

**Table S1.** Results of the mass spectrometry analysis of the amino acids and biogenic amines and concentrations of CA125 and HE4.

	Amino acid		Benign ovarian tumors (n = 62)		Ovarian cancer (n = 38), borderline tumors (n=6)							
	Full name	Abbreviation	Mean	SD	Type I (incl. borderline tumors)		Type II		Total (excluding borderline tumors)		Total (including borderline tumors)	
					Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	1-Methyl-L-histidine	1MHis	5.62	5.34	11,369 2	13,786 2	6,6032	5,772	6.70	6.13	8,0114	9,007
2	3-Methyl-L-histidine	3MHis	4.00	1.11	3,9692	1,7806	4,4484	1,956	4.29	1.87	4,3068	1,898
3	L- $\alpha$ -Aminoadipic acid	Aad	0.76	0.25	0,8923	0,5107	1,0355	0,409	1.00	0.45	0,9932	0,440
4	L- $\alpha$ -Amino-n-butyric acid	Abu	28.3	9.71	30,938 5	7,1884	30,206 5	11,475	30.53	10.73	30,422 7	10,315
5	L-Alanine	Ala	416.42	86.01	366,90 77	94,332 6	411,40 65	122,82 8	396.79	122.32	398,25 91	115,89 1
6	L-Arginine	Arg	103.96	28.64	109,87 69	31,222 5	105,87 42	34,200	106.30	32.80	107,05 68	33,037
7	L-Asparagine	Asn	63.18	12.83	56,415 4	11,656 7	58,087 1	14,570	56.64	14.10	57,593 2	13,661
8	L-Aspartic acid	Asp	28.80	14.63	30,023 1	12,334 9	32,954 8	20,260	31.59	18.63	32,088 6	18,184
9	D, L- $\beta$ -Aminoisobutyric acid	bAib	2.77	1.05	3,0538	1,3956	3,2161	1,271	3.19	1.35	3,1682	1,295
10	$\beta$ -Alanine	bAla	28.52	9.67	25,430 8	11,270 9	41,251 6	60,065	38.33	54.76	36,577 3	51,047
11	L-Citrulline	Cit	29.02	6.53	27,707 7	8,4866	21,616 1	7,471	22.22	7.71	23,415 9	8,182
12	L-Cystine	Cys	32.37	16.18	42,384 6	11,979 4	38,416 1	19,126	38.96	18.31	39,588 6	17,280
13	Ethanolamine	EtN	12.42	6.15	12,453 8	6,8220	11,864 5	5,045	11.51	4.73	12,038 6	5,552
14	L-Glutamine	Gln	674.61	83.27	630,79 23	137,11 27	615,73 87	100,54 4	607.65	107.89	620,18 64	111,12 0
15	L-Glutamic acid	Glu	82.80	56.86	79,484 6	44,987 6	98,816 1	56,812	93.61	53.95	93,104 5	53,817
16	Glycine	Gly	316.85	90.33	300,52 31	77,261 7	314,26 77	96,297	305.12	91.72	310,20 68	90,419
17	L-Histidine	His	85.06	11.41	72,453 8	13,415 0	70,383 9	14,645	69.15	14.26	70,995 5	14,169
18	Hydroxy-L-proline	Hyp	10.91	4.63	11,238 5	9,0932	11,900 0	8,073	11.41	7.85	11,704 5	8,285
19	L-Isoleucine	Ile	68.92	15.80	74,584 6	23,316 9	80,774 2	20,096	79.74	20.80	78,945 5	21,015
20	L-Leucine	Leu	118.79	27.26	128,20 77	37,870 1	135,63 55	36,218	133.33	37.62	133,44 09	36,430
21	L-Lysine	Lys	243.06	47.36	229,04 62	61,251 4	232,65 48	49,559	226.01	52.97	231,58 86	52,567
22	L-Methionine	Met	24.32	5.14	22,607 7	5,5246	23,493 5	7,613	23.02	7.42	23,231 8	7,009
23	L-Ornithine	Orn	117.00	48.23	107,44 62	32,467 8	112,53 87	48,374	109.36	45.18	111,03 41	43,958

2 4	O- Phosphoethanolamine	PEtN	2.01	1.69	3,1538	3,3979	1,9984	2,257	2.13	2.24	2,3398	2,657
2 5	L-Phenylalanine	Phe	69.71	14.23	69,353 8	11,144 7	78,606 5	17,959	76.23	17.54	75,872 7	16,671
2 6	L-Proline	Pro	184.52	57.19	168,06 92	73,970 7	189,76 77	57,468	184.31	63.79	183,35 68	62,701
2 7	Sarcosine	Sar	1.04	1.09	0,7846	0,5984	1,2387	2,583	1.15	2.36	1,1045	2,191
2 8	L-Serine	Ser	167.75	37.66	163,79 23	30,679 0	164,21 61	50,566	161.86	46.85	164,09 09	45,239
2 9	Taurine	Tau	173.32	56.55	210,29 23	84,448 9	188,68 39	89,855	190.60	85.86	195,06 82	87,879
3 0	L-Threonine	Thr	132.72	34.90	113,92 31	28,189 6	117,52 26	41,112	114.28	38.81	116,45 91	37,466
3 1	L-Tryptophan	Trp	49.20	8.37	45,830 8	11,049 2	41,025 8	10,878	41.31	11.03	42,445 5	11,025
3 2	L-Tyrosine	Tyr	56.07	12.54	55,946 2	15,467 1	61,096 8	22,330	60.01	21.70	59,575 0	20,501
3 3	L-Valine	Val	225.11	45.06	233,60 77	60,408 7	240,06 77	42,173	238.34	49.05	238,15 91	47,625
3 4	cancer antigen 125	CA125	43,287 1	67,136 60	303,13 31	500,22 41	964,03 39	1275,7 53	882,08 32	1188,2 66	768,76 77	1139,4 58
3 5	human epididymis protein 4	HE4	55,133 2	15,662 40	233,54 54	369,72 57	567,89 90	517,09 2	530,57 03	509,96 9	469,11 27	498,50 5

SAMPLE No	group	CA125	HE4 PEtN	Tau	Asn
1s	lag	64.2	65.01 1.7	154.6	71.2
2s	rak	320.1	544.0 2.3	194.5	48.5
4s	rak	384.9	776.7 0.8	182.1	53.5
5s	lag	9.1	43.61 1.7	141.9	53.4
6s	lag	7.7	32.81 1.4	111.9	51.7
7s	lag	45.47	43.85 2.4	148.8	56.3
9s	lag	25.13	44.68 1.2	66.0	58.2
12s	lag	71.23	45.84 0.1	125.7	81.2
15s	lag	28.28	42.47 1.9	143.0	59.6
16s	rak	2608.0	844.7 3.8	177.2	84.6
17s	lag	53.85	65.01 3.1	187.7	66.0
23s	rak	241.6	500.3 1.4	167.2	33.3
24s	lag	14.25	103.7 2.2	214.1	49.7
25s	lag	204.5	45.07 3.2	176.5	63.1
26s	rak	71.5	67.14 1.4	223.1	66.0
27s	lag	43.46	37.44 1.2	160.8	57.1
29s	lag	10.97	73.2 4.6	231.4	95.6
31s	lag	91.75	50.59 0.9	131.4	57.4
33s	lag	53.85	65.01 1.9	110.6	73.5
34s	lag	14.58	74.29 2.1	214.9	50.3
35s	lag	34.95	53.08 0.4	142.4	60.8
39s	lag	19.44	41.49 1.1	88.1	41.5
40s	lag	29.9	42.35 1.6	84.0	53.2
41s	lag	12.1	40.7 0.8	92.0	49.8
42s	lag	42.93	38.16 1.5	91.3	63.5
43s	lag	30.49	53.5 1.3	68.0	35.4
44s	lag	10.01	43.66 1.4	134.3	66.1
48s	lag	6.12	56.88 1.3	164.0	62.9
50s	lag	44.07	31.95 1.8	178.9	53.3
51s	lag	8.78	51.3 10.0	98.6	52.5
52s	lag	17.78	37.2 1.4	137.8	48.9
53s	lag	11.71	42.75 2.0	105.6	60.3
55s	lag	11.1	44.23 3.7	199.0	61.6
58s	rak	5000.0	1500.0 1.6	55.5	37.4
62s	lag	14.52	61.84 1.1	155.8	49.9
64s	lag	11.65	44.46 4.2	225.3	73.4
65s	lag	8.92	50.16 0.8	218.7	75.5
66s	rak	1837.0	1386.0 0.8	182.1	47.5
67s	lag	57.0	65.01 2.9	228.0	70.6
68s	lag	17.09	56.02 1.4	306.5	80.7
71s	lag	20.95	77.75 0.25	158.4	103.0
72s	lag	50.14	120.8 0.25	183.5	75.8
73s	rak	318.9	106.6 1.3	78.2	39.7
74s	rak	465.2	55.35 2.3	290.0	62.8
78s	lag	24.19	58.08 3.3	171.9	60.8
80s	rak	671.1	300.9 0.9	148.4	65.7
81s	rak	78.47	102.4 1.3	115.3	41.5
83s	rak	642.4	679.7 3.1	178.9	48.9
85s	lag	48.22	55.97 2.8	139.6	55.0

86s	rak	637.7	172.6 0.5	54.6	66.7
88s	rak	1328.0	148.1 2.3	166.4	50.3
93s	rak	511.2	1500.0 2.5	109.4	60.1
94s	lag	12.72	74.88 1.4	144.3	51.1
95s	rak	762.8	665.3 0.9	181.9	42.5
96s	rak	112.4	1500.0 1.8	281.6	62.2
97s	lag	13.2	65.01 1.2	165.8	54.3
98s	lag	156.7	74.7 6.5	337.9	74.8
99s	lag	7.11	54.84 2.3	185.8	53.4
101s	rak	63.21	120.4 1.9	156.4	52.6
102s	lag	28.64	42.38 1.6	140.3	51.7
104s	lag	53.85	65.01 3.8	225.5	61.9
106s	lag	61.17	55.91 2.4	166.7	70.9
107s	lag	63.11	62.99 2.5	195.8	46.4
108s	rak	54.23	339.1 0.7	244.4	70.4
109s	lag	53.85	65.01 3.0	151.8	52.9
110s	rak	789.7	303.0 1.9	230.5	62.3
114s	lag	3.75	53.07 2.5	273.4	78.7
115s	rak	527.6	183.2 0.25	44.4	45.2
116s	rak	683.8	228.7 9.9	321.3	50.3
117s	rak	3771.0	1500.0 0.6	60.3	64.7
121s	lag	7.38	62.27 4.2	215.5	72.4
122s	rak	80.2	97.5 5.6	233.2	67.4
123s	rak	141.2	99.37 2.3	134.1	43.0
126s	rak	768.0	205.7 1.6	81.5	64.2
128s	rak	211.9	509.0 8.8	326.7	91.3
129s	rak	693.5	116.6 1.0	257.7	38.0
131s	lag	102.7	49.86 2.1	256.4	73.9
132s	rak	181.4	140.8 2.5	162.9	50.5
133s	lag	53.85	54.89 2.1	200.0	55.0
134s	rak	321.2	185.7 6.2	291.6	57.8
135s	rak	46.7	838.3 0.25	215.8	48.0
137s	rak	793.5	381.1 0.2	328.4	87.2
138s	rak	290.7	106.1 0.4	180.8	66.5
139s	lag	36.18	47.79 0.25	108.0	82.7
140s	rak	2009.0	1500.0 2.0	252.4	51.0
142s	lag	53.47	44.56 5.6	244.3	74.7
150s	lag	24.3	68.66 1.7	231.1	62.6
151s	lag	23.87	49.14 0.1	186.9	77.4
152s	lag	53.85	65.01 1.1	241.2	63.8
153s	rak	282.2	414.7 0.25	252.2	62.1
154s	lag	486.9	68.2 0.25	223.9	72.9
163s	lag	17.01	44.6 0.1	213.1	84.7
168s	lag	53.85	65.01 1.1	192.2	61.7
169s	lag	8.75	34.68 0.6	221.1	75.5
170s	rak	4257.0	1500.0 4.8	397.5	74.9
172s	rak	1508.0	477.6 0.4	114.0	36.5
173s	lag	10.53	47.82 0.2	140.8	53.5
175s	rak	53.85	65.01 0.5	170.4	57.1
176s	lag	15.74	44.67 0.3	169.2	57.9

178s	lag		10.94	57.38	2.8	223.8	53.7
49s	bor	33.24	61.26		1.5	132.6	54.2
56s	bor	33.24	146.4		2.0	237.2	61.8
70s	bor	26.3	28.8		1.2	146.8	66.3
79s	bor	116.00	128.2		2.5	177.1	68.9
105s	bor	11.22	61.26		1.7	229.9	53.4
127s	bor	86.62	53.37		13.0	416.5	77.3

Ser	Gly	Hyp	EtN	Gln	Asp	Cit	Thr	Sar
182.2	264.1	12.2	7.9	725.5	23.6	27.9	154.7	1.6
153.7	194.2	10.9	9.6	668.9	20.6	32.6	127.1	0.7
132.9	238.4	47.4	8.8	565.4	42.6	25.6	110.5	0.9
122.4	237.1	9.4	6.8	652.1	21.9	28.4	109.1	0.4
133.0	330.5	10.8	6.9	652.1	10.7	23.9	130.8	0.4
170.4	314.4	9.0	7.9	634.3	17.7	31.4	134.1	0.4
145.6	281.4	18.9	12.1	721.1	14.6	29.0	154.5	0.5
196.3	298.4	16.8	9.2	692.8	22.9	35.6	164.5	1.1
180.7	396.9	6.8	7.5	795.3	14.2	28.0	136.7	0.5
297.3	528.3	18.1	13.3	725.1	59.8	30.0	246.5	1.5
178.4	261.0	14.5	10.1	561.6	36.7	23.0	117.0	0.8
76.7	126.1	10.5	5.5	535.1	15.4	15.7	86.5	0.3
185.3	230.5	14.6	18.5	838.9	28.3	41.6	71.1	1.3
185.4	261.4	13.1	35.6	681.1	21.1	30.9	146.2	0.7
150.0	240.0	9.0	9.2	547.9	63.9	17.2	164.5	0.5
149.9	342.6	9.3	9.1	680.3	22.5	22.0	153.5	0.7
251.6	554.4	26.7	15.2	767.2	50.2	26.0	193.0	1.5
139.5	283.0	9.1	8.7	648.1	26.4	34.9	201.9	0.7
234.9	346.3	9.8	6.0	764.2	7.5	21.1	151.8	5.1
151.1	286.5	7.1	10.9	751.4	24.6	33.5	105.9	0.8
160.6	357.5	5.0	10.4	795.5	24.3	27.1	133.3	0.1
89.4	144.7	4.6	12.1	368.2	17.6	14.9	79.0	0.1
135.1	265.5	6.5	13.9	640.7	27.1	23.2	145.0	0.4
127.2	244.9	9.7	7.1	771.5	15.8	26.1	117.1	0.8
175.6	293.7	5.9	11.8	733.7	20.3	25.3	138.5	0.7
92.4	218.4	6.8	7.6	713.1	5.4	28.2	70.0	1.3
135.8	251.4	11.9	7.6	631.6	20.3	30.9	120.4	1.3
164.4	512.7	9.5	8.4	644.4	23.1	28.1	119.4	0.6
141.1	214.8	11.4	8.9	551.8	24.3	19.0	100.2	1.0
130.5	319.0	7.8	8.5	739.5	13.6	33.5	94.3	1.4
124.3	278.9	10.0	6.4	660.1	19.9	26.6	104.3	0.5
172.3	313.4	7.5	7.9	727.5	7.1	19.4	161.9	0.9
173.5	350.0	11.0	10.4	712.5	24.8	33.1	203.5	0.8
92.6	388.2	16.7	4.3	665.5	5.6	10.3	67.4	1.2
90.0	210.8	21.0	9.4	575.8	41.6	27.6	107.0	2.7
189.5	328.0	8.9	17.1	647.1	48.4	26.5	108.6	0.4
205.9	371.3	10.6	16.1	605.3	62.6	24.4	110.2	1.4
147.1	283.8	5.3	12.7	655.9	38.1	24.9	85.0	0.3
166.3	283.4	9.0	14.7	770.7	36.0	27.3	118.7	2.0
256.1	636.9	15.2	20.6	774.9	55.5	35.0	175.6	1.4
180.8	383.7	13.7	14.6	686.9	55.3	24.8	100.0	0.7
215.1	461.5	8.6	15.0	598.6	63.6	29.9	115.5	0.7
119.3	241.8	10.8	7.8	621.3	21.7	24.8	85.7	0.4
243.2	255.8	4.6	15.1	458.9	75.3	11.9	97.7	0.3
192.1	436.6	12.4	8.0	671.8	16.4	30.5	154.7	1.3
168.0	275.9	9.7	10.3	654.4	36.9	27.6	121.5	1.2
126.5	259.6	8.3	7.8	575.9	31.3	31.5	71.5	0.7
145.2	238.2	18.3	6.8	541.5	17.4	14.4	94.2	0.7
95.1	189.7	3.9	8.3	529.2	8.8	27.3	75.6	0.1

121.6	207.3	14.9	17.6	710.7	7.6	20.3	137.3	15.0
166.3	282.3	10.5	8.5	584.5	27.6	24.9	105.9	1.1
114.8	208.0	17.7	9.6	757.6	9.8	8.8	54.4	1.0
141.8	265.1	6.3	8.3	618.9	17.1	26.5	96.1	1.2
106.4	171.7	14.0	9.8	511.0	33.9	23.0	74.1	1.4
147.3	345.6	16.2	9.7	730.8	25.9	25.3	162.7	1.3
161.5	405.6	10.8	14.9	770.1	24.9	40.1	114.9	0.7
187.4	362.9	9.7	11.5	730.6	22.9	22.7	144.4	0.5
137.5	207.0	8.9	7.1	731.5	21.5	29.0	92.9	1.7
146.3	239.3	22.6	5.4	716.7	25.6	32.1	124.2	1.2
156.0	189.8	8.2	9.7	491.9	26.3	20.1	82.2	0.9
177.6	413.1	23.7	9.4	769.8	27.7	36.3	146.1	1.5
204.1	320.0	9.9	10.6	723.6	30.0	26.8	162.2	0.6
141.9	232.1	10.7	9.4	622.0	28.5	34.5	112.5	0.7
216.1	400.2	12.2	16.8	624.3	56.0	22.2	122.4	0.8
135.6	258.2	10.1	8.1	625.2	16.9	23.7	111.3	1.1
203.1	235.8	4.6	12.8	577.8	35.6	19.5	147.4	0.3
193.8	323.6	10.3	18.1	687.5	51.2	46.3	187.4	1.3
132.2	233.8	9.8	6.5	452.3	34.3	13.0	92.8	1.0
169.2	273.4	9.0	13.6	568.5	37.3	16.1	96.9	0.2
149.1	415.2	18.1	7.2	690.7	19.7	19.5	152.6	1.1
205.7	404.5	23.5	9.9	528.2	44.2	33.9	219.3	0.6
173.1	374.1	9.2	10.1	579.7	26.1	33.1	117.5	2.3
134.1	357.6	4.8	8.9	548.8	10.8	15.2	80.7	0.7
189.6	336.8	8.6	24.2	768.5	12.4	27.9	147.1	0.9
214.3	314.1	9.5	14.6	708.4	51.4	31.3	177.2	0.5
129.6	244.7	2.0	12.3	342.2	20.8	10.0	66.0	0.1
185.6	338.4	7.3	14.5	643.2	51.1	24.3	140.6	1.2
164.8	451.0	5.1	8.1	826.4	11.3	24.0	121.4	1.0
158.5	259.4	6.6	11.5	570.5	39.7	17.7	134.6	0.4
190.7	273.8	3.8	11.5	418.0	25.8	16.9	94.0	0.1
149.6	295.2	5.6	14.7	449.2	32.4	18.9	89.3	0.4
280.1	484.7	9.2	23.3	605.1	80.4	27.1	149.6	0.5
154.6	297.4	7.1	15.1	562.6	36.2	19.4	117.0	0.6
183.6	238.2	6.8	16.0	650.0	26.6	24.2	127.7	7.4
176.9	334.2	9.7	15.3	569.8	30.2	20.3	95.7	0.5
207.4	300.8	13.1	12.0	653.0	38.1	31.1	131.9	1.1
139.6	284.8	6.6	14.7	623.7	13.1	25.1	148.1	0.2
186.9	337.7	11.4	13.3	707.0	39.2	42.0	168.8	0.7
135.4	257.0	9.6	34.2	605.1	37.0	26.3	100.5	0.5
172.1	289.8	7.6	15.1	716.8	29.5	32.5	128.2	0.7
228.2	369.4	13.1	28.3	693.7	41.4	32.7	174.3	0.5
215.0	452.7	12.7	16.1	682.7	56.4	43.3	219.0	0.4
210.5	382.7	11.0	20.5	716.7	26.1	35.3	117.6	0.4
216.1	394.3	8.8	25.5	725.7	56.2	26.8	162.2	1.1
185.9	461.1	19.7	19.8	664.9	56.7	17.1	163.6	0.5
105.3	365.3	4.4	6.3	484.0	3.5	17.1	61.4	0.1
160.8	384.0	12.1	9.4	768.4	22.2	35.0	117.8	0.8
204.9	431.3	8.0	9.2	705.5	30.9	42.5	105.2	1.5
185.9	264.8	7.0	10.6	683.1	36.2	26.3	125.3	0.7

124.5	243.4	19.0	9.1	687.0	16.2	43.0	113.4	1.2
166.8	285.6	10.7	8.6	674.4	26.2	24.4	111.1	0.7
173.7	232.6	36.0	11.2	840.8	32.8	28.5	167.2	0.9
156.1	467.8	14.3	10.3	796.3	23.7	30.0	145.7	0.5
167.2	325.8	6.4	10.5	714.7	26.5	32.0	137.5	1.4
161.5	375.7	7.9	32.4	599.2	35.5	25.7	94.6	0.9
244.2	367.6	6.2	19.5	572.2	66.9	45.2	125.4	0.7



bAla	Ala	Glu	His	1MHis	3MHis	Aad	bAib	Abu
35.8	422.9	36.1	94.8	2.0	3.7	0.8	2.4	28.7
30.0	511.4	54.3	76.0	4.4	5.5	0.8	3.2	28.6
60.9	376.4	76.7	48.2	14.1	5.6	1.2	3.1	13.8
41.9	324.9	37.0	96.7	0.9	3.8	0.3	2.4	20.3
13.2	481.5	64.2	74.2	2.8	5.3	0.9	3.1	44.7
33.9	342.4	41.7	82.4	7.9	3.7	0.7	3.2	40.9
33.5	442.0	26.7	76.5	2.6	3.8	0.9	2.8	38.5
29.9	505.9	49.6	85.6	1.8	4.3	0.7	1.5	39.9
26.7	393.5	37.2	88.8	3.7	3.7	0.8	1.9	31.0
32.6	573.5	111.9	82.0	4.6	4.7	0.8	4.5	43.8
35.9	371.9	72.3	80.7	17.0	5.6	0.9	2.9	32.5
27.8	364.7	84.1	63.9	5.5	12.6	1.6	5.0	19.7
30.8	401.1	96.6	63.1	1.7	2.5	0.6	2.3	7.9
24.3	367.9	39.6	86.7	14.1	3.7	0.6	2.2	31.9
33.1	336.2	94.3	73.3	3.3	2.7	0.6	1.3	10.8
28.6	391.4	37.2	84.6	18.6	4.0	0.9	4.0	43.3
36.3	565.2	142.8	111.8	11.3	5.2	1.0	2.8	27.6
22.5	354.9	65.0	83.4	6.8	3.9	0.9	5.5	23.9
29.8	505.7	20.9	98.4	5.0	3.4	0.5	2.5	22.9
44.5	446.1	71.6	86.0	2.9	6.4	0.8	3.2	22.1
4.9	444.6	55.3	95.9	3.1	3.9	0.4	3.5	32.0
30.2	227.5	35.3	50.8	1.9	2.1	0.6	1.5	16.2
32.7	388.7	35.7	81.5	1.0	2.9	0.6	2.5	22.4
35.6	379.1	22.5	77.0	3.2	2.9	0.5	2.4	27.1
27.5	371.6	52.3	91.3	1.4	3.5	1.1	3.8	66.6
24.9	293.2	9.2	65.2	1.8	3.5	0.4	1.8	13.0
26.1	270.9	37.8	86.5	1.2	4.8	0.6	3.3	24.3
28.3	410.5	77.8	81.1	8.8	5.2	1.4	3.6	34.2
30.7	268.6	42.1	84.1	2.5	3.9	0.5	2.9	27.5
51.2	269.6	27.4	80.4	17.0	5.2	0.8	2.3	27.6
27.3	373.0	45.2	70.1	1.5	3.5	0.6	2.0	23.7
39.4	426.8	26.0	90.6	21.6	4.1	1.3	3.9	39.9
30.0	411.4	69.8	78.3	2.6	4.8	0.9	1.8	19.6
40.7	546.5	85.8	47.9	2.1	3.5	0.8	2.4	23.1
20.4	325.5	174.0	71.4	4.0	3.0	0.4	3.5	11.8
24.7	411.6	145.3	108.1	2.5	2.9	0.6	2.2	22.5
39.3	456.8	193.5	91.8	1.4	4.5	0.7	3.1	39.2
32.0	340.3	126.2	65.2	2.5	3.1	0.7	2.9	30.1
37.1	429.9	102.9	96.9	0.9	4.4	0.5	4.1	26.2
25.2	545.2	181.1	101.3	5.4	4.9	0.6	2.9	24.9
26.2	525.8	214.0	91.2	0.7	3.3	0.6	1.4	18.0
11.5	441.6	209.7	92.4	3.2	4.6	0.9	6.6	34.7
37.9	341.8	38.1	60.5	8.7	3.9	0.6	3.0	26.7
39.6	456.2	117.3	51.8	0.1	2.9	1.5	4.0	56.4
40.4	450.0	48.8	76.0	16.0	3.6	0.9	2.8	24.7
41.9	400.9	74.3	72.9	10.3	7.0	1.0	3.2	32.8
15.0	352.9	132.7	69.7	21.7	5.6	1.9	1.7	20.7
29.9	480.4	74.7	67.8	17.6	4.3	0.9	1.4	27.5
4.8	301.6	26.2	67.3	1.3	3.9	0.5	1.2	21.5

359.2	313.3	22.5	72.7	3.2	3.3	0.5	2.8	28.7
28.7	329.1	55.4	68.3	2.9	4.2	1.0	2.8	37.4
35.0	709.3	76.1	79.7	6.5	4.7	1.5	3.0	19.1
21.2	452.1	71.9	84.1	11.5	8.2	1.3	3.8	32.0
35.6	361.0	109.0	47.4	12.7	4.6	2.0	5.7	16.3
27.0	343.9	86.6	59.5	2.2	6.2	0.9	5.6	26.9
27.6	368.2	45.0	80.5	9.6	3.8	0.6	4.0	22.8
8.9	607.4	56.3	101.4	1.8	3.9	0.5	1.1	13.8
31.3	456.9	47.8	73.8	5.9	4.9	0.6	1.8	31.2
37.5	290.9	40.5	54.6	4.7	2.0	0.9	1.6	27.4
28.5	349.8	44.6	69.1	0.5	2.5	0.6	2.0	17.7
17.9	458.7	68.1	85.9	5.9	4.9	0.8	2.9	22.5
26.5	349.2	67.7	78.7	6.7	2.5	0.5	1.6	27.6
24.4	350.3	74.2	84.9	6.2	2.7	0.4	1.5	21.0
44.2	550.9	182.7	90.6	16.3	4.6	0.9	3.4	40.8
34.1	440.0	47.4	99.7	3.4	5.0	0.8	1.7	32.6
32.0	519.0	100.7	70.1	5.0	3.2	1.9	5.0	32.7
28.9	590.5	233.4	97.9	16.6	3.7	1.1	2.8	30.7
37.9	250.5	39.7	53.3	2.1	2.7	0.9	3.6	27.4
23.1	236.2	161.7	57.1	3.8	3.2	1.2	3.2	31.0
34.5	555.2	31.3	83.1	6.4	3.9	1.0	1.3	21.2
27.5	470.2	118.7	87.7	2.6	5.5	0.7	2.4	33.2
30.9	392.5	88.9	75.8	3.3	5.2	2.2	6.8	46.7
22.9	236.6	24.1	64.8	0.8	3.1	1.1	2.7	37.7
23.8	435.4	25.4	91.0	11.1	4.6	0.7	2.7	43.0
32.0	513.7	155.1	109.0	2.8	3.7	0.8	4.8	42.1
3.8	179.5	54.9	43.6	1.6	2.4	0.4	2.1	30.0
39.6	365.9	149.6	85.9	4.8	3.1	0.9	3.7	31.2
18.4	375.1	45.6	69.0	1.8	4.0	0.7	2.8	25.9
30.3	382.0	111.2	72.6	2.2	4.3	0.8	5.4	49.7
5.5	268.1	90.8	70.1	24.7	3.0	0.4	1.9	34.1
19.4	331.2	150.1	71.5	3.3	2.4	1.3	3.9	38.6
47.3	648.1	262.8	77.5	1.9	3.3	0.8	1.6	26.0
21.1	422.0	161.3	93.5	3.9	4.9	0.8	3.5	50.2
32.7	479.7	62.0	89.8	2.5	3.8	1.1	2.5	31.2
12.3	275.3	90.0	67.5	4.5	5.9	1.2	5.0	50.7
41.8	369.5	138.2	73.2	1.8	3.2	0.8	2.9	42.8
4.9	338.6	86.7	78.2	2.1	2.7	0.4	2.8	19.6
21.6	583.8	101.8	93.7	3.8	3.7	0.7	1.8	25.2
26.8	486.0	136.1	88.2	2.6	4.0	0.8	2.3	27.4
34.7	451.6	135.3	81.7	4.0	2.9	0.6	1.8	19.3
29.2	458.9	125.7	89.9	4.0	3.7	0.8	2.7	30.9
33.5	502.2	198.0	104.0	7.5	4.6	1.3	3.8	23.2
34.9	403.3	98.2	71.4	2.8	2.2	0.6	2.7	19.5
43.7	649.4	199.8	97.3	5.4	2.5	1.0	1.7	31.7
36.2	421.0	190.6	70.5	3.9	4.4	0.8	2.4	17.8
2.8	207.8	29.4	50.3	7.7	2.5	0.6	2.0	28.8
10.0	375.6	54.6	89.4	5.0	3.6	1.0	1.6	25.8
29.2	379.7	76.1	76.3	18.6	6.7	0.6	3.5	26.2
28.1	428.1	71.2	89.1	15.3	4.3	1.1	3.5	31.7

28.3	361.0	54.9	84.1	15.6	6.6	0.9	3.1	25.9
22.2	355.3	64.1	86.8	4.0	3.1	1.0	2.2	37.0
34.9	505.0	91.1	84.7	50.6	8.9	1.7	2.5	38.6
13.5	430.2	51.1	87.2	11.7	4.2	0.6	3.6	19.8
25.0	307.2	50.6	85.8	8.0	3.6	0.8	2.4	29.4
29.0	424.8	79.1	73.6	20.7	3.6	0.8	2.7	21.0
28.4	422.8	203.6	78.0	2.9	3.1	0.7	4.8	32.8

Arg	Pro	Orn	Cys	Lys	Met	Val	Tyr	Ile
134.0	223.2	110.4	42.0	247.8	25.5	245.0	67.0	76.6
82.3	198.3	122.8	56.6	281.9	24.8	303.8	66.2	86.1
150.6	191.5	120.4	50.7	203.2	18.2	211.4	61.0	85.1
109.2	104.2	70.3	37.3	259.1	18.0	180.5	42.4	49.5
87.8	183.5	88.2	48.8	257.8	23.7	229.2	64.6	74.4
101.9	202.8	82.8	43.6	241.7	24.4	229.1	54.2	67.3
122.5	206.8	68.8	30.1	217.1	26.1	255.6	60.0	79.2
130.1	171.4	71.6	24.7	245.7	31.2	244.2	60.8	70.6
110.8	212.2	85.1	33.1	219.2	26.5	231.0	66.6	73.0
133.3	274.8	145.5	54.9	271.3	35.9	233.8	77.3	69.0
87.0	179.6	87.4	34.3	198.7	24.3	252.9	42.7	81.2
78.6	176.2	94.8	51.5	203.5	13.8	235.6	59.1	69.6
132.4	357.3	187.8	45.1	173.2	18.5	122.9	57.7	48.8
117.7	179.2	97.5	27.5	298.2	29.1	247.2	46.5	81.1
123.9	116.3	61.3	36.7	257.5	21.7	222.7	44.4	63.6
99.7	152.1	81.4	24.2	249.6	24.8	222.0	45.6	57.2
100.3	349.5	223.7	24.2	327.2	43.1	286.7	75.1	103.3
95.3	192.5	124.4	30.3	255.7	20.2	263.0	54.0	73.3
104.8	330.9	71.8	41.3	282.7	34.7	211.9	64.0	87.6
98.7	139.0	135.7	75.1	297.0	21.7	255.7	68.5	68.4
117.7	126.6	74.8	50.8	216.9	23.2	213.5	55.5	50.8
69.0	89.4	39.7	25.1	140.4	14.2	133.2	27.1	41.5
120.2	124.1	55.9	41.8	174.5	18.5	196.1	37.9	55.6
98.5	153.3	73.8	29.9	165.3	18.6	177.3	43.1	49.6
132.3	171.5	71.8	56.5	299.4	29.5	318.4	64.8	108.1
71.9	150.4	49.3	33.8	147.6	14.9	148.7	41.9	42.8
102.0	182.1	70.8	33.7	187.9	23.5	238.6	33.7	70.5
105.4	183.9	86.4	58.8	278.4	27.4	261.5	56.6	83.7
73.9	143.6	83.9	38.8	214.3	21.8	226.0	50.6	72.6
120.4	108.1	79.0	53.9	216.8	18.4	174.5	47.6	41.5
114.5	106.1	85.8	34.5	182.1	18.4	148.0	49.2	43.2
124.0	187.0	86.8	52.5	247.6	25.0	263.8	64.5	90.1
132.0	202.2	100.0	34.1	232.4	25.9	239.6	54.0	74.5
93.6	243.0	65.6	58.6	173.9	13.9	203.7	36.4	70.5
97.0	300.6	90.9	34.6	181.4	20.6	191.7	49.5	54.7
56.1	170.0	165.1	35.2	253.1	27.4	227.2	49.3	71.1
87.6	146.7	195.1	33.9	319.9	25.0	280.6	60.5	87.0
64.2	219.4	115.7	34.4	175.6	18.4	210.2	64.8	68.2
80.4	152.7	162.1	20.2	244.8	23.6	220.4	54.1	66.3
92.9	180.2	195.2	38.3	285.0	29.6	258.1	62.4	72.6
131.1	222.9	125.9	19.3	229.4	22.9	220.6	57.2	65.6
106.8	207.8	170.8	27.8	260.5	29.6	287.7	61.7	88.2
139.2	140.3	57.4	46.4	149.8	14.6	163.5	40.9	60.8
103.6	147.4	177.2	45.5	270.2	29.0	334.4	65.4	122.7
119.2	199.6	106.1	36.3	277.0	24.9	219.8	59.0	60.2
129.2	167.7	81.3	54.8	246.7	25.7	264.2	61.1	91.2
90.9	183.5	114.2	52.0	245.8	15.3	246.8	66.4	67.4
82.4	206.9	108.3	40.6	220.3	21.6	224.8	59.7	67.4
69.2	88.7	84.4	22.7	180.1	15.9	160.1	35.3	46.7

73.6	201.4	80.2	52.3	178.2	49.7	135.9	159.8	37.5
102.7	192.4	90.9	56.1	205.5	21.8	249.4	59.1	76.1
71.4	343.1	56.1	45.1	216.0	22.0	225.0	63.7	77.9
98.0	192.7	121.2	35.9	282.5	22.2	247.3	58.1	72.5
105.2	231.2	101.8	40.2	174.7	12.9	224.6	85.4	54.8
154.9	199.7	124.6	68.6	277.6	24.1	226.4	61.4	101.5
127.0	164.9	117.4	46.0	243.4	21.0	112.2	54.2	57.5
132.5	251.5	120.2	25.7	241.8	27.3	228.9	72.4	61.2
97.2	246.2	94.9	29.6	184.3	23.7	215.5	61.6	64.3
139.7	121.0	101.1	48.5	235.4	19.1	215.6	54.2	64.4
70.0	121.1	60.6	22.5	156.1	16.3	162.8	41.9	41.7
118.2	161.9	151.6	52.1	290.5	25.7	258.8	62.3	74.6
78.3	152.7	86.8	31.2	235.8	27.0	197.3	53.1	59.4
89.0	161.5	110.1	43.5	208.0	18.0	165.8	42.5	42.1
70.2	249.1	155.5	46.6	296.0	27.5	266.7	69.5	79.0
62.8	185.1	135.2	51.4	245.4	22.4	263.8	64.4	74.3
86.7	154.2	127.3	28.3	285.1	28.0	280.4	70.1	82.0
87.0	237.4	258.3	16.2	311.6	33.7	315.8	97.4	94.9
148.8	163.9	86.3	18.1	189.3	21.6	299.2	57.1	111.4
101.2	137.5	78.6	20.4	167.2	17.8	250.9	39.1	118.2
156.4	205.9	78.5	31.2	317.2	31.9	248.1	83.1	90.6
69.5	199.2	199.0	58.4	283.9	29.3	237.8	56.9	66.6
114.1	308.0	89.0	58.6	250.9	33.6	364.9	88.3	127.5
70.3	100.2	46.9	42.0	171.2	17.5	240.9	44.7	77.9
140.9	144.8	65.2	38.2	253.9	28.7	235.6	56.4	65.2
139.2	238.9	200.5	61.7	360.8	33.2	270.2	56.5	83.7
102.1	53.0	69.2	20.5	108.1	15.2	154.3	33.3	61.1
98.5	133.3	133.8	18.0	232.5	26.8	229.7	54.5	72.8
101.6	168.4	86.9	60.2	247.0	18.7	242.5	50.9	70.0
92.9	178.0	90.5	31.3	261.2	21.2	251.3	58.3	91.1
115.7	81.1	111.8	24.4	174.3	20.8	202.5	38.7	58.1
61.9	140.4	129.6	2.8	201.3	19.5	284.0	46.7	107.4
78.5	304.9	268.2	3.4	254.8	27.3	240.9	72.0	83.8
52.5	149.2	149.4	13.9	261.7	27.5	313.8	59.2	100.1
140.1	307.4	78.6	3.5	261.2	31.7	265.3	90.9	90.0
112.7	194.8	103.0	22.4	237.9	20.6	262.0	44.4	102.9
130.7	138.7	132.2	32.6	249.3	23.6	223.6	45.8	78.0
112.1	130.6	111.9	0.5	189.2	24.3	168.8	52.7	50.4
105.0	211.5	158.6	1.5	262.2	24.1	224.3	51.4	66.3
103.7	218.0	131.5	1.1	275.2	22.4	274.0	51.5	79.2
92.0	193.0	161.3	2.6	193.6	22.7	187.2	51.9	54.4
226.0	163.6	152.1	2.0	322.2	30.1	231.5	61.7	82.9
88.6	208.6	206.1	1.3	268.5	26.3	211.5	62.6	71.8
62.1	176.9	158.6	6.5	194.9	22.7	157.8	33.9	57.8
47.1	234.7	228.3	13.1	316.4	31.0	285.6	78.8	89.6
78.9	221.5	166.5	13.5	227.9	24.7	199.5	56.5	93.0
96.3	65.7	64.6	19.6	136.9	15.4	138.8	32.2	49.8
76.5	175.6	140.7	12.7	238.8	19.2	244.9	65.5	69.6
200.1	175.3	98.2	58.4	266.1	20.1	242.7	43.5	80.3
174.2	161.6	130.3	46.7	340.0	22.3	256.3	63.8	68.7

104.3	145.8	104.8	49.6	269.5	24.6	244.0	54.8	67.2
56.0	150.1	134.1	47.7	244.8	20.9	199.7	55.4	54.3
89.8	283.9	151.7	47.0	316.1	28.5	297.3	76.7	99.5
138.4	164.1	79.2	48.1	248.5	24.2	194.5	44.6	58.6
135.6	143.1	100.7	34.2	297.0	24.3	222.5	49.8	64.4
96.4	115.1	91.7	32.6	220.8	20.5	233.0	57.0	58.2
154.9	207.5	172.4	52.0	274.4	29.0	275.1	57.4	108.4

Leu	Phe	Trp
126.2	66.1	52.1
158.4	74.3	54.4
115.7	88.5	44.4
91.9	57.9	51.2
115.4	62.0	51.9
127.3	60.1	49.8
129.6	63.0	53.5
113.1	67.6	58.0
116.2	60.6	53.0
138.1	100.2	44.0
127.9	68.0	53.4
110.4	63.4	43.7
61.2	50.4	22.6
123.0	63.5	60.0
129.2	86.2	54.4
112.8	62.0	41.3
161.2	88.9	69.2
126.4	59.7	43.4
126.5	72.7	45.8
126.3	72.9	53.4
108.7	73.4	55.2
68.7	42.0	41.1
105.4	58.0	41.1
83.7	54.4	32.8
185.3	70.8	51.4
68.8	52.6	44.4
124.4	62.9	47.9
150.9	72.0	48.1
123.6	67.8	46.9
80.9	49.9	49.4
76.0	54.5	37.3
129.5	73.0	53.4
116.9	56.8	47.8
81.6	47.7	30.5
100.5	70.8	51.8
129.7	77.8	56.1
174.1	115.3	53.3
109.0	73.4	33.6
128.9	85.4	57.4
144.2	88.0	55.2
125.6	94.0	51.9
175.1	110.5	50.2
85.1	51.1	32.0
218.9	112.4	32.9
98.9	62.4	52.3
153.6	78.1	51.6
116.7	67.7	56.7
102.9	64.9	40.5
66.2	50.6	51.9

56.2	93.0	60.7
133.4	66.9	53.2
112.9	58.0	33.6
112.2	70.2	58.9
100.8	90.5	41.2
142.9	67.3	44.1
115.4	64.0	48.0
94.7	74.3	43.9
101.9	70.8	37.0
98.8	57.1	47.5
83.1	59.8	42.0
130.6	72.3	52.9
104.0	86.0	47.6
86.2	58.7	40.6
155.2	98.4	41.1
122.8	67.1	56.1
185.4	89.5	44.3
178.8	98.1	62.8
170.2	85.8	34.9
178.5	70.1	30.1
146.3	79.2	55.4
123.3	71.8	52.7
210.1	82.3	61.1
139.8	55.8	27.4
123.3	59.2	45.7
168.4	92.8	48.3
96.8	62.1	27.2
129.6	75.3	46.5
116.5	82.9	46.2
146.3	77.8	32.8
103.8	59.5	42.1
183.0	68.4	23.7
133.9	124.2	42.1
187.0	87.8	45.2
142.2	94.1	62.1
169.5	69.3	37.8
132.9	66.1	35.3
81.1	52.4	46.3
123.2	75.7	52.2
135.4	72.7	50.5
94.1	77.0	38.3
137.0	78.5	48.4
114.9	78.6	38.8
99.7	54.1	35.2
157.0	86.3	61.9
134.1	85.4	14.0
79.9	43.8	19.7
118.2	60.0	46.7
126.3	82.4	46.1
127.4	75.4	56.4



115.8	63.4	59.4
108.0	64.3	47.6
145.3	76.2	48.0
95.0	62.0	39.8
143.5	72.6	65.1
131.1	75.6	52.0
181.8	91.1	45.4