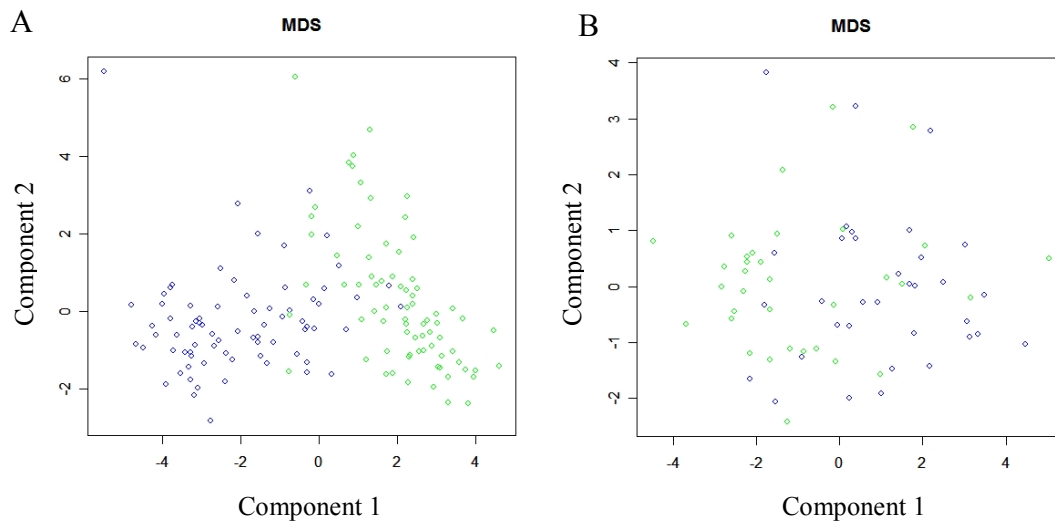


## Supplemental Information

**Figure 1: MDS plots.** (A) MDS plot of tumor versus normal. Blue circles represent normal samples and green circles represent tumor samples. (B) MDS plot of margin-normal versus normal regions. Blue circles represent normal samples and green circles represent margin-normal samples.



**Table 1: Top differentially expressed features as determined by SAM and the permutation t-test in tumor versus normal regions.** Data is presented with respect to the tumor. D: under-expressed in tumor; U: over-expressed in tumor, Feature: significant m/z value. Features listed have an individual class prediction value  $\geq 0.70$ . Values in bold indicate expressed features that attained a maximum combined prediction accuracy of 95%.

m/z	Class Prediction	Expression
<b>5351</b>	0.91	D
<b>9616</b>	0.88	D
<b>9368</b>	0.87	D
<b>6717</b>	0.86	D
5932	0.85	D
12272	0.85	D
6658	0.83	D
8652	0.83	D
10610	0.83	D
12500	0.83	D
4888	0.81	D
5362	0.81	D
8958	0.81	D
9239	0.8	D
6830	0.79	D
7799	0.78	D
8017	0.77	D
10258	0.77	D
6358	0.76	D
5494	0.75	D
5557	0.75	D
9514	0.75	D
10089	0.75	D
14692	0.75	D
5260	0.74	D
6322	0.74	D
7174	0.74	D
8577	0.74	D
5048	0.73	D
6946	0.73	D
9070	0.73	D

m/z	Class Prediction	Expression
9456	0.73	D
20921	0.73	D
20937	0.73	D
4275	0.71	D
5203	0.71	D
6073	0.71	D
6438	0.71	D
8350	0.71	D
8939	0.71	D
10275	0.71	D
5310	0.70	D
6106	0.70	D
8714	0.70	D
<b>4931</b>	<b>0.74</b>	U
<b>5178</b>	<b>0.74</b>	U
<b>12345</b>	<b>0.71</b>	U

**Table 2: Top differentially expressed features as determined by SAM and the permutation t-test in margin-normal versus the normal tissue.** Data is presented with respect to the near margin-normal. D: under-expressed; U: over-expressed, Feature: significant m/z value. Features listed have an individual class prediction value  $\geq 0.60$ . Values in bold indicate expressed features that attained a maximum combined prediction accuracy of 75%.

<b>m/z</b>	<b>Class Prediction</b>	<b>Expression</b>
<b>6717</b>	0.72	D
8649	0.72	D
<b>9744</b>	0.71	D
<b>9953</b>	0.71	D
<b>4888</b>	0.69	D
<b>6429</b>	0.69	D
<b>5351</b>	0.68	D
<b>6658</b>	0.68	D
10610	0.68	D
12275	0.68	D
12500	0.68	D
14695	0.68	D
5493	0.66	D
6438	0.66	D
8577	0.66	D
6322	0.65	D
8350	0.65	D
8958	0.65	D
9239	0.65	D
3319	0.63	D
5363	0.63	D
5933	0.63	D
9514	0.63	D
8017	0.62	D
10460	0.62	D
6831	0.60	D
8238	0.60	D
9616	0.60	D
<b>14217</b>	0.66	U
5062	0.65	U
<b>11347</b>	0.65	U
5669	0.60	U

**Table 3: Table summarizing observed margin plot trends.** Size: the size of the tumor based on TNM staging; Start: the point at which feature amplitude begins to change; Max Change: refers to the maximum point of change; Plateau: the point at which the feature amplitude is no longer changing; N/A: distance could not be assessed.

Sample ID	Grade	Stage	Size	Max Change ( $\mu\text{m}$ )	Plateau ( $\mu\text{m}$ )
D1349	2	1	1	0	2500
D0760	4	3	2	0	1100
D1930	2	1	1	800	2200
D0767	1	1	1	1250	7500
D1923	2	3	3	1250	4800
D0530	2	1	1	1250	3000
D1063	2	2	2	1250	4000
D1067	3	3	3	1500	2200
D1922	2	1	1	1800	3800
D0902	2	3	3	1800	4000
D1341	1	1	1	2000	4000
MAD060049	2	2	2	2400	6000
MAD060044	2	1	1	2500	4500
D1062	2	1	1	3000	7500
D1344	2	4	1	4500	6000
D1340	2	4	3	5000	6000
D0901	3	4	4	5000	9000
D1345	4	3	3	11000	15000
D1347	2	4	1	N/A	N/A
D0764	1	1	1	N/A	N/A
D1064	3	1	1	N/A	N/A
D1920	2	1	1	N/A	N/A
D0529a	2	3	3	N/A	N/A
D1351	3	3	3	N/A	N/A
D1925	3	4	3	N/A	N/A