

<b>Table S1: Models and statistical parameters used.</b>								
Model: Histologically normal tissue, from Barretts patients compared with controls ie Class 2 vs Class 1								
o-PLSDA Class 2 (7) vs Class 1 (68) : 1 Latent variable; ROC=0.94,CVER=0.10, p=0.18 (class 1),0.08 (class 2)								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
For	**	Wilcoxon	1.90E-05	1.38E+06	4.93E+06	4.16E+05	2.12E+06	3.6
Lac		Wilcoxon	4.60E-02	5.85E+06	8.21E+06	1.70E+06	4.11E+06	1.4
Model: Barretts tissue compared with histologically normal tissue in Barretts patients ie Class 4 vs Class 2								
ML-PLSDA Class 4 (7) vs Class 2 (7) : ROC=1.00, CVER=0.00, p=0.005								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho		paired t-test	1.20E-02	2.97E+06	1.42E+07	9.80E+05	7.76E+06	4.8
Myo		paired t-test	9.40E-03	4.32E+05	1.98E+06	1.73E+05	1.10E+06	4.6
Hpox	*	paired t-test	1.40E-03	2.01E+05	6.29E+05	1.43E+05	2.31E+05	3.1
3HB		paired t-test	2.10E-02	1.18E+05	3.09E+05	4.14E+04	1.72E+05	2.6
glut		paired t-test	6.10E-03	1.62E+06	1.26E+06	4.46E+05	3.82E+05	0.8
Asp		paired t-test	3.70E-02	8.82E+05	7.07E+05	2.80E+05	2.42E+05	0.8
Fum		paired t-test	3.80E-02	4.76E+05	3.66E+05	1.90E+05	1.58E+05	0.8
Lac		paired t-test	5.00E-02	8.21E+06	5.54E+06	4.11E+06	2.35E+06	0.7
Gln	*	paired t-test	1.10E-03	1.31E+06	7.79E+05	2.97E+05	3.51E+05	0.6
ADP		paired Wilcoxon	1.60E-02	6.01E+05	3.89E+05	1.67E+05	1.12E+05	0.6
Ala		paired t-test	5.50E-03	8.13E+06	4.33E+06	2.58E+06	1.55E+06	0.5
Model: Histologically normal tissue from OAC patients (pre-chemotherapy) compared with controls ie Class 3 vs Class 1								
o-PLSDA Class 3 (30) vs Class 1 (68) : ROC=1.00, CVER=0.017, p=0.007 (class 1) ,0.005 (class 3)								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
For	**	Wilcoxon	3.90E-15	1.38E+06	5.87E+06	4.16E+05	2.54E+06	4.2
3HB	**	Wilcoxon	7.80E-05	1.62E+05	2.85E+05	1.04E+05	1.64E+05	1.8
Succ	**	Wilcoxon	2.90E-04	9.68E+05	1.55E+06	3.98E+05	1.41E+06	1.6
GPC	*	Wilcoxon	3.90E-03	2.38E+06	3.50E+06	5.18E+05	3.01E+06	1.5
Ace		Wilcoxon	1.40E-02	7.03E+06	9.24E+06	3.04E+06	4.84E+06	1.3
Lac	*	Wilcoxon	4.10E-03	5.85E+06	7.53E+06	1.70E+06	3.16E+06	1.3
ADP		welch test	2.10E-02	4.81E+05	5.90E+05	1.53E+05	2.28E+05	1.2
Asn		Wilcoxon	2.40E-02	2.10E+04	1.67E+04	8.87E+03	1.09E+04	0.8
Model: Barretts tissue compared with histologically normal tissue in OAC patients (pre-chemotherapy) ie Class 5 vs Class 3								
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Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho		Wilcoxon	6.90E-03	5.79E+06	2.43E+07	6.88E+06	4.79E+06	4.2
Myo		Wilcoxon	1.30E-02	7.75E+05	1.93E+06	8.09E+05	4.68E+05	2.5
GPC		Wilcoxon	8.10E-03	3.50E+06	5.33E+06	3.01E+06	1.04E+06	1.5
glut	**	welch test	4.60E-04	1.63E+06	1.09E+06	4.59E+05	1.56E+05	0.7
Val	*	welch test	2.60E-03	9.86E+05	6.08E+05	2.63E+05	1.32E+05	0.6
Ala	**	welch test	1.90E-04	6.71E+06	3.71E+06	2.53E+06	7.81E+05	0.6
Asp	*	welch test	5.40E-04	6.43E+05	3.89E+05	2.24E+05	7.48E+04	0.6
Lac		welch test	3.30E-02	7.53E+06	4.88E+06	3.16E+06	1.60E+06	0.6
Gln	**	welch test	1.00E-04	1.49E+06	6.21E+05	5.48E+05	2.06E+05	0.4
Model: Barretts tissue in OAC patients (pre-chemotherapy) compared with Barretts tissue in Barretts patients ie Class 5 vs Class 4								

o-PLSDA Class 5 (4) vs Class 4 (7) Cross-validation=leave one out : ROC=0.79, CVER=0.27, p=0.332, 0.464								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Ile		welch test	2.70E-02	3.04E+05	2.23E+05	5.72E+04	4.24E+04	0.7
Leu		Wilcoxon	4.20E-02	1.04E+06	6.06E+05	4.64E+05	7.83E+04	0.6
Val		welch test	1.80E-02	1.02E+06	6.08E+05	3.28E+05	1.32E+05	0.6
Asp		welch test	1.30E-02	7.07E+05	3.89E+05	2.42E+05	7.48E+04	0.5
Model: OAC tissue compared with Barretts tissue in OAC patients (pre-chemotherapy) ie Class 6 vs Class 5								
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Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Leu		Wilcoxon	2.40E-02	6.06E+05	1.02E+06	7.83E+04	5.17E+05	1.7
Val		welch test	8.50E-03	6.08E+05	9.04E+05	1.32E+05	2.92E+05	1.5
Ile		Wilcoxon	4.30E-02	2.23E+05	3.36E+05	4.24E+04	1.34E+05	1.5
Asp		welch test	2.20E-02	3.89E+05	5.50E+05	7.48E+04	2.79E+05	1.4
glut		welch test	1.40E-02	1.09E+06	1.42E+06	1.56E+05	4.43E+05	1.3
Gly		welch test	9.00E-03	4.85E+06	6.24E+06	5.22E+05	2.15E+06	1.3
PCho		Wilcoxon	2.40E-02	2.43E+07	1.43E+07	4.79E+06	9.02E+06	0.6
Cr		Wilcoxon	4.30E-02	7.06E+06	4.38E+06	2.13E+06	2.42E+06	0.6
Model: Barretts tissue compared with histologically normal tissue in OAC patients (post-chemotherapy) ie Class 8 vs Class 7								
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Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho	**	Wilcoxon	2.80E-05	4.60E+06	1.80E+07	4.84E+06	6.36E+06	3.9
Hpox	*	Wilcoxon	2.00E-03	3.07E+05	4.53E+05	1.71E+05	1.13E+05	1.5
GPC	*	Wilcoxon	7.70E-04	4.30E+06	6.12E+06	3.33E+06	2.56E+06	1.4
ino		Wilcoxon	2.60E-02	1.75E+05	2.30E+05	8.05E+04	5.85E+04	1.3
Gly		welch test	2.40E-02	8.91E+06	7.65E+06	2.36E+06	9.27E+05	0.9
Val		Wilcoxon	1.60E-02	1.30E+06	1.09E+06	2.62E+05	2.00E+05	0.8
Lac		welch test	2.30E-02	1.26E+07	1.07E+07	2.34E+06	1.91E+06	0.8
glut	*	Wilcoxon	2.00E-03	1.40E+06	9.51E+05	3.74E+05	2.21E+05	0.7
Gln		Wilcoxon	6.00E-03	1.42E+06	9.23E+05	3.76E+05	3.53E+05	0.7
Cr	*	welch test	2.00E-03	9.01E+06	6.48E+06	1.76E+06	1.73E+06	0.7
Ala	**	welch test	3.10E-08	8.06E+06	4.82E+06	2.19E+06	6.63E+05	0.6
Succ	**	welch test	3.70E-07	3.90E+06	2.40E+06	1.07E+06	3.99E+05	0.6
Fum	**	welch test	4.50E-04	3.56E+05	2.05E+05	1.34E+05	8.14E+04	0.6
ADP		welch test	6.70E-03	6.01E+05	3.63E+05	2.25E+05	1.91E+05	0.6
Model: OAC tissue compared with Barretts tissue in OAC patients (post-chemotherapy) ie Class 9 vs Class 8								
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Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Asn		Wilcoxon	1.20E-02	1.30E+04	3.10E+04	2.17E+04	2.22E+04	2.4
Hpox		welch test	2.40E-02	4.53E+05	6.22E+05	1.13E+05	3.26E+05	1.4
glut	*	welch test	4.70E-03	9.51E+05	1.26E+06	2.21E+05	3.50E+05	1.3
Myo		Wilcoxon	4.60E-02	2.47E+06	1.99E+06	7.03E+05	1.03E+06	0.8
Cr		Wilcoxon	2.30E-02	6.48E+06	5.11E+06	1.73E+06	3.08E+06	0.8
PCho		Wilcoxon	4.30E-02	1.80E+07	1.28E+07	6.36E+06	8.34E+06	0.7
Model: Histologically normal tissue in OAC patients (pre-chemotherapy) compared with histologically normal tissue in Barretts patients ie Class 3 vs Class 2								
o-PLSDA Class 3 (30) vs Class 2 (7) : dreadful model, 3 LVs ROC=0.70, CVER=0.28, p=0.30,0.30								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change

3HB	*	Wilcoxon	3.90E-03	1.18E+05	2.85E+05	4.14E+04	1.64E+05	2.4
Model: OAC tissue in OAC patients (pre-chemotherapy) compared with histologically normal tissue in controls ie Class 6 vs Class 1								
o-PLSDA Class 6 (27) vs Class 1 (68) : 1 LV, ROC=1.00, CVER=0.00, p=0.008 (class 6), 0.005 (class 1)								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho	**	Wilcoxon	6.80E-10	2.94E+06	1.43E+07	7.67E+05	9.02E+06	4.9
For	**	Wilcoxon	4.70E-13	1.38E+06	5.31E+06	4.16E+05	2.26E+06	3.8
3HB	**	Wilcoxon	2.30E-10	1.62E+05	5.19E+05	1.04E+05	3.75E+05	3.2
GPC	**	Wilcoxon	2.70E-10	2.38E+06	7.72E+06	5.18E+05	5.23E+06	3.2
Hpox	**	Wilcoxon	2.00E-09	2.34E+05	6.18E+05	1.62E+05	2.95E+05	2.6
ino	**	Wilcoxon	2.20E-07	9.26E+04	2.08E+05	9.13E+04	9.21E+04	2.3
Myo	**	Wilcoxon	7.80E-08	5.79E+05	1.28E+06	4.34E+05	5.53E+05	2.2
Succ	*	Wilcoxon	7.60E-04	9.68E+05	1.56E+06	3.98E+05	1.51E+06	1.6
Leu		Wilcoxon	6.80E-03	7.57E+05	1.02E+06	3.18E+05	5.17E+05	1.3
Ile		Wilcoxon	1.10E-02	2.67E+05	3.36E+05	9.45E+04	1.34E+05	1.3
Ace		Wilcoxon	1.20E-02	7.03E+06	6.07E+06	3.04E+06	4.09E+06	0.9
glut		welch test	3.70E-02	1.62E+06	1.42E+06	3.56E+05	4.43E+05	0.9
Asp		welch test	3.00E-02	6.93E+05	5.50E+05	2.98E+05	2.79E+05	0.8
Fum	**	Wilcoxon	2.20E-05	3.95E+05	2.67E+05	1.43E+05	1.00E+05	0.7
ADP	**	Wilcoxon	6.20E-06	4.81E+05	3.16E+05	1.53E+05	1.53E+05	0.7
Ala	**	welch test	8.60E-14	6.02E+06	3.64E+06	1.56E+06	9.67E+05	0.6
Cr	**	Wilcoxon	9.30E-08	7.01E+06	4.38E+06	1.54E+06	2.42E+06	0.6
Gln	**	welch test	4.00E-17	1.44E+06	7.09E+05	3.48E+05	2.61E+05	0.5
Model: OAC tissue compared with histologically normal tissue in OAC patients (pre-chemotherapy) ie Class 6 vs Class 3								
o-PLSDA Class 6 (27) vs Class 1 (68) : 1 LV, ROC=1.00, CVER=0.00, p=0.008 (class 6), 0.005 (class 1)								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho	**	Wilcoxon	7.00E-05	5.79E+06	1.43E+07	6.88E+06	9.02E+06	2.5
Hpox	**	Wilcoxon	1.50E-06	2.69E+05	6.18E+05	1.60E+05	2.95E+05	2.3
GPC	**	Wilcoxon	1.80E-05	3.50E+06	7.72E+06	3.01E+06	5.23E+06	2.2
3HB	*	Wilcoxon	1.20E-03	2.85E+05	5.19E+05	1.64E+05	3.75E+05	1.8
ino	*	Wilcoxon	5.70E-04	1.22E+05	2.08E+05	1.14E+05	9.21E+04	1.7
Myo	**	Wilcoxon	2.50E-04	7.75E+05	1.28E+06	8.09E+05	5.53E+05	1.6
Gly		Wilcoxon	1.10E-02	4.95E+06	6.24E+06	1.94E+06	2.15E+06	1.3
Pro		Wilcoxon	1.60E-02	7.32E+05	5.83E+05	5.97E+05	7.97E+05	0.8
Lac		welch test	1.20E-02	7.53E+06	5.78E+06	3.16E+06	1.79E+06	0.8
Ace	**	Wilcoxon	2.50E-04	9.24E+06	6.07E+06	4.84E+06	4.09E+06	0.7
Fum	*	Wilcoxon	2.70E-03	3.84E+05	2.67E+05	1.70E+05	1.00E+05	0.7
Cr	**	Wilcoxon	1.50E-05	6.82E+06	4.38E+06	1.72E+06	2.42E+06	0.6
Ala	**	welch test	3.20E-07	6.71E+06	3.64E+06	2.53E+06	9.67E+05	0.5
Gln	**	welch test	1.30E-08	1.49E+06	7.09E+05	5.48E+05	2.61E+05	0.5
ADP	**	Wilcoxon	5.70E-06	5.90E+05	3.16E+05	2.28E+05	1.53E+05	0.5
Model: Histologically normal tissue in OAC patients, post-chemotherapy vs pre-chemotherapy ie Class 7 vs Class 3								
o-PLSDA Class 7 (29) vs Class 3 (27) : 1 LV, ROC=1.00, CVER=0.00, p=0.005,0.005								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Myo	**	Wilcoxon	3.10E-07	7.75E+05	2.00E+06	8.09E+05	7.62E+05	2.6
Succ	**	Wilcoxon	2.90E-09	1.55E+06	3.90E+06	1.41E+06	1.07E+06	2.5
3HB		Wilcoxon	4.60E-02	2.85E+05	6.42E+05	1.64E+05	6.48E+05	2.3

Gly	**	Wilcoxon	3.90E-08	4.95E+06	8.91E+06	1.94E+06	2.36E+06	1.8
Lac	**	welch test	3.50E-09	7.53E+06	1.26E+07	3.16E+06	2.34E+06	1.7
Asn		Wilcoxon	2.00E-02	1.67E+04	2.40E+04	1.09E+04	1.44E+04	1.4
ino	*	Wilcoxon	2.50E-03	1.22E+05	1.75E+05	1.14E+05	8.05E+04	1.4
Leu	*	welch test	2.50E-03	7.83E+05	1.01E+06	2.55E+05	3.01E+05	1.3
Val	**	welch test	2.50E-05	9.86E+05	1.30E+06	2.63E+05	2.62E+05	1.3
Ile	*	Wilcoxon	8.70E-04	2.77E+05	3.72E+05	9.32E+04	1.13E+05	1.3
Cr	**	welch test	1.10E-05	6.82E+06	9.01E+06	1.72E+06	1.76E+06	1.3
Tyr	**	welch test	6.00E-05	2.16E+05	2.74E+05	4.47E+04	5.71E+04	1.3
Ala		welch test	3.20E-02	6.71E+06	8.06E+06	2.53E+06	2.19E+06	1.2
GPC	**	Wilcoxon	1.80E-04	3.50E+06	4.30E+06	3.01E+06	3.33E+06	1.2
Tau		welch test	1.10E-02	6.98E+06	8.18E+06	1.80E+06	1.69E+06	1.2
Ace	**	Wilcoxon	6.00E-06	9.24E+06	4.91E+06	4.84E+06	1.98E+06	0.5
Pro	**	Wilcoxon	6.10E-09	7.32E+05	2.58E+05	5.97E+05	1.40E+05	0.4
Asp	**	Wilcoxon	5.10E-09	6.43E+05	2.82E+05	2.24E+05	1.11E+05	0.4
For	**	Wilcoxon	2.70E-10	5.87E+06	1.31E+06	2.54E+06	9.16E+05	0.2

Model: OAC tissue in OAC patients, post-chemotherapy vs pre-chemotherapy ie Class 9 vs Class 6

o-PLSDA Class 9 (28) vs Class 6 (27) : 2 LVs, ROC=1.00, CVER=0.018,p=0.007,0.007

Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Lac	**	welch test	4.40E-12	5.78E+06	1.21E+07	1.79E+06	3.13E+06	2.1
Ile	**	Wilcoxon	5.60E-05	3.36E+05	5.36E+05	1.34E+05	2.60E+05	1.6
Succ	**	Wilcoxon	8.80E-06	1.56E+06	2.44E+06	1.51E+06	8.38E+05	1.6
Myo	*	Wilcoxon	4.00E-03	1.28E+06	1.99E+06	5.53E+05	1.03E+06	1.6
Asn		Wilcoxon	3.40E-02	2.05E+04	3.10E+04	1.12E+04	2.22E+04	1.5
Tyr		Wilcoxon	7.50E-03	2.07E+05	2.95E+05	8.73E+04	1.51E+05	1.4
Leu	*	Wilcoxon	3.80E-03	1.02E+06	1.33E+06	5.17E+05	6.36E+05	1.3
Val	*	Wilcoxon	3.10E-03	9.04E+05	1.21E+06	2.92E+05	4.45E+05	1.3
Ala	*	welch test	1.90E-03	3.64E+06	4.59E+06	9.67E+05	1.21E+06	1.3
Gly	*	welch test	6.20E-04	6.24E+06	8.24E+06	2.15E+06	2.00E+06	1.3
Ace	*	Wilcoxon	2.80E-03	6.07E+06	4.15E+06	4.09E+06	1.72E+06	0.7
Fum	*	Wilcoxon	1.00E-03	2.67E+05	1.86E+05	1.00E+05	1.05E+05	0.7
Asp	**	Wilcoxon	2.60E-04	5.50E+05	3.35E+05	2.79E+05	2.02E+05	0.6
Pro	**	Wilcoxon	3.80E-06	5.83E+05	2.63E+05	7.97E+05	2.70E+05	0.5
For	**	Wilcoxon	1.20E-09	5.31E+06	1.28E+06	2.26E+06	8.05E+05	0.2

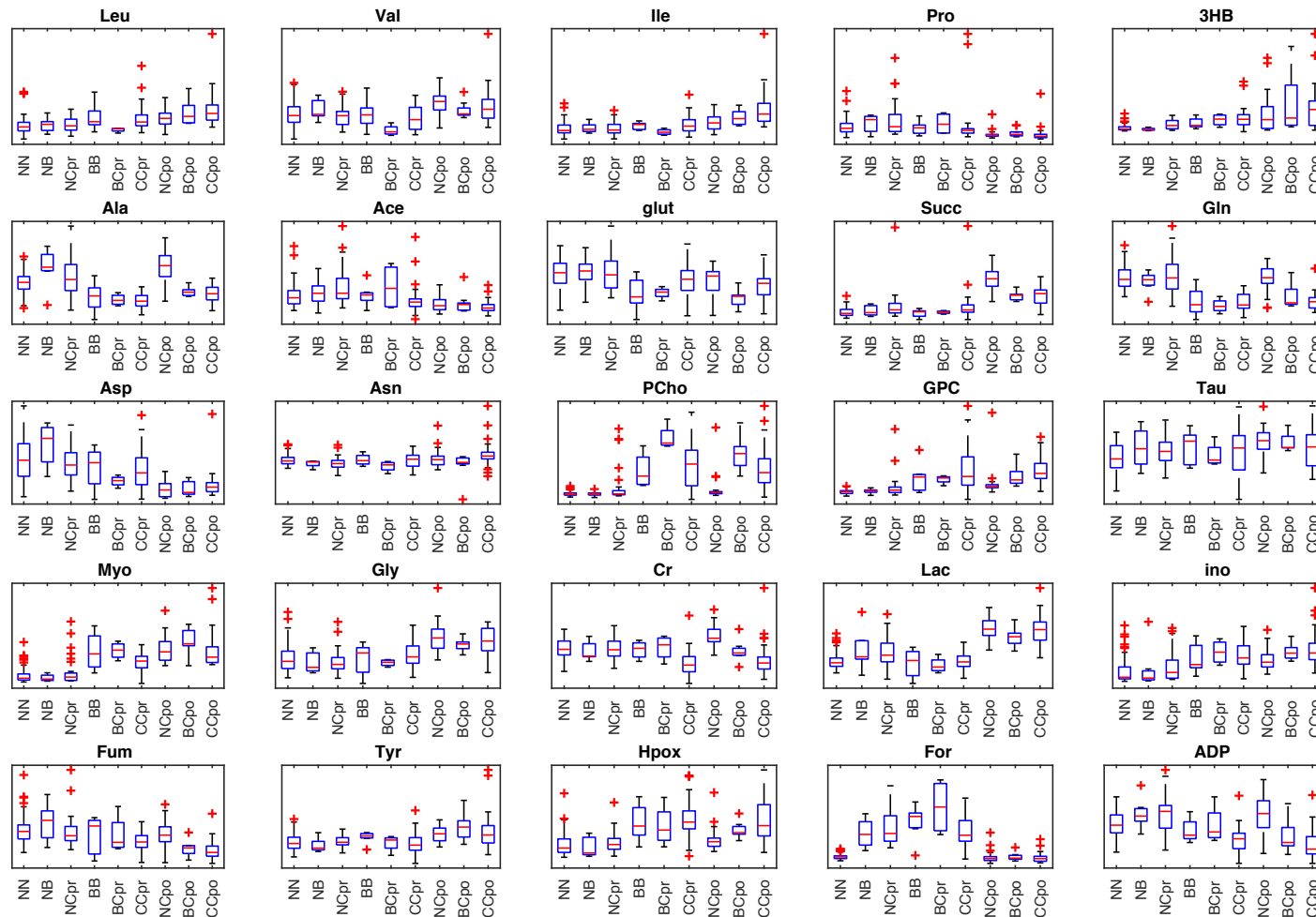
Model: Histologically normal tissue vs OAC tissue in OAC patients, post-chemotherapy ie Class 9 vs Class 7

o-PLSDA Class 9 (28) vs Class 7 (29) : 1 LV, ROC=0.94, CVER=0.14, p=0.023 (Class 7),0.28 (Class 9)

Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho	**	Wilcoxon	7.50E-06	4.60E+06	1.28E+07	4.84E+06	8.34E+06	2.8
Hpox	**	Wilcoxon	9.30E-06	3.07E+05	6.22E+05	1.71E+05	3.26E+05	2
GPC	**	Wilcoxon	8.10E-08	4.30E+06	7.68E+06	3.33E+06	3.31E+06	1.8
ino		Wilcoxon	1.10E-02	1.75E+05	2.55E+05	8.05E+04	1.42E+05	1.5
Ile	*	Wilcoxon	1.40E-03	3.72E+05	5.36E+05	1.13E+05	2.60E+05	1.4
Leu		Wilcoxon	2.40E-02	1.01E+06	1.33E+06	3.01E+05	6.36E+05	1.3
Asn		Wilcoxon	3.70E-02	2.40E+04	3.10E+04	1.44E+04	2.22E+04	1.3
Ala	**	welch test	2.40E-09	8.06E+06	4.59E+06	2.19E+06	1.21E+06	0.6
Succ	**	welch test	4.40E-07	3.90E+06	2.44E+06	1.07E+06	8.38E+05	0.6
Cr	**	Wilcoxon	1.40E-07	9.01E+06	5.11E+06	1.76E+06	3.08E+06	0.6
Gln	**	Wilcoxon	1.40E-07	1.42E+06	7.61E+05	3.76E+05	2.70E+05	0.5
Fum	**	Wilcoxon	2.30E-06	3.56E+05	1.86E+05	1.34E+05	1.05E+05	0.5
ADP	**	Wilcoxon	1.20E-06	6.01E+05	2.73E+05	2.25E+05	1.72E+05	0.5

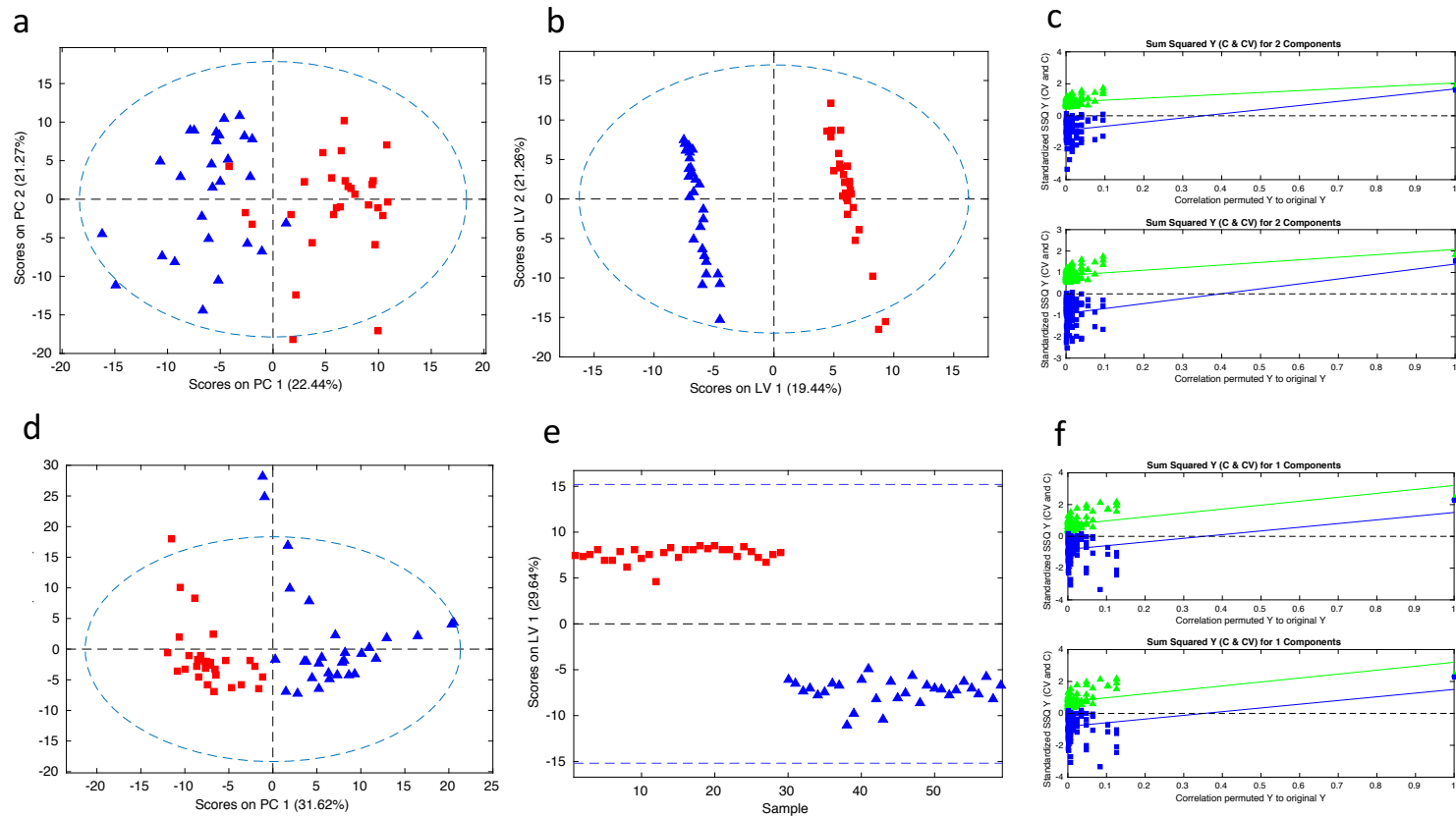
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Model: 10 case model: Barretts vs histologically normal tissues in OAC patients								
ML-PLSDA model : ROC=1.00, CVER=0.00, p=0.00								
PCho	**	paired t-test	6.40E-05	3.46E+06	1.99E+07	6.03E+05	7.43E+06	5.7
ino		paired t-test	1.10E-02	1.35E+05	2.37E+05	5.42E+04	7.13E+04	1.8
Hpox	*	paired t-test	1.20E-03	2.45E+05	4.37E+05	7.51E+04	1.34E+05	1.8
GPC	*	paired Wilcoxon	2.00E-03	3.39E+06	5.68E+06	4.81E+05	2.13E+06	1.7
Myo	*	paired t-test	4.60E-03	1.26E+06	2.19E+06	5.99E+05	5.15E+05	1.7
3HB	*	paired Wilcoxon	2.00E-03	6.34E+05	9.24E+05	7.80E+05	9.48E+05	1.5
Val		paired t-test	1.70E-02	1.21E+06	9.91E+05	2.73E+05	2.98E+05	0.8
Cr		paired t-test	3.70E-02	8.31E+06	6.48E+06	1.92E+06	1.96E+06	0.8
Lac		paired t-test	6.60E-03	1.10E+07	8.76E+06	4.02E+06	3.68E+06	0.8
glut	*	paired t-test	5.90E-04	1.48E+06	1.00E+06	3.74E+05	2.36E+05	0.7
Ala	**	paired t-test	6.40E-06	8.19E+06	4.52E+06	1.51E+06	9.66E+05	0.6
Succ	*	paired t-test	2.70E-03	3.01E+06	1.92E+06	1.49E+06	7.68E+05	0.6
Fum	*	paired Wilcoxon	2.00E-03	3.33E+05	2.11E+05	1.06E+05	8.28E+04	0.6
ADP		paired t-test	6.40E-03	6.52E+05	4.10E+05	2.09E+05	2.25E+05	0.6
Gln	**	paired t-test	1.50E-04	1.81E+06	9.03E+05	2.84E+05	3.47E+05	0.5
Model: 10 case model: OAC vs Barretts tissues in OAC patients								
ML-PLSDA model : ROC=0.85, CVER=0.29, p=0.055								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
Asn		paired Wilcoxon	5.90E-03	1.17E+04	2.66E+04	2.10E+04	1.06E+04	2.3
Hpox		paired t-test	5.30E-03	4.37E+05	8.25E+05	1.34E+05	3.30E+05	1.9
GPC		paired Wilcoxon	9.80E-03	5.68E+06	8.99E+06	2.13E+06	3.28E+06	1.6
glut		paired t-test	2.20E-02	1.00E+06	1.34E+06	2.36E+05	2.56E+05	1.3
Cr		paired t-test	2.00E-02	6.48E+06	4.36E+06	1.96E+06	1.20E+06	0.7
Pro		paired Wilcoxon	3.70E-02	4.35E+05	2.48E+05	2.89E+05	1.06E+05	0.6
Ace		paired Wilcoxon	2.70E-02	7.06E+06	4.50E+06	4.52E+06	2.14E+06	0.6
Model: 10 case model: OAC vs normal tissues in OAC patients								
Metabolite		test	p-value	Mean 1	Mean 2	Std 1	Std 2	Fold change
PCho	*	paired t-test	9.80E-04	3.46E+06	1.80E+07	6.03E+05	9.84E+06	5.2
Hpox	**	paired t-test	4.30E-04	2.45E+05	8.25E+05	7.51E+04	3.30E+05	3.4
GPC	**	paired t-test	1.60E-04	3.39E+06	8.99E+06	4.81E+05	3.28E+06	2.7
ino	*	paired t-test	7.20E-04	1.35E+05	2.79E+05	5.42E+04	9.43E+04	2.1
3HB	*	paired Wilcoxon	2.00E-03	6.34E+05	9.23E+05	7.80E+05	1.01E+06	1.5
Fum		paired Wilcoxon	9.80E-03	3.33E+05	2.26E+05	1.06E+05	5.79E+04	0.7
Pro		paired Wilcoxon	2.00E-02	4.03E+05	2.48E+05	3.03E+05	1.06E+05	0.6
Ala	**	paired t-test	2.70E-04	8.19E+06	4.55E+06	1.51E+06	1.44E+06	0.6
Succ	*	paired t-test	4.90E-03	3.01E+06	1.91E+06	1.49E+06	8.24E+05	0.6

Cr	**	paired t-test	4.20E-04	8.31E+06	4.36E+06	1.92E+06	1.20E+06	0.5
Gln	**	paired t-test	1.60E-05	1.81E+06	8.13E+05	2.84E+05	2.16E+05	0.4
ADP	**	paired t-test	3.50E-04	6.52E+05	2.86E+05	2.09E+05	1.10E+05	0.4
10 case model: OAC vs Barretts vs histologically normal tissues in OAC patients								
o-PLSDA model : 2 LVs, for the normal, Barretts and cancer classes respectively ROC=1.00,0.86,0.91 (OAC), CVER=0.00,0.23,0.13, p=0.021,0.14,0.049								



**Figure S1.** Boxplots to show metabolite levels measured via peak heights in spectra from 9 tissue types, boxes from left to right are for (1) NN; histologically normal tissue from controls; (2) NB; histologically normal tissue proximal to BO in BO patients; (3) NCpr; histologically normal tissue proximal to OAC in OAC patients, pre-chemotherapy; (4) BB; Barrett's tissue from BO patients; (5) BCpr; Barrett's tissue proximal to OAC in OAC patients, pre-chemotherapy; (6) CCpr; OAC tissue in OAC patients, pre-chemotherapy; (7) NCpo; histologically normal tissue proximal to OAC in OAC patients, post-chemotherapy; (8) BCpo; Barrett's tissue proximal to OAC in OAC patients, post-chemotherapy; (9) CCpo; OAC tissue in OAC patients, post-chemotherapy.

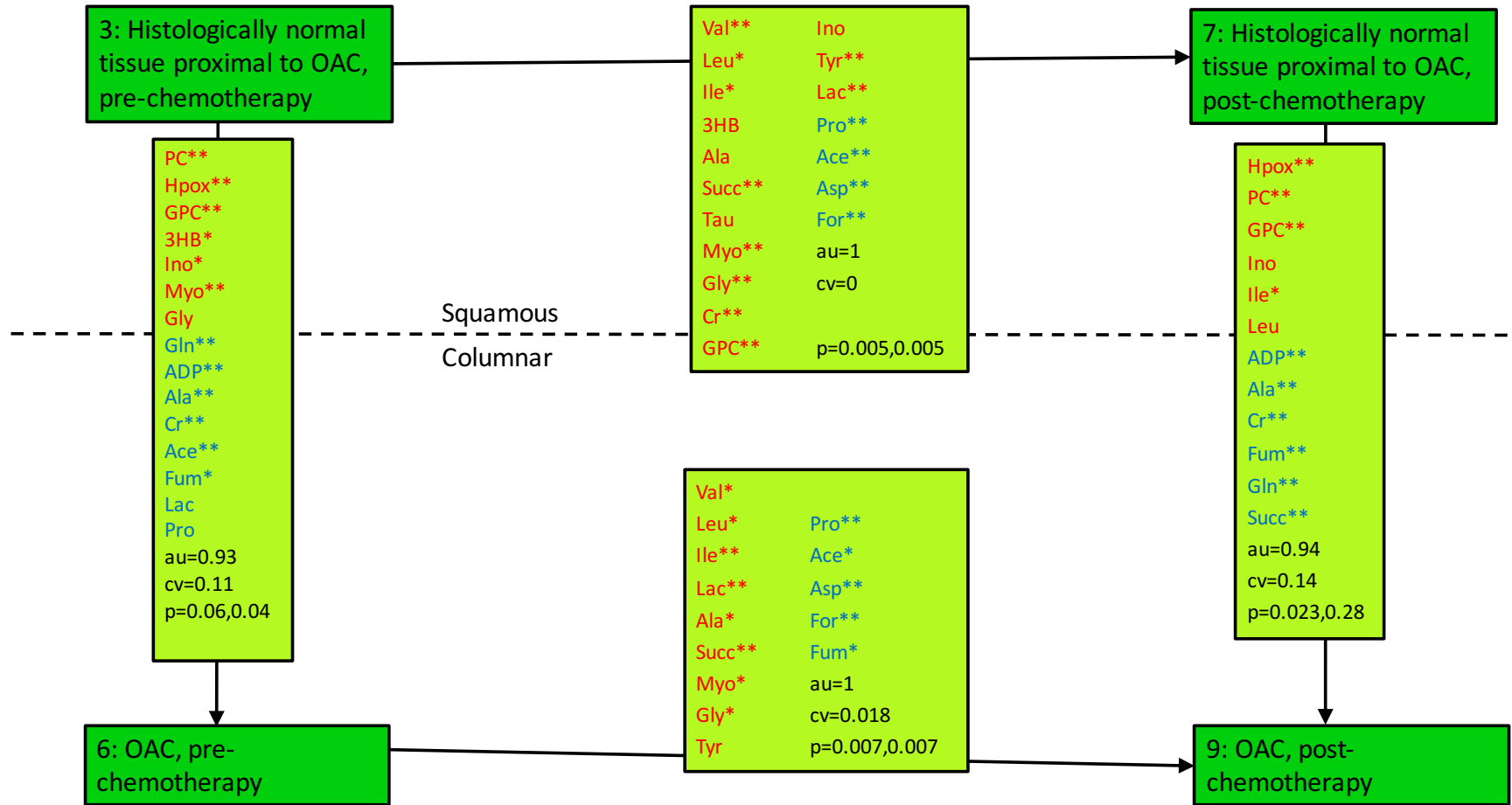
Red line=median (not mean); blue box=interquartile range; whiskers=all data not considered to be outliers; red cross=outliers (outliers is more than 1.5 times the interquartile range away from top or bottom of the box, by default ).



**Figure S2:** Multivariate analysis of the effect of chemotherapy

- Scores plot for PCA model for OAC tissue in OAC patients, pre- and post-chemotherapy
  - Scores plot for PLS-DA model for OAC tissue in OAC patients, pre- and post-chemotherapy
  - Permutation test n=100 for cancer tissue PLS-DA model, pre- and post-chemotherapy
  - Scores plot for PCA model for normal tissue in OAC patients, pre- and post-chemotherapy
  - Scores plot for PLS-DA model for normal tissue in OAC patients, pre- and post-chemotherapy
  - Permutation test n=100 for normal tissue in OAC patients, pre- and post-chemotherapy
- Pre-chemotherapy: blue triangles, post-chemotherapy: red squares

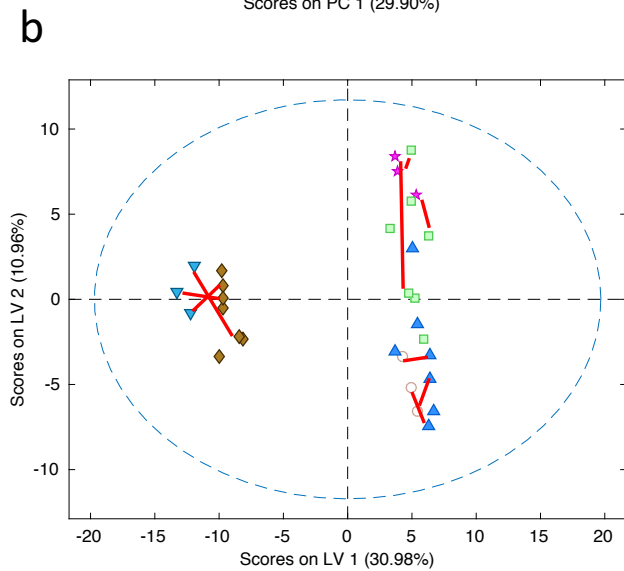
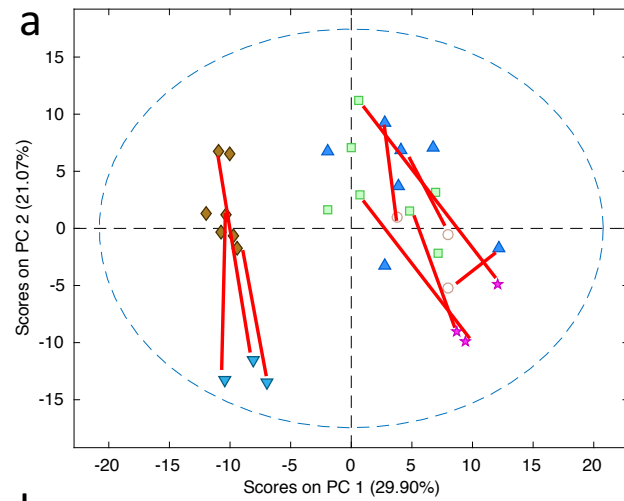




**Figure S3:** Effect of chemotherapy

\* denotes  $p < 0.005$

\*\* denotes  $p < 0.0005$



**Figure S4:**

The Effect of chemotherapy on the PCA and PLS-DA models to separate histologically normal, Barrett's and OAC tissues in OAC patients.

In the PCA model, there was a clear effect of chemotherapy causing an increase in the score in PC2. However, in the PLS-DA model, the only trend observed was that normal tissues, but not other tissue types, separated to some degree in LV1 according to chemotherapy status. The PLS-DA model did not appear to be overly distorted by chemotherapy.

a) Scores plot for PCA model\*

b) Scores plot for PLS-DA model\*

- colour-coding as follow: brown diamonds and dull blue triangles = post- and pre-chemo normal tissue, respectively; green squares and pink stars= post- and pre-chemo Barrett's tissue, respectively; brighter blue triangles and white circles= post- and pre-chemo cancer tissue, respectively.

Red lines link same tissue type in same patient pre- and post-chemo