

## Supplementary materials for Wang, et al, Additional file 1

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## Supplementary Tables

**Table S1.** Sample information.

Patient label	Age at diagnosis	Gender (1=male, 2=female)	Smoking_status (0=neverSmoker; 1=smoker; 2=current_smoker ; 3=unknown)	Tumor stage	Lymph node metastasis (0=No, 1=Yes)	Tumor accession	Normal accession	Tumor reads	Normal reads
LC_C1	54	1	1	1A	0	ERR164550	ERR164473	38747243	22844380
LC_C10	58	2	0	2A	1	ERR164559	ERR164479	45442873	28952003
LC_C11	63	2	0	1A	0	ERR164560	ERR164480	36345502	30034560
LC_C12	66	1	3	1B	0	ERR164561	ERR164481	33751833	27199448
LC_C14	50	2	2	3A	1	ERR164563	ERR164482	39577218	33297988
LC_C16	54	2	0	1A	0	ERR164565	ERR164483	38599387	30379431
LC_C17	64	2	0	1A	0	ERR164566	ERR164484	37570412	33270003
LC_C18	68	2	1	1B	0	ERR164567	ERR164485	43603998	36204547
LC_C19	40	2	0	4	0	ERR164568	ERR164486	39607756	37810104
LC_C2	51	1	2	2B	0	ERR164551	ERR164474	53607774	42022150
LC_C20	65	1	1	1A	0	ERR164569	ERR164487	36620521	34810994
LC_C21	42	1	1	1B	0	ERR164570	ERR164488	33031428	38877376
LC_C22	73	1	1	1A	0	ERR164571	ERR164489	36827801	29768181
LC_C24	66	2	0	1A	0	ERR164573	ERR164490	34446009	30552607
LC_C25	66	1	1	1A	0	ERR164574	ERR164491	40862036	40061444
LC_C28	59	2	0	NA	0	ERR164577	ERR164492	52965117	31118616
LC_C29	60	2	0	4	0	ERR164578	ERR164493	52251114	30267534
LC_C3	65	2	0	1A	0	ERR164552	ERR164475	41576054	36558196
LC_C30	38	2	0	1A	0	ERR164579	ERR164494	50680901	32973203
LC_C31	61	2	0	1A	0	ERR164580	ERR164495	53023203	29426650
LC_C33	62	1	3	NA	0	ERR164582	ERR164496	56634311	27604788

LC_C34	73	1	1	1B	0	ERR164583	ERR164497	49876146	25731489
LC_C35	60	1	2	2A	1	ERR164584	ERR164498	50381230	31485881
LC_C36	56	2	0	1A	0	ERR164585	ERR164499	41887225	28180652
LC_C5	68	1	3	3A	1	ERR164554	ERR164476	39009132	32065580
LC_C7	81	1	1	1A	0	ERR164556	ERR164477	45536591	35823521
LC_C9	71	1	1	1B	0	ERR164558	ERR164478	37259703	42992272
LC_S10	69	1	1	4	1	ERR164590	ERR164508	25639079	36929327
LC_S11	65	1	1	1B	0	ERR164591	ERR164509	40642669	44219885
LC_S13	62	1	1	1B	0	ERR164593	ERR164510	39817881	31899940
LC_S14	79	1	1	1B	0	ERR164594	ERR164511	35208393	31290309
LC_S15	73	1	2	1B	0	ERR164595	ERR164512	55195368	39920425
LC_S16	67	2	0	1A	0	ERR164597, ERR164596	ERR164513	45149896	36408281
LC_S17	73	1	1	1A	0	ERR164599, ERR164598	ERR164514	52331896	35726514
LC_S18	76	1	1	3A	1	ERR164600	ERR164515	96081958	31497329
LC_S19	62	1	1	1A	0	ERR164601	ERR164516	60414304	34642008
LC_S20	58	1	1	1B	0	ERR164602	ERR164517	57662415	31193217
LC_S21	52	1	2	1A	0	ERR164603	ERR164518	63856760	36693314
LC_S22	67	2	0	1B	0	ERR164604	ERR164519	52237502	34871202
LC_S23	62	2	0	1B	0	ERR164605	ERR164520	55302491	35109105
LC_S24	70	2	0	2A	1	ERR164606	ERR164521	65138060	36070935
LC_S25	78	1	1	3A	1	ERR164607	ERR164522	61863976	37385715
LC_S26	70	2	0	1B	0	ERR164608	ERR164523	60720273	33943554
LC_S27	65	1	1	1A	0	ERR164609	ERR164524	57606955	29128935
LC_S28	63	1	0	1B	0	ERR164610	ERR164525	54933146	37843199
LC_S29	59	1	2	3A	1	ERR164611	ERR164526	63317174	31527488
LC_S30	66	2	0	1B	0	ERR164612	ERR164527	55724222	33656997
LC_S31	56	1	1	2B	0	ERR164613	ERR164528	67129037	38815656
LC_S32	64	1	1	1A	0	ERR164614	ERR164529	57751163	39369979

LC_S33	66	2	0	1A	0	ERR164615	ERR164530	63332457	28568100
LC_S34	45	2	0	1B	0	ERR164616	ERR164531	61887903	33008257
LC_S35	82	1	1	4	1	ERR164617	ERR164532	54159676	34867292
LC_S36	74	2	0	1B	0	ERR164618	ERR164533	49749450	38983377
LC_S37	69	1	1	2B	0	ERR164619	ERR164534	67385676	35282174
LC_S38	65	1	2	3A	1	ERR164620	ERR164535	60253340	17270628
LC_S39	58	1	1	2B	1	ERR164621	ERR164536	66588273	38797818
LC_S40	47	1	2	2B	0	ERR164622	ERR164537	33747468	28086427
LC_S41	55	2	1	3A	1	ERR164623	ERR164538	34223354	35274948
LC_S42	62	2	0	3B	1	ERR164624	ERR164539	41045273	52034997
LC_S43	68	2	0	1B	0	ERR164625	ERR164540	34893898	47760113
LC_S44	75	2	0	1A	0	ERR164626	ERR164541	34779422	46858874
LC_S45	72	1	0	1A	0	ERR164627	ERR164542	37334315	50435154
LC_S46	66	1	0	1B	0	ERR164628	ERR164543	36607936	43998403
LC_S47	75	2	0	3B	0	ERR164629	ERR164544	32000887	45519810
LC_S48	48	2	0	1B	0	ERR164630	ERR164545	32015184	52624636
LC_S49	66	2	0	1A	0	ERR164631	ERR164546	35692599	38877419
LC_S50	64	2	0	1B	0	ERR164632	ERR164547	35163857	37039026
LC_S51	64	1	2	2A	0	ERR164633	ERR164548	38627258	39530504
LC_S52	82	2	1	1A	0	ERR164634	ERR164549	33115066	46480356
LC_S6	58	1	1	1A	0	ERR164587, ERR164586	ERR164505	82913497	45440332
LC_S8	71	2	0	1A	0	ERR164588	ERR164506	22541432	41766400
LC_S9	69	1	1	2B	0	ERR164589	ERR164507	1.09E+08	36620147

**Table S2.**  $R_{mRNA}$  and their ratio between tumor and normal samples.

Patient label	Median $R_{mRNA}$ (tumor)	Median $R_{mRNA}$ (normal)	Median $R_{mRNA}$ (tumor)/ $R_{mRNA}$ (normal)	P value	FDR
LC_S39	0.868	1.257	0.710	0.003	0.039
LC_C22	0.930	1.294	0.728	0.000	0.007
LC_C7	0.895	1.180	0.789	0.032	0.128
LC_S42	1.094	1.291	0.794	0.006	0.053
LC_S19	1.118	1.267	0.798	0.231	0.426
LC_S47	1.257	1.181	0.815	0.076	0.218
LC_S38	1.083	1.672	0.818	0.150	0.318
LC_C34	1.039	1.286	0.819	0.001	0.020
LC_C20	1.091	1.313	0.826	0.076	0.218
LC_C28	1.199	1.259	0.840	0.007	0.053
LC_C25	1.117	1.293	0.850	0.003	0.039
LC_S44	1.170	1.263	0.868	0.010	0.071
LC_S16	1.152	1.264	0.877	0.011	0.071
LC_S18	1.294	1.168	0.879	0.315	0.505
LC_S50	1.077	1.256	0.881	0.019	0.108
LC_S34	1.048	1.257	0.889	0.213	0.415
LC_S48	1.127	1.158	0.892	0.180	0.370
LC_C9	0.982	1.021	0.893	0.237	0.426
LC_S41	0.976	1.175	0.893	0.028	0.128
LC_C11	1.105	1.236	0.896	0.297	0.486
LC_S35	1.179	1.220	0.897	0.118	0.279
LC_S45	1.219	1.210	0.897	0.499	0.666
LC_S32	1.231	1.144	0.904	0.385	0.554
LC_C17	1.110	1.193	0.906	0.339	0.520
LC_C5	1.132	1.218	0.908	0.023	0.120
LC_C1	1.128	1.204	0.916	0.802	0.875
LC_S22	1.150	1.244	0.920	0.026	0.124
LC_S31	1.018	1.098	0.925	0.247	0.433
LC_S17	1.157	1.191	0.925	0.125	0.281
LC_C24	1.263	1.285	0.933	0.369	0.550
LC_C16	1.061	1.237	0.934	0.113	0.279
LC_S52	1.124	1.102	0.939	0.065	0.218
LC_S51	0.881	1.056	0.953	0.334	0.520

LC_C2	1.000	1.001	0.954	0.042	0.158
LC_S26	0.984	1.213	0.958	0.073	0.218
LC_S11	1.147	1.086	0.959	0.699	0.799
LC_S33	1.167	1.255	0.965	0.199	0.398
LC_S28	1.141	1.168	0.967	0.284	0.475
LC_C35	1.153	1.193	0.967	0.499	0.666
LC_S37	1.029	1.022	0.973	0.088	0.242
LC_C18	1.139	1.036	0.981	0.650	0.755
LC_C31	1.037	1.169	0.982	0.643	0.755
LC_S15	1.162	1.172	0.987	0.772	0.855
LC_S21	1.042	1.189	1.000	0.900	0.953
LC_S20	1.158	1.117	1.001	0.969	0.983
LC_C21	1.061	1.130	1.005	0.556	0.715
LC_S46	1.240	1.292	1.010	0.629	0.755
LC_S43	1.144	1.060	1.014	0.969	0.983
LC_C33	1.143	1.131	1.014	0.650	0.755
LC_C36	1.270	1.193	1.014	0.877	0.943
LC_S24	1.246	1.117	1.016	0.401	0.566
LC_C19	1.130	1.180	1.020	0.992	0.992
LC_S40	0.990	1.087	1.020	0.728	0.819
LC_C3	1.332	1.071	1.026	0.616	0.755
LC_S13	1.341	1.201	1.040	0.417	0.578
LC_C29	1.118	1.060	1.051	0.142	0.310
LC_S30	1.323	1.205	1.060	0.374	0.550
LC_C12	1.330	1.094	1.063	0.231	0.426
LC_C30	1.266	1.233	1.072	0.543	0.711
LC_C10	1.384	1.070	1.083	0.284	0.475
LC_S29	1.162	1.100	1.094	0.589	0.744
LC_S14	1.305	1.146	1.130	0.003	0.039
LC_S25	0.997	1.216	1.152	0.915	0.955
LC_S49	1.678	1.346	1.157	0.120	0.279
LC_C14	1.318	1.143	1.167	0.076	0.218
LC_S27	1.901	1.264	1.194	0.118	0.279
LC_S9	1.255	1.299	1.201	0.056	0.201
LC_S36	1.318	1.054	1.201	0.006	0.053
LC_S10	1.550	1.263	1.231	0.017	0.100
LC_S23	1.390	1.174	1.241	0.107	0.279
LC_S8	1.827	1.305	1.311	0.000	0.012

LC_S6	2.234	1.423	1.401	0.031	0.128
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**Table S3.**  $R_{isoform}$  and their ratio between tumor and normal samples

Patient label	Median $R_{isoform}$ (tumor)	Median $R_{isoform}$ (normal)	Median $R_{isoform}$ (tumor)/ $R_{isoform}$ (normal)	P value	FDR
LC_S39	0.026	0.053	0.515	0.000	0.000
LC_S38	0.042	0.053	0.605	0.002	0.007
LC_C34	0.031	0.052	0.642	0.000	0.001
LC_S33	0.037	0.059	0.693	0.000	0.000
LC_C35	0.034	0.050	0.728	0.000	0.000
LC_C33	0.034	0.043	0.733	0.000	0.001
LC_S26	0.034	0.050	0.744	0.000	0.001
LC_S9	0.042	0.052	0.762	0.001	0.005
LC_C20	0.043	0.053	0.768	0.002	0.007
LC_C10	0.042	0.053	0.769	0.008	0.025
LC_S22	0.040	0.051	0.770	0.000	0.000
LC_S37	0.035	0.040	0.828	0.022	0.060
LC_C1	0.040	0.051	0.833	0.049	0.122
LC_S34	0.044	0.039	0.837	0.062	0.148
LC_C2	0.035	0.043	0.846	0.048	0.122
LC_C16	0.047	0.048	0.855	0.117	0.235
LC_C22	0.047	0.047	0.862	0.186	0.334
LC_C28	0.048	0.050	0.865	0.274	0.420
LC_C5	0.039	0.043	0.865	0.008	0.025
LC_C31	0.040	0.053	0.881	0.002	0.008
LC_C9	0.041	0.047	0.884	0.047	0.122
LC_S31	0.036	0.043	0.890	0.115	0.235
LC_S15	0.039	0.045	0.911	0.877	0.929
LC_C7	0.038	0.042	0.912	0.623	0.724
LC_S18	0.038	0.042	0.914	0.417	0.556
LC_C11	0.051	0.062	0.914	0.127	0.247
LC_C18	0.038	0.044	0.915	0.138	0.260
LC_S17	0.052	0.055	0.920	0.432	0.565
LC_S29	0.039	0.042	0.950	0.393	0.534
LC_C30	0.048	0.056	0.950	0.840	0.916

LC_S28	0.039	0.044	0.957	0.312	0.432
LC_S36	0.047	0.052	0.961	0.941	0.954
LC_C17	0.048	0.048	0.977	0.601	0.721
LC_S21	0.042	0.046	0.979	0.479	0.594
LC_C36	0.043	0.044	0.980	0.932	0.954
LC_S19	0.051	0.053	0.985	0.615	0.724
LC_S51	0.043	0.037	0.993	0.472	0.594
LC_S32	0.037	0.036	0.997	0.977	0.977
LC_S41	0.042	0.038	1.000	0.311	0.432
LC_S30	0.044	0.051	1.014	0.912	0.952
LC_C3	0.040	0.041	1.016	0.724	0.815
LC_S25	0.043	0.039	1.027	0.574	0.701
LC_C25	0.050	0.056	1.028	0.761	0.843
LC_S24	0.034	0.038	1.047	0.293	0.422
LC_C19	0.048	0.046	1.047	0.856	0.919
LC_S45	0.042	0.036	1.052	0.211	0.361
LC_C24	0.058	0.054	1.054	0.083	0.175
LC_S44	0.048	0.046	1.057	0.256	0.410
LC_S35	0.037	0.040	1.072	0.216	0.361
LC_S16	0.046	0.047	1.075	0.683	0.780
LC_S50	0.047	0.043	1.078	0.227	0.372
LC_S11	0.040	0.043	1.087	0.293	0.422
LC_S20	0.043	0.043	1.100	0.212	0.361
LC_C29	0.055	0.043	1.105	0.288	0.422
LC_S14	0.046	0.043	1.105	0.470	0.594
LC_C21	0.050	0.039	1.132	0.141	0.260
LC_S52	0.050	0.047	1.154	0.064	0.150
LC_C14	0.043	0.042	1.163	0.272	0.420
LC_S10	0.051	0.046	1.164	0.071	0.159
LC_S40	0.054	0.043	1.177	0.010	0.029
LC_S48	0.039	0.032	1.211	0.079	0.172
LC_C12	0.058	0.047	1.233	0.000	0.002
LC_S13	0.066	0.048	1.264	0.001	0.005
LC_S42	0.051	0.046	1.273	0.014	0.041
LC_S8	0.080	0.057	1.293	0.000	0.000
LC_S23	0.062	0.051	1.354	0.000	0.002
LC_S47	0.051	0.036	1.376	0.000	0.001
LC_S43	0.063	0.046	1.419	0.000	0.000



LC_S46	0.065	0.044	1.465	0.000	0.000
LC_S49	0.074	0.046	1.488	0.000	0.002
LC_S27	0.062	0.040	1.527	0.000	0.001
LC_S6	0.097	0.047	1.712	0.000	0.000

**Table S4.**  $R_{allele}$  and their ratio between tumor and normal samples

Patient label	Median $R_{allele}$ (tumor)	Median $R_{allele}$ (normal)	Median $R_{allele}$ (tumor)/ $R_{allele}$ (normal)	P value	FDR
LC_C7	0.326	0.847	0.48	0.394	1
LC_C30	0.321	0.714	0.485	0.096	1
LC_S40	0.538	0.583	0.548	0.534	1
LC_S17	0.4	0.333	0.603	0.377	1
LC_S14	0.31	0.536	0.621	0.395	1
LC_S20	0.66	0.833	0.688	0.197	1
LC_C2	0.429	0.833	0.707	0.226	1
LC_S33	0.581	0.742	0.742	0.544	1
LC_C34	0.314	0.374	0.779	0.63	1
LC_S39	1.66	2.125	0.779	0.686	1
LC_S9	0.756	0.69	0.785	1	1
LC_S22	0.55	0.798	0.793	0.47	1
LC_S36	0.683	0.714	0.794	0.681	1
LC_C16	0.458	0.348	0.802	1	1
LC_C20	0.571	0.764	0.848	0.45	1
LC_S37	0.707	0.804	0.853	0.448	1
LC_C31	0.548	0.775	0.856	0.408	1
LC_S32	0.462	0.6	0.868	0.96	1

LC_C22	0.561	0.722	0.87	0.809	1
LC_C5	0.603	0.651	0.896	0.521	1
LC_S41	0.909	0.895	0.896	1	1
LC_C11	0.697	0.545	0.929	0.916	1
LC_C17	0.5	0.583	0.929	0.369	1
LC_C3	0.4	0.467	0.938	1	1
LC_S21	0.719	0.89	0.941	0.583	1
LC_S26	0.455	0.545	0.955	0.178	1
LC_S19	0.612	0.738	0.971	0.84	1
LC_S13	0.625	0.6	0.982	0.678	1
LC_C9	0.778	1	1	0.965	1
LC_S44	0.817	0.627	1.006	0.519	1
LC_C10	1.025	0.692	1.008	0.71	1
LC_S45	0.512	0.361	1.026	0.948	1
LC_S42	0.641	0.661	1.027	0.665	1
LC_S46	0.592	0.726	1.031	0.91	1
LC_S52	0.697	0.667	1.051	0.733	1
LC_S43	0.642	0.631	1.068	0.755	1
LC_S11	0.655	0.446	1.078	0.623	1
LC_C19	1.322	0.925	1.08	0.674	1
LC_S16	0.638	0.617	1.081	0.89	1
LC_S15	0.667	0.657	1.091	0.677	1
LC_C21	0.429	0.652	1.102	1	1
LC_S29	0.573	0.613	1.12	0.817	1
LC_S38	0.381	0.904	1.123	1	1
LC_S35	0.75	0.769	1.125	0.837	1
LC_C24	0.667	0.714	1.133	0.844	1
LC_S34	0.965	0.612	1.14	0.436	1

LC_S50	0.383	0.425	1.148	0.978	1
LC_C1	1.067	0.857	1.167	1	1
LC_C18	0.792	0.786	1.167	0.548	1
LC_S30	0.845	0.579	1.17	0.358	1
LC_S10	0.514	0.59	1.171	0.936	1
LC_C36	0.481	0.481	1.208	1	1
LC_C12	0.455	0.294	1.222	0.453	1
LC_S28	0.88	0.559	1.227	0.267	1
LC_S6	0.493	0.658	1.241	0.734	1
LC_C14	0.583	0.594	1.25	0.563	1
LC_C35	0.75	0.565	1.269	0.421	1
LC_S25	0.928	0.5	1.294	0.202	1
LC_C33	0.429	0.243	1.312	0.528	1
LC_C29	0.667	0.5	1.333	1	1
LC_S47	0.938	0.8	1.333	0.266	1
LC_S8	0.667	0.579	1.339	0.369	1
LC_S51	0.571	0.6	1.465	1	1
LC_S24	1.121	0.882	1.472	0.428	1
LC_C25	0.738	0.376	1.574	0.186	1
LC_S49	0.882	0.261	1.771	0.442	1
LC_S27	0.9	0.333	1.865	0.224	1
LC_C28	0.667	0.5	1.954	0.548	1
LC_S18	0.7	0.412	2.031	0.297	1
LC_S23	0.641	0.474	2.095	0.495	1
LC_S31	1.357	1	2.143	0.306	1

**Table S5.** a) Correlation between expression of NMD effectors and  $R_{mRNA}$  in both normal and tumor tissues; as well as their tumor/normal ratio with median  $R_{mRNA}(\text{tumor})/R_{mRNA}(\text{normal})$

	$R_{mRNA}(\text{normal})$		$R_{mRNA}(\text{tumor})$		$R_{mRNA}(\text{tumor})/R_{mRNA}(\text{normal})$	
	Rho	P	Rho	P	Rho	P
upf1	-0.1857997	0.118	0.2117821	0.07421	0.272204	0.020993
upf2	0.2406586	0.04195	-0.0706476	0.5546	-0.23072	0.051391
upf3a	0.0802946	0.5017	0.2777027	0.01846	0.238504	0.043866
upf3b	0.0009325	0.9939	0.1839347	0.1218	0.103704	0.385161
smg1	0.2038395	0.08594	-0.2455785	0.03784	-0.3459386	0.003064
smg5	-0.0792977	0.507	0.04071001	0.7337	0.018458	0.877489
smg6	-0.1379188	0.2474	0.1535147	0.1975	0.294874	0.01218
smg7	0.0870474	0.4663	-0.1898514	0.1101	-0.21091	0.075427
pnrc2	-0.1308123	0.2727	-0.219886	0.06361	-0.18847	0.112768

b) Correlation between expression of NMD effectors and  $R_{isoform}$  in both normal and tumor tissues; as well as their tumor/normal ratio with median  $R_{isoform}(\text{tumor})/R_{isoform}(\text{normal})$

	$R_{isoform}(\text{normal})$		$R_{isoform}(\text{tumor})$		$R_{isoform}(\text{tumor})/R_{isoform}(\text{normal})$	
	Rho	P	Rho	P	Rho	P
upf1	-0.2127003	0.07284	0.1442387	0.2267	-0.02260614	0.8505
upf2	0.02566102	0.8306	0.05920042	0.6213	0.0446013	0.7099
upf3a	-0.03644958	0.7611	0.1812993	0.1275	0.1645939	0.1671
upf3b	-0.065777	0.583	0.2185849	0.06509	0.153741	0.1973
smg1	-0.299732	0.01053	0.03947231	0.742	0.2270743	0.05508
smg5	-0.105747	0.3767	0.06722351	0.5748	0.06936193	0.5626
smg6	0.2270904	0.05507	0.09249865	0.4396	-0.08471674	0.4792
smg7	0.156619	0.1889	-0.0879163	0.4627	-0.1264561	0.2898

pnrc2	-0.1458948	0.2214	-0.2313029	0.05059	-0.1565226	0.1892
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**Table S6.** No association between NMD activity and tumor progression.

	Median $R_{mRNA}(tumor)/R_{mRNA}(normal)$		Median $R_{isoform}(tumor)/R_{isoform}(normal)$		Median $R_{allele}(tumor)/R_{allele}(normal)$	
	Coefficient	P value	Coefficient	P value	Coefficient	P value
Tumor stage	0.00462	0.793	-0.0101	0.729	0.0656	0.142
Lymph node metastasis	-0.00698	0.862	-0.0936	0.159	0.0988	0.353

## Supplementary Figures

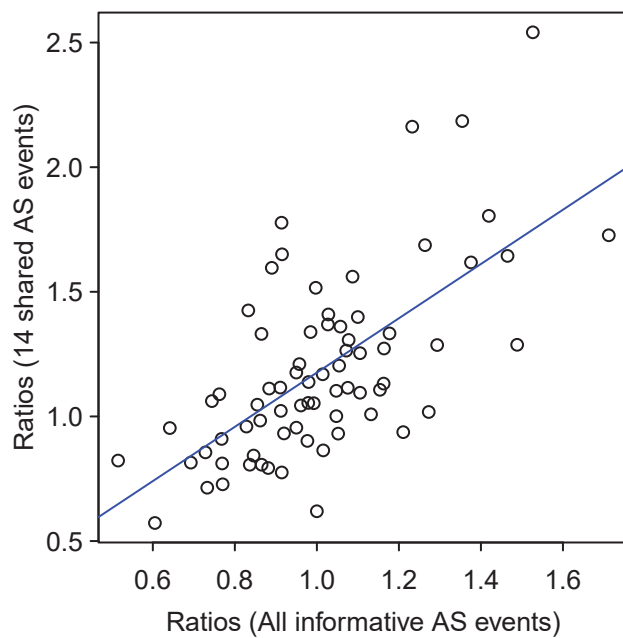
**Figure S1.**  $R_{isoform}(tumor)/R_{isoform}(normal)$  calculated from all informative events ( $\geq 10$  total supporting reads in both paired tissues of any patient) is significantly positively correlated (Spearman's Rho = 0.6127131,  $P = 1.063e-08$ ) with that from the 14 shared events ( $\geq 10$  supporting reads in all 144 samples).

**Figure S2.**  $R_{mRNA}(tumor)/R_{mRNA}(normal)$  is significantly positively correlated with  $R_{isoform}(tumor)/R_{isoform}(normal)$ , regardless of whether all informative AS events (A, Rho = 0.3690621,  $P = 0.001422$ ) or only the 14 shared events (B, Rho = 0.2581838,  $P = 0.02882$ ) were used.

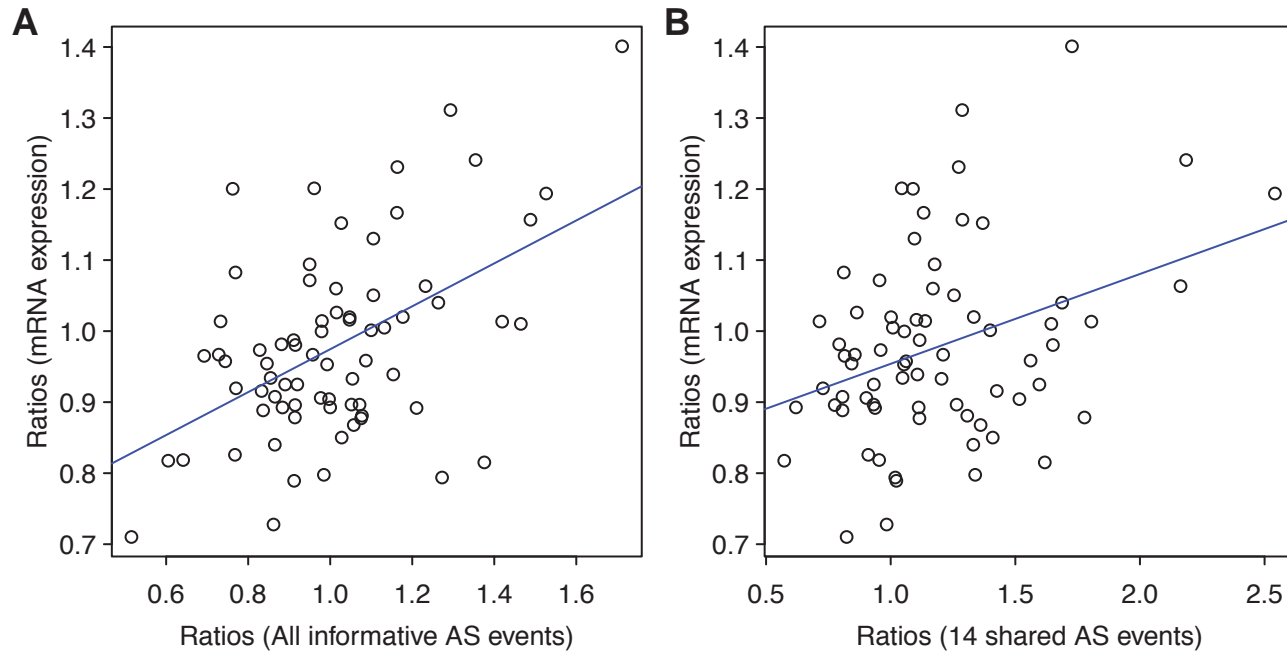
**Figure S3.**  $R_{allele}(tumor)/R_{allele}(normal)$  is weakly positively correlated with  $R_{mRNA}(tumor)/R_{mRNA}(normal)$  (A, Rho = 0.2134399,  $P = 0.07183$ ), and strongly with  $R_{isoform}(tumor)/R_{isoform}(normal)$  (B, Rho = 0.2581838,  $P = 0.02882$ ).

(continue to next page)

**Fig. S1**



**Fig. S2**





**Fig. S3**

