

Supplementary Material

Preliminary results from the EMOlung clinical study showing early lung cancer detection by the LC score

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The present file contains 3 supplementary figures (Fig. S1 to S3) and 8 supplementary tables (Tables S1 to S8) with information that is relevant for this manuscript as listed below:

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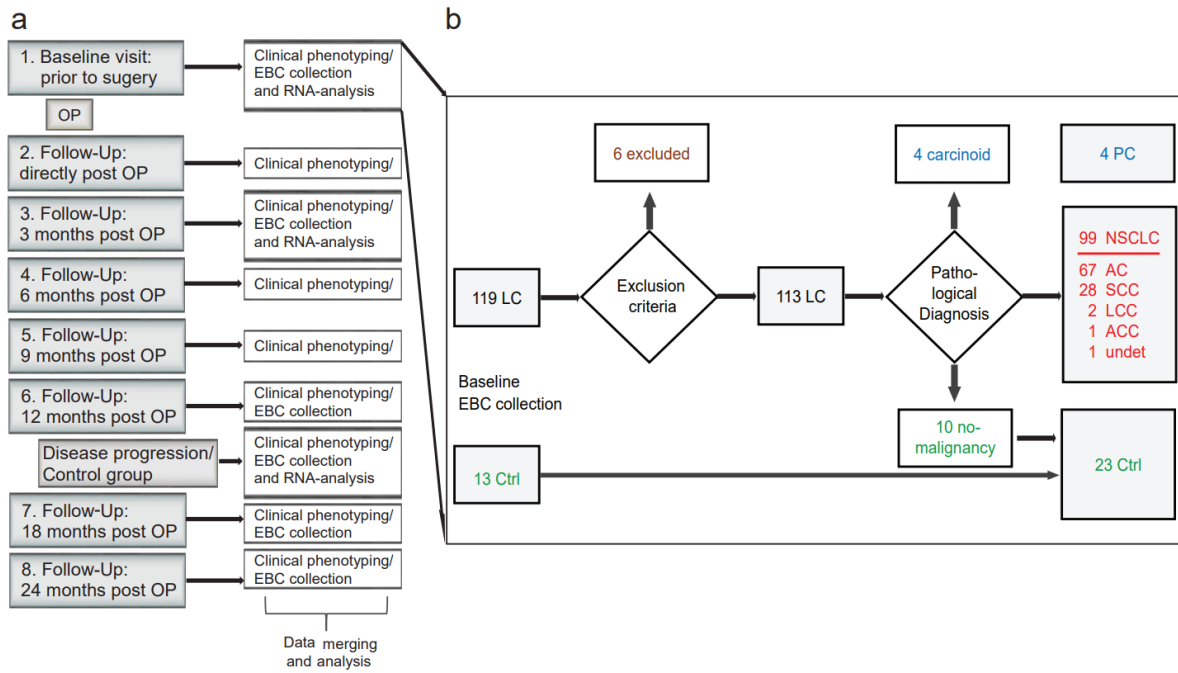


Fig. S1 (a) EMoLung study flowchart. In phase 1 (baseline visit: prior to surgery), EBCs were collected from prospectively enrolled controls and patients with LC. RNA-analysis of exhaled breath condensates were performed and compared with computed tomography imaging (CT). In addition, the clinical data was collected regularly in the context of the follow-up visits to establish a deep characterized patient cohort. The standard operation procedures (SOP) for the assay consisting of isoform-specific expression analysis of *GATA6* and *NKX2-1* were previously established [11] to avoid variability due to technical differences arising from instrumentation and/or platforms. For the analysis, a linear support vector machine (SVM) classifier was used to combine the Em/Ad ratios of *GATA6* and *NKX2-1* of each sample into one LC score. Detailed information of the study population can be found in Table 1. **(b)** Decision flowchart depicting the study population for the present study consisting of the base line EBCs from the clinical study EMoLung. EBCs from 119 patients were assigned to the lung cancer (LC) group, whereas EBCs from 13 donors were assigned to the control (Ctrl) group. In the LC group, 6 patients were excluded from the study based on exclusion criteria, whereas based on pathological diagnosis after operative intervention, 4 patients were diagnosed with carcinoid (PC), 99 patients with non-small cell lung cancer (NSCLC) and 10 patients with non-

malignancies. The 99 NSCLC patients were further classified as 67 adenocarcinoma (AC), 28 squamous-cell carcinoma (SCC), 2 large-cell carcinoma (LCC), 1 adenoid cystic carcinoma (ACC) and 1 was undetermined. The 10 patients with non-malignancies were reassigned to the Ctrl group, thereby resulting in EBCs from 23 donors in the Ctrl group.

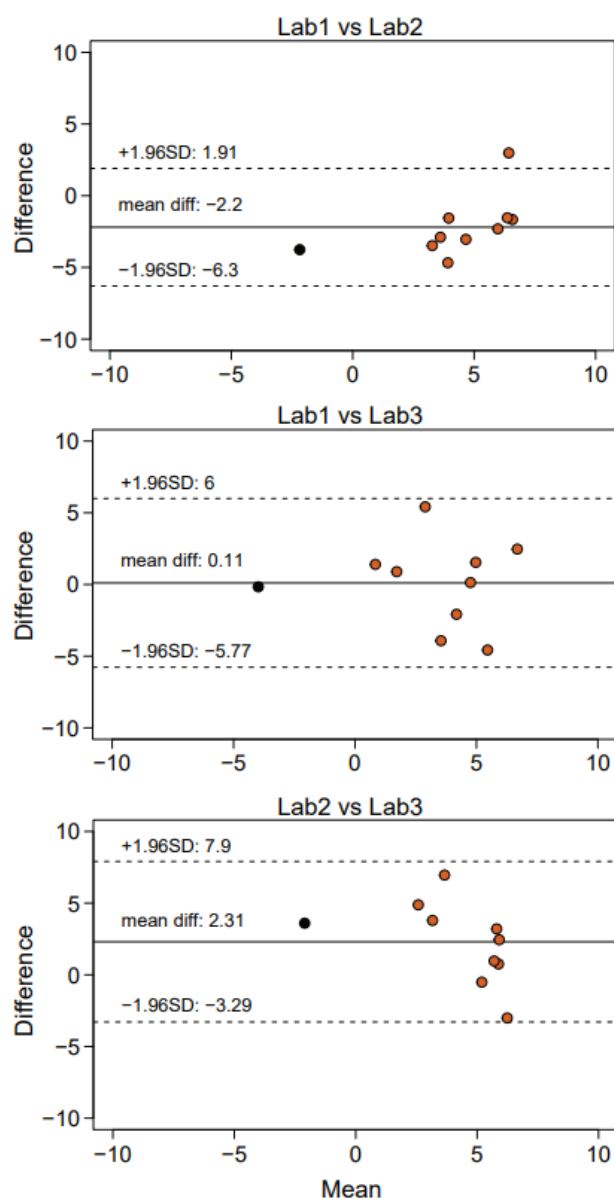


Fig. S2 Repeatability of LC score analysis in EBCs. Bland-Altman plots for the inter-lab variability of the LC scores confirmed the repeatability of LC-based analysis in EBCs. LC score-based analysis was performed by three different laboratories (Lab1, Lab2 and Lab3). Calculation of each LC score for each EBC was performed in triplicates. LC individuals were analyzed. The orange dots represent the LC samples, whereas the black dots represent the control samples. The difference between the three Tests (y-axis) was plotted against their average (x-axis). Solid line, mean of the differences; dotted lines, mean of the differences $\pm$ 1.96 * standard deviation of the difference.

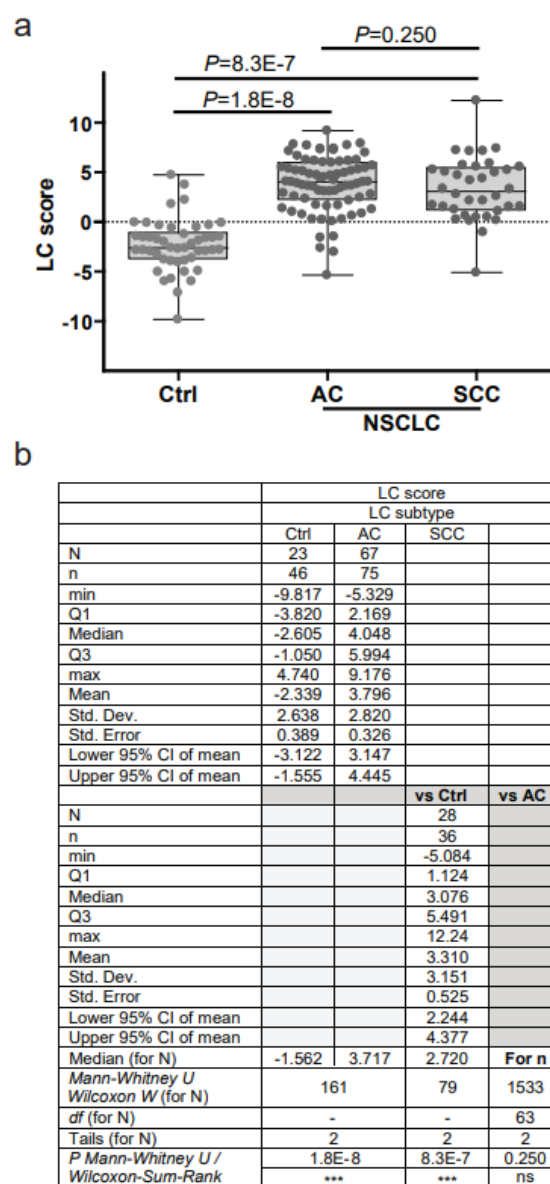


Fig. S3 Repeatability of LC score analysis in EBCs. (a) Box plot of the LC score detected in EBCs from control donors (Ctrl) and patients with non-small cell lung cancer (NSCLC) grouped based on histological subtypes in adenocarcinoma (AC) and squamous cell carcinoma (SCC). Patients were classified according to a pathological report. *P* values are shown for each NSCLC subtype relative to Ctrl and between NSCLC subtypes. See Table 1 and Fig. S1b (Online Resource 1). EBCs were analyzed in laboratories 1, 2 and 3. (b) Five-number summary and the statistical test values from the box plot in a.

Table S1 Five-number summaries of box plots and results of statistical significance tests.

	Exhaled Breath Condensates																			
	Figure 1a		Figure 2b							Figure 2b						Figure 2d				
	LC score		LC score							LC score						LC score				
			LCG		ASK		TKUH		MPI	Lab1		Lab2		Lab3		LC Stage				
	Ctrl	LC	Ctrl	LC	Ctrl	LC	Ctrl	LC	Ctrl	Ctrl	LC	Ctrl	LC	Ctrl	LC	Ctrl	I	II	III	IV
N	23	103	14	62	4	26	2	15	3	1	9	1	9	1	9	23	46			
n	46	121	15	80	4	26	4	15	23	3	9	2	9	3	9	46	54			
min	-9.817	-5.329	-4.909	-3.017	-9.817	-1.574	-7.104	-5.329	-5.002	-4.063	1.539	-0.301	4.735	-3.900	0.138	-9.817	-5.329			
Q1	-3.820	1.550	-1.562	1.828	-8.853	2.733	-6.822	-1.808	-3.627	-4.063	1.872	-0.301	4.977	-3.900	0.726	-3.820	1.530			
Median	-2.605	3.717	-0.520	4.125	-5.837	3.867	-3.982	0.640	-2.776	-3.793	3.173	-0.175	6.183	-1.468	4.689	-2.605	3.604			
Q3	-1.050	5.532	1.813	6.041	-5.180	5.152	-1.698	4.838	-1.706	-2.776	5.672	-0.050	7.137	-1.201	5.478	-1.050	6.016			
max	4.740	12.241	4.740	12.241	-5.002	7.305	-1.601	6.044	-0.050	-2.776	7.919	-0.050	7.407	-1.201	7.744	4.74	12.241			
Mean	-2.339	3.570	-0.304	4.084	-6.623	3.615	-4.167	0.745	-2.602	-3.544	3.965	-0.175	5.985	-2.189	3.822	-2.339	3.746			
Std. Dev.	2.638	2.891	2.584	2.679	2.168	2.031	2.782	3.701	1.205	0.679	2.189	0.178	1.075	1.487	2.670	2.638	3.024			
Std. Error	0.389	0.263	0.667	0.300	1.084	0.398	1.391	0.956	0.251	0.392	0.730	0.126	0.358	0.859	0.890	0.389	0.412			
Lower 95% CI of mean	-3.122	3.049	-1.736	3.488	-10.072	2.795	-8.594	-1.304	-3.123	-5.230	2.282	-1.774	5.159	-5.883	1.770	-3.122	2.921			
Upper 95% CI of mean	-1.555	4.090	1.127	4.681	-3.174	4.435	0.259	2.795	-2.081	-1.858	5.647	1.424	6.812	1.505	5.875	-1.555	4.572			
																		vs Ctrl		
N																		23	26	3
n																		25	33	5
Min																		-3.017	-5.084	0.138
Q1																		1.858	1.173	0.838
Median																		4.080	3.672	5.017
Q3																		5.721	5.268	6.078
Max																		7.407	7.919	6.981
Mean																		3.501	3.122	3.770
Std. Dev.																		2.639	2.948	2.829
Std. Error																		0.528	0.513	1.265
Lower 95% CI of mean																		2.411	2.077	0.257
Upper 95% CI of mean																		4.590	4.167	7.282
Median (for N)	-1.562	3.426	-0.430	3.54	-5.837	3.867	-6.539	0.64	-	For n						-1.562	3.157	3.717	3.284	5.175
Mann-Whitney U / Wilcoxon W (for N)	268		118		0		0		-	0		0		0		145		86	132	8
df (for N)	-		-		-		-		-	9		8		6		-		-	-	-
Tails (for N)	2		2		2		2		-	2		2		2		2		2	2	2
P Mann-Whitney U / Wilcoxon-Rank-Sum	7.3E-9		2.4E-5		7.3E-5		0.015		-							9.7E-9		1.6E-6	5E-6	0.008
	***		***		***		*		-	**		*		**		***		***	***	**

Five-number summaries of the box plots presented in the indicated Figures. N refers to the number of participants; n refers to the number of measurements in the set. Total N value in control groups (Ctrl) is 23; total n value is 46. Total N value in lung cancer group (LC) is 103; total n value is 121. Minimum (min) and maximum (max) values; first

(Q1) and third (Q3) quartile. Two-sided Mann-Whitney U tests were performed to determine the statistical significance of the difference between Ctrl and LC samples. In addition, to assess the differences between the LC stages in the Figure 2d, the Mann-Whitney U test was anticonservative, since replicate measurements for the same patient were used as independent observations to evaluate technical variability of the method (see Supplementary Table 2). Degree of freedom (df) and *P*-values are presented. Samples collected in Grosshansdorf (LCG), Munich (ASK), Heidelberg (TKUH) and Bad Nauheim (MPI) in Germany.

Table S2 Validation of the LC score performance for different subsampling of the LC patients.

LC stage 1-2	Disease	No Disease	
LC	65	4	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	0.94203	0.88689	0.99717
Specificity	0.82609	0.67118	0.98099
LC stage 1	Disease	No Disease	
LC	44	2	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	0.95652	0.89759	1.01545
Specificity	0.82609	0.67118	0.98099
LC stage 2	Disease	No Disease	
LC	21	2	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	0.91304	0.79789	1.0282
Specificity	0.82609	0.67118	0.98099
LC stage 3	Disease	No Disease	
LC	22	4	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	0.84615	0.70747	0.98484
Specificity	0.82609	0.67118	0.98099
LC stage 4	Disease	No Disease	
LC	3	0	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	1	1	1
Specificity	0.82609	0.67118	0.98099

Comparison LC score of LC Stage P-value (Wilcoxon-Rank-Sum/Mann-Whitney-U)	
1 vs 2	0.9202
1 vs 3	0.4449
1 vs 4	0.9674
2 vs 3	0.4872
2 vs 4	0.957
3 vs 4	0.6821

C.I. calculated with <https://www2.ccrb.cuhk.edu.hk/stat/confidence%20interval/Diagnostic%20Statistic.htm>

Replicate measurements for the same person were weighted by the inverse number of replicates when constructing the confusion matrix, respectively

True positive rate (TPR), true negative rate (TNR), positive predicted value (PPV) and negative predicted value (NPV). 1-IV, LC stages compared to Ctrl.

Wilcoxon-Rank-Sum/Mann-Whitney-U Test is anti-conservative, since the groups comprise multiple samples for the same patient.

Table S3: Validation of LC score-based performance on EBCs under clinical settings.

	Min	5%	25%	Median	75%	95%	Max	Mean	Std. Dev.	Count
Ctrl	<0.001	<0.001	<0.001	<0.001	<0.001	3.61	4.74	<0.001	3.57	23
LC	<0.001	<0.001	1.53	3.43	5.3	7.38	12.2	3.34	2.93	103
Cut-point results for target Sensitivity (S)										
Target Se	Cut-point	Sensitivity	S Lower 95% CL	S Upper 95% CL	Specificity	Sp Lower 95% CL	Sp Upper 95% CL			
0.999	-5.329	1	0.964	1	0.217	0.097	0.419			
0.995	-5.329	1	0.964	1	0.217	0.097	0.419			
0.99	-5.084	0.99	0.947	0.998	0.217	0.097	0.419			
0.98	-3.017	0.981	0.932	0.995	0.348	0.188	0.551			
0.95	-1.574	0.951	0.891	0.979	0.478	0.292	0.67			
0.9	0.239	0.903	0.83	0.946	0.826	0.629	0.93			
0.8	1.043	0.806	0.719	0.871	0.826	0.629	0.93			
Cut-point results for target Specificity (Sp)										
Target Sp	Cut-point	Specificity	Sp Lower 95% CL	Sp Upper 95% CL	Sensitivity	S Lower 95% CL	S Upper 95% CL			
0.999	4.823	1	0.857	1	0.33	0.247	0.426			
0.995	4.823	1	0.857	1	0.33	0.247	0.426			
0.99	4.823	1	0.857	1	0.33	0.247	0.426			
0.98	4.823	1	0.857	1	0.33	0.247	0.426			
0.95	3.844	0.957	0.79	0.992	0.437	0.345	0.533			
0.9	2.343	0.913	0.732	0.976	0.66	0.564	0.744			
0.8	0.034	0.826	0.629	0.93	0.922	0.854	0.96			
Area under curve (AUC)			0.887							
95% CI for AUC			0.807-0.967							

Table S4 Validation of the increased LC score-based performance on EBCs.

Data frame with all samples, including replicates and measures in labs 1-3 for some patients				
Name	AUC	Optimal Cut-Off	Optimal Specificity	Optimal Sensitivity
<i>GATA6em</i>	0.62756019	-36.2558047	0.6086957	0.6280992
<i>GATA6ad</i>	0.72044556	35.7492383	0.7391304	0.7024793
<i>NKX2-1em</i>	0.66924183	-38.1176402	0.5652174	0.7355372
<i>NKX2-1ad</i>	0.80632411	36.9169769	0.7608696	0.7355372
<i>GATA6</i>	0.8420769	0.54	0.7173913	0.8677686
<i>NKX2-1</i>	0.86094143	0.651	0.8695652	0.7520661
LC Score	0.93262666	0.034	0.9130435	0.9338843
Data frame with one replicate per patient from lab 1				
Name	AUC	Optimal Cut-Off	Optimal Specificity	Optimal Sensitivity
<i>GATA6em</i>	0.65386239	-36.2558047	0.6521739	0.631068
<i>GATA6ad</i>	0.64710848	35.6254323	0.6521739	0.7572816
<i>NKX2-1em</i>	0.74166315	-38.5297877	0.5652174	0.8058252
<i>NKX2-1ad</i>	0.7982271	36.8906835	0.7826087	0.7378641
<i>GATA6</i>	0.75749261	2.387	0.7826087	0.592233
<i>NKX2-1</i>	0.87083157	0.548	0.8695652	0.7669903
LC Score	0.8868721	0.034	0.826087	0.9223301

Optimal cut-off were calculated by getting the closest point to TPR=1 and FPR=0.

“Optimal” in the sense it weights both sensitivity and specificity equally.

Table S5 Confusion Matrices.

LC Score (Confusion Matrix, samples from lab 1 with weighted replicates for the same patient)			
	Disease	No Disease	
LC	95	8	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	0.92233	0.87064	0.97402
Specificity	0.82609	0.67118	0.98099
LC Score (Confusion Matrix, samples from lab1 and one replicate per patient)			
	Disease	No Disease	
LC	95	8	
Ctrl	4	19	
	Point Estimate	lower C.I.	upper C.I.
Sensitivity	0.92233	0.87064	0.97402
Specificity	0.82609	0.67118	0.98099

C.I. calculated with <https://www2.ccrb.cuhk.edu.hk/stat/confidence%20interval/Diagnostic%20Statistic.htm>

Replicate measurements for the same person were weighted by the inverse number of replicates when constructing the confusion matrix, respectively

Table S6 Bland-Altman Inter-Lab Variability.

PatientID	AssayID Lab1	AssayID Lab2	AssayID Lab3	LC Score Lab1	LC Score Lab2	LC Score Lab3
Ctrl11	17	161	166	-4.063	-0.3012216	-3.899793
LC101	128	156	162	4.823	7.1344983	4.688677
LC105	132	159	165	3.14	6.1825654	5.2197
LC111	138	157	163	5.744	7.4072995	4.202976
LC53	81	153	169	1.579	6.2564	5.5041
LC84	112	154	170	7.919	4.9376829	5.451102
LC89	117	158	164	5.599	7.1387551	0.182443
LC92	120	151	167	3.173	4.734669	7.7444
LC95	122	152	168	1.539	5.0169168	0.137578
LC97	124	155	171	2.165	5.060618	1.2701
Bland-Altman Plot						
Comparison	Mean Diff	+1.96SD	-1.96SD			
Lab1 vs Lab2	-2.1950180	1.905563	-6.2956			
Lab1 vs Lab3	0.1116717	5.995969	-5.772625			
Lab2 vs Lab3	2.30669	7.903002	-3.289622			

Table S7 Wilcoxon signed rank test to compare LC scores among distinct labs.

Comparison (LC vs LC)	<i>P</i> -value (Wilcoxon signed rank exact test)	V-value
Lab1 vs Lab2	0.05469	6
Lab1 vs Lab3	0.8203	25
Lab2 vs Lab3	0.05469	39
Lab	LC Median	LC sample size
Lab1	3.173	9
Lab2	6.182565	9
Lab3	4.688677	9

Table S8 Values for the individual ratios of *GATA6*, *NKX2-1*, the LC score and the prediction of the LC score-based classifier under clinical settings.

Assay ID	Patient ID	Clinic	Ratio <i>GATA6</i>	Ratio <i>NKX2-1</i>	LC score	Pathology	LC subtype	Disease state	Predicted correct	Lab
1	Ctrl1	TKUH	0.032	0.019	-7.104	Control	Control	Control	Yes	1
2	Ctrl2	TKUH	0.399	0.203	-1.601	Control	Control	Control	Yes	1
3	Ctrl1	TKUH	0.252	0.218	-1.990	Control	Control	Control	Yes	1
4	Ctrl2	TKUH	0.323	0.007	-5.974	Control	Control	Control	Yes	1
5	Ctrl3	ASK	0.070	0.055	-5.002	Control	Control	Control	Yes	1
6	Ctrl4	ASK	0.014	0.120	-5.713	Control	Control	Control	Yes	1
7	Ctrl5	ASK	0.023	0.066	-5.960	Control	Control	Control	Yes	1
8	Ctrl6	ASK	0.001	0.037	-9.817	Control	Control	Control	Yes	1
9	Ctrl7	LCG	0.148	0.125	-3.222	Control	Control	Control	Yes	1
10	Ctrl7	LCG	0.921	0.117	-1.423	Control	Control	Control	Yes	1
11	Ctrl8	LCG	3.213	0.121	-0.086	Control	Control	Control	Yes	1
12	Ctrl9	LCG	0.515	0.170	-1.562	Control	Control	Control	Yes	1
13	Ctrl10	LCG	0.462	0.067	-2.827	Control	Control	Control	Yes	1
14	Ctrl11	MPI	0.087	0.123	-3.793	Control	Control	Control	Yes	1
15	Ctrl12	MPI	0.089	0.045	-5.002	Control	Control	Control	Yes	1
16	Ctrl11	MPI	0.123	0.210	-2.776	Control	Control	Control	Yes	1
17	Ctrl11	MPI	0.067	0.122	-4.063	Control	Control	Control	Yes	1
18	Ctrl12	MPI	0.161	0.159	-2.842	Control	Control	Control	Yes	1
19	Ctrl13	MPI	0.288	0.161	-2.221	Control	Control	Control	Yes	1
20	Ctrl13	MPI	0.074	0.288	-2.912	Control	Control	Control	Yes	1
21	Ctrl13	MPI	0.045	0.242	-3.627	Control	Control	Control	Yes	1
22	Ctrl13	MPI	0.047	0.970	-1.869	Control	Control	Control	Yes	1
23	Ctrl13	MPI	0.186	0.398	-1.559	Control	Control	Control	Yes	1
24	Ctrl13	MPI	0.010	1.897	-2.612	Control	Control	Control	Yes	1
25	Ctrl13	MPI	0.065	0.317	-2.929	Control	Control	Control	Yes	1
26	Ctrl13	MPI	0.057	0.346	-2.949	Control	Control	Control	Yes	1
27	Ctrl13	MPI	0.045	0.465	-2.836	Control	Control	Control	Yes	1
28	Ctrl13	MPI	0.157	0.407	-1.706	Control	Control	Control	Yes	1
29	Ctrl13	MPI	0.916	0.045	-2.598	Control	Control	Control	Yes	1
30	Ctrl13	MPI	0.045	0.522	-2.690	Control	Control	Control	Yes	1
31	Ctrl13	MPI	0.231	0.048	-3.940	Control	Control	Control	Yes	1

32	LC71	LCG	0.741	0.291	-0.520	No malignancy	Control	Control	Yes	1
33	LC75	LCG	3.416	5.766	4.740	No malignancy	Control	Control	No	1
34	LC81	LCG	2.274	0.107	-0.598	No malignancy	Control	Control	Yes	1
35	LC85	LCG	17.036	0.024	-0.340	No malignancy	Control	Control	Yes	1
36	LC86	LCG	2.316	0.158	-0.095	No malignancy	Control	Control	Yes	1
37	LC100	LCG	1.677	0.065	-1.527	No malignancy	Control	Control	Yes	1
38	LC104	LCG	0.006	0.478	-4.909	No malignancy	Control	Control	Yes	1
39	LC106	LCG	2.128	0.798	1.813	No malignancy	Control	Control	No	1
40	LC108	LCG	5.034	0.544	2.229	No malignancy	Control	Control	No	1
41	LC114	LCG	5.048	1.880	3.760	No malignancy	Control	Control	No	1
42	Ctrl11	MPI	0.071	3.029	-0.050	Control	Control	Control	Yes	2
43	Ctrl11	MPI	0.395	0.589	-0.301	Control	Control	Control	Yes	2
44	Ctrl11	MPI	0.057	0.161	-3.900	Control	Control	Control	Yes	3
45	Ctrl11	MPI	0.485	0.239	-1.201	Control	Control	Control	Yes	3
46	Ctrl11	MPI	1.679	0.068	-1.468	Control	Control	Control	Yes	3
47	LC1	TKUH	2.148	0.711	1.678	Malignancy	NSCLC-AC	LC	Yes	1
48	LC2	TKUH	0.222	0.147	-2.607	Malignancy	NSCLC-AC	LC	No	1
49	LC3	TKUH	0.704	0.778	0.640	Malignancy	NSCLC-AC	LC	Yes	1
50	LC4	TKUH	1.337	0.498	0.752	Malignancy	NSCLC-AC	LC	Yes	1
51	LC5	TKUH	0.418	0.217	-1.473	Malignancy	NSCLC-AC	LC	No	1
52	LC6	TKUH	6.138	9.760	5.994	Malignancy	NSCLC-AC	LC	Yes	1
53	LC7	TKUH	0.458	0.806	0.239	Malignancy	NSCLC-AC	LC	Yes	1
54	LC8	TKUH	2.929	7.105	4.838	Malignancy	NSCLC-AC	LC	Yes	1
55	LC9	TKUH	3.264	13.022	5.698	Malignancy	NSCLC-AC	LC	Yes	1
56	LC10	TKUH	6.071	10.263	6.044	Malignancy	NSCLC-AC	LC	Yes	1
57	LC11	TKUH	0.502	0.142	-1.808	Malignancy	NSCLC-LCC	LC	No	1
58	LC12	TKUH	0.877	0.921	1.075	Malignancy	NSCLC-SCC	LC	Yes	1
59	LC13	TKUH	0.067	0.044	-5.329	Malignancy	NSCLC-AC	LC	No	1
60	LC14	TKUH	0.051	0.067	-5.084	Malignancy	NSCLC-SCC	LC	No	1
61	LC15	TKUH	1.474	0.382	0.524	Malignancy	NSCLC-SCC	LC	Yes	1
62	LC16	ASK	2.875	3.704	4.016	Malignancy	NSCLC-AC	LC	Yes	1

63	LC17	ASK	6.983	3.074	4.701	Malignancy	NSCLC-SCC	LC	Yes	1
64	LC18	ASK	0.057	1.056	-1.574	Malignancy	NSCLC-AC	LC	No	1
65	LC20	ASK	3.227	20.654	6.255	Malignancy	NSCLC-AC	LC	Yes	1
66	LC21	ASK	1.086	0.143	-1.003	Malignancy	NSCLC-SCC	LC	No	1
67	LC22	ASK	3.920	3.992	4.428	Malignancy	NSCLC-AC	LC	Yes	1
68	LC23	ASK	5.142	1.676	3.638	Malignancy	NSCLC-AC	LC	Yes	1
69	LC24	ASK	9.770	0.548	2.920	Malignancy	NSCLC-AC	LC	Yes	1
70	LC25	ASK	0.189	4.263	1.384	Malignancy	NSCLC-AC	LC	Yes	1
71	LC26	ASK	0.756	2.502	2.154	Malignancy	NSCLC-SCC	LC	Yes	1
72	LC27	ASK	64.861	0.135	3.141	Malignancy	NSCLC-AC	LC	Yes	1
73	LC28	ASK	16.938	0.319	2.821	Malignancy	NSCLC-SCC	LC	Yes	1
74	LC29	ASK	4.932	3.167	4.380	Malignancy	NSCLC-SCC	LC	Yes	1
75	LC30	ASK	4.186	2.819	4.067	Malignancy	NSCLC-AC	LC	Yes	1
76	LC31	ASK	17.475	2.295	5.287	Malignancy	NSCLC-SCC	LC	Yes	1
77	LC32	ASK	27.059	3.226	6.158	Malignancy	NSCLC-AC	LC	Yes	1
78	LC33	ASK	0.977	2.602	2.467	Malignancy	NSCLC-AC	LC	Yes	1
79	LC34	ASK	20.615	1.837	5.183	Malignancy	NSCLC-AC	LC	Yes	1
80	LC35	ASK	13.284	1.085	4.080	Malignancy	NSCLC-AC	LC	Yes	1
81	LC36	ASK	7.796	4.617	5.317	Malignancy	NSCLC-AC	LC	Yes	1
82	LC37	ASK	1.142	6.291	3.717	Malignancy	NSCLC-AC	LC	Yes	1
83	LC38	ASK	3.499	1.859	3.369	Malignancy	NSCLC-SCC	LC	Yes	1
84	LC39	ASK	5.845	0.957	3.079	Malignancy	NSCLC-AC	LC	Yes	1
85	LC41	ASK	37.674	6.194	7.305	Malignancy	NSCLC-AC	LC	Yes	1
86	LC42	ASK	5.370	0.300	1.561	Malignancy	NSCLC-SCC	LC	Yes	1
87	LC43	ASK	7.588	4.094	5.141	Malignancy	NSCLC-AC	LC	Yes	1
88	LC44	LCG	225.90 5	75.742	12.241	Malignancy	NSCLC-SCC	LC	Yes	1
89	LC46	LCG	0.185	0.123	-3.017	Malignancy	NSCLC-AC	LC	No	1
90	LC49	LCG	2.764	52.423	7.245	Malignancy	NSCLC-SCC	LC	Yes	1
91	LC50	LCG	176.35 7	0.108	3.903	Malignancy	NSCLC-AC	LC	Yes	1
92	LC51	LCG	166.75 2	0.040	2.618	Malignancy	NSCLC-SCC	LC	Yes	1
93	LC52	LCG	0.778	3.487	2.593	Malignancy	NSCLC-AC	LC	Yes	1
94	LC53	LCG	5.465	0.300	1.579	Malignancy	NSCLC-AC	LC	Yes	1
95	LC55	LCG	0.215	2.099	0.641	Malignancy	NSCLC-SCC	LC	Yes	1
96	LC56	LCG	7.805	0.651	2.901	Malignancy	NSCLC-ACC	LC	Yes	1

97	LC58	LCG	0.778	0.543	0.299	Malignancy	NSCLC-AC	LC	Yes	1
98	LC59	LCG	11.412	4.085	5.559	Malignancy	NSCLC-SCC	LC	Yes	1
99	LC60	LCG	1.506	2.340	2.783	Malignancy	NSCLC-AC	LC	Yes	1
100	LC61	LCG	0.635	2.015	1.707	Malignancy	NSCLC-AC	LC	Yes	1
101	LC62	LCG	11.064	0.058	0.288	Malignancy	NSCLC-AC	LC	Yes	1
102	LC63	LCG	2.733	0.425	1.293	Malignancy	NSCLC-AC	LC	Yes	1
103	LC64	LCG	4.851	1.372	3.331	Malignancy	NSCLC-SCC	LC	Yes	1
104	LC65	LCG	15.515	1.086	4.241	Malignancy	NSCLC-AC	LC	Yes	1
105	LC66	LCG	0.735	0.478	0.084	Malignancy	NSCLC-AC	LC	Yes	1
106	LC67	LCG	2.397	3.179	3.640	Malignancy	NSCLC-AC	LC	Yes	1
107	LC68	LCG	0.025	7.826	0.034	Malignancy	PC	LC	Yes	1
108	LC69	LCG	4.471	39.054	7.378	Malignancy	NSCLC-AC	LC	Yes	1
109	LC70	LCG	1.448	4.365	3.511	Malignancy	NSCLC-LCC	LC	Yes	1
110	LC72	LCG	18.277	15.835	7.716	Malignancy	NSCLC-AC	LC	Yes	1
111	LC73	LCG	7.934	13.641	6.672	Malignancy	NSCLC-AC	LC	Yes	1
112	LC74	LCG	0.540	80.038	6.082	Malignancy	NSCLC-AC	LC	Yes	1
113	LC76	LCG	78.898	15.217	9.176	Malignancy	NSCLC-AC	LC	Yes	1
114	LC77	LCG	40.096	5.740	7.275	Malignancy	NSCLC-AC	LC	Yes	1
115	LC78	LCG	0.784	9.542	3.844	Malignancy	NSCLC-AC	LC	Yes	1
116	LC79	LCG	24.442	6.842	6.981	Malignancy	NSCLC-AC	LC	Yes	1
117	LC80	LCG	1.123	5.657	3.569	Malignancy	NSCLC-AC	LC	Yes	1
118	LC82	LCG	0.802	27.559	5.175	Malignancy	NSCLC-AC	LC	Yes	1
119	LC83	LCG	0.631	74.639	6.157	Malignancy	NSCLC-AC	LC	Yes	1
120	LC84	LCG	75.491	5.697	7.919	Malignancy	NSCLC-AC	LC	Yes	1
121	LC87	LCG	9.919	6.144	5.918	Malignancy	NSCLC-SCC	LC	Yes	1
122	LC88	LCG	2.392	12.755	5.352	Malignancy	NSCLC-AC	LC	Yes	1
123	LC89	LCG	14.054	3.545	5.599	Malignancy	NSCLC-SCC	LC	Yes	1
124	LC90	LCG	0.119	2.545	0.270	Malignancy	NSCLC-SCC	LC	Yes	1
125	LC91	LCG	1.915	0.402	0.857	Malignancy	NSCLC-AC	LC	Yes	1
126	LC92	LCG	1.662	2.958	3.173	Malignancy	NSCLC-AC	LC	Yes	1
127	LC94	LCG	0.347	4.860	2.169	Malignancy	NSCLC-AC	LC	Yes	1
128	LC95	LCG	1.657	0.788	1.539	Malignancy	NSCLC-SCC	LC	Yes	1
129	LC96	LCG	0.486	1.599	1.147	Malignancy	PC	LC	Yes	1
130	LC97	LCG	1.370	1.535	2.165	Malignancy	NSCLC-SCC	LC	Yes	1
131	LC98	LCG	5.647	5.646	5.232	Malignancy	NSCLC-SCC	LC	Yes	1
132	LC99	LCG	3.538	1.930	3.426	Malignancy	NSCLC-AC	LC	Yes	1

133	LC101	LCG	4.703	4.718	4.823	Malignancy	NSCLC-AC	LC	Yes	1
134	LC102	LCG	2.387	0.245	0.477	Malignancy	NSCLC-SCC	LC	Yes	1
135	LC105	LCG	0.334	11.024	3.140	Malignancy	PC	LC	Yes	1
136	LC107	LCG	10.724	2.875	5.062	Malignancy	Undetermined	LC	Yes	1
137	LC109	LCG	7.459	0.259	1.716	Malignancy	NSCLC-SCC	LC	Yes	1
138	LC110	LCG	39.980	0.055	1.530	Malignancy	NSCLC-SCC	LC	Yes	1
139	LC111	LCG	10.045	5.280	5.744	Malignancy	NSCLC-SCC	LC	Yes	1
140	LC113	LCG	5.301	3.382	4.535	Malignancy	NSCLC-AC	LC	Yes	1
141	LC116	LCG	3.290	3.396	4.048	Malignancy	NSCLC-AC	LC	Yes	1
142	LC118	LCG	85.927	2.746	7.151	Malignancy	NSCLC-SCC	LC	Yes	1
143	LC119	LCG	2.198	3.507	3.672	Malignancy	NSCLC-AC	LC	Yes	1
144	LC120	LCG	3.219	0.868	2.343	Malignancy	NSCLC-AC	LC	Yes	1
145	LC121	LCG	2.073	0.437	1.043	Malignancy	NSCLC-AC	LC	Yes	1
146	LC122	LCG	3.366	1.531	3.089	Malignancy	NSCLC-AC	LC	Yes	1
147	LC123	LCG	0.922	3.226	2.673	Malignancy	PC	LC	Yes	1
148	LC124	LCG	69.979	5.574	7.813	Malignancy	NSCLC-AC	LC	Yes	1
149	LC125	LCG	28.768	8.152	7.365	Malignancy	NSCLC-AC	LC	Yes	1
150	LC92	LCG	0.776	19.817	4.735	Malignancy	NSCLC-AC	LC	Yes	2
151	LC95	LCG	0.817	23.858	5.017	Malignancy	NSCLC-SCC	LC	Yes	2
152	LC53	LCG	0.800	66.347	6.256	Malignancy	NSCLC-AC	LC	Yes	2
153	LC84	LCG	0.866	21.314	4.938	Malignancy	NSCLC-AC	LC	Yes	2
154	LC97	LCG	0.640	30.316	5.061	Malignancy	NSCLC-SCC	LC	Yes	2
155	LC101	LCG	0.886	124.140	7.134	Malignancy	NSCLC-AC	LC	Yes	2
156	LC111	LCG	1.038	135.680	7.407	Malignancy	NSCLC-SCC	LC	Yes	2
157	LC89	LCG	0.593	174.337	7.139	Malignancy	NSCLC-SCC	LC	Yes	2
158	LC105	LCG	0.451	100.847	6.183	Malignancy	PC	LC	Yes	2
159	LC101	LCG	17.513	1.410	4.689	Malignancy	NSCLC-AC	LC	Yes	3
160	LC111	LCG	69.698	0.300	4.203	Malignancy	NSCLC-SCC	LC	Yes	3
161	LC89	LCG	1.385	0.305	0.182	Malignancy	NSCLC-SCC	LC	Yes	3
162	LC105	LCG	42.294	1.037	5.220	Malignancy	PC	LC	Yes	3
163	LC92	LCG	60.808	5.927	7.744	Malignancy	NSCLC-AC	LC	Yes	3
164	LC95	LCG	1.626	0.257	0.138	Malignancy	NSCLC-SCC	LC	Yes	3
165	LC53	LCG	55.022	1.048	5.504	Malignancy	NSCLC-AC	LC	Yes	3

166	LC84	LCG	339.14 3	0.219	5.451	Malignancy	NSCLC-AC	LC	Yes	3
167	LC97	LCG	5.649	0.227	1.270	Malignancy	NSCLC-SCC	LC	Yes	3