0	0	0	0	0	0	0	100	6.25	6
Head and Neck Thyroid Carcinoma - TCGA, US	0	0	0	0	0	0	0	20	0	20	0	40	0	20	0	0	100	6.25	5
Esophageal Cancer - CN	0	0	0	0	0	25	0	25	0	0	0	0	0	50	0	0	100	6.25	4
Gastric Cancer - CN	0	33.3	0	0	0	0	0	0	0	0	0	0	0	33.3	0	33.3	100	6.25	3
Benign Liver Tumour - FR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	6.25	2
Chronic Lymphocyclic Leukemia - ES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	6.25	1