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Combining Cross-Reactivity of Electrode Array with the Selective Thiol Reporting Process of Redox Indicators: Targeted Sensing of Biothiols

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S. No	Content	Page No
1	Abbreviation	S2
2	Synthesis	S3
2.1	Synthesis of metallophthalocyanine complexes, $CuPc(1)$ and $MnPc(2)$	S 3
2.2	Synthesis of graphene oxide from graphite	S3
2.3	Reduction of graphene oxide to reduced graphene (rGO)	S4
2.4	General procedure for preparation of GO-MPc-PDA (3 and 4) and rGO-MPc-PDA(5 and 6)	S4
3	Figures	S6-S25
4	Tables	S26-S37
5	Stepwise picture for generating LDA	S38-S49
6	Reference	S50

1. Abbreviation

AA	Ascorbic acid
Cys	Cysteine
CuPc	Copper phthalocyanine
DA	Dopamine
DBU	1,8-Diazabicyclo[5.4.0]undec-7-ene
DMF	N,N'-dimethylformamide
DMSO	Dimethylsulfoxide
GSH	Glutathione
Hcys	Homocysteine
MnPc	Manganese phthalocyanine
MPc	Metallophthalocyanine
UA	Uric acid
GO	Graphene oxide
GCE	Glassy carbon electrode
LDA	Linear discriminant analysis
LSV	Linear sweep voltammetry
rGO	Reduced graphene oxide

2. Synthesis

2.1 Synthesis of metallophthalocyanine complexes, CuPc (1) and MnPc (2)

A mixture of anhydrous metal salts (0.35 equ), phthalonitrile (1 equ), DBU (2 equ) in pentanol was stirred at 140-160 °C for 24 h under a nitrogen atmosphere.¹ After the reaction, the mixture was allowed to cool to room temperature, and the solvent was evaporated. The crude mixture was dissolved in chloroform (10 mL) and precipitated using hexane (100 mL). Hexane was decanted, and the precipitate was dissolved in DMF (10 mL) and again re-precipitated by adding methanol (100 mL). The precipitate was washed several times with methanol using centrifugation technique. The purity of the complexes CuPc (1) and MnPc (2) was ascertained by elemental analysis as 94 % and 85% respectively. Anal. Calcd for $C_{32}H_{18}MnN_8$ (MnPc (2)), C, 66.4; H, 3.1; N, 19.4, Found: C, 62.8; H, 2.4; N, 18.4, Anal. Calcd for $C_{32}H_{18}MnN_8$ (MnPc (2)), C, 67.5; H, 3.2; N, 19.7. Found: C 58.6; H, 2.3; N 15.7.

2.2 Synthesis of graphene oxide from graphite

Graphene oxide (GO) was synthesized from graphite powder using Hummer's method.² To the hot (80 °C) concentrated H₂SO₄ solution (12 mL) containing K₂S₂O₈ (4 g) and P₂O₅ (4 g), graphite powder (2 g) was added under continuous stirring. After 6 h, the mixture was allowed to cool to room temperature. Carefully the above mixture was poured into 150 mL of MilliQ water, then filtered and dried overnight at 60 °C. The pre-oxidized graphite powder (1 g) was added to cold H₂SO₄ (46 mL) at 0 °C, and then KMnO₄ (6 g) was gradually added under continuous stirring in ice-bath. After 15 min, NaNO₃ (1 g) was slowly introduced into the above reaction mixture. The mixture was stirred at room temperature for 2 h, and it was diluted with MilliQ-water (100 mL). The reaction was quenched by adding MilliQ water (280 mL) and 30 % H₂O₂ (5 mL). The crude resultant was centrifuged, and the supernatant was discarded. The resultant colloidal material was

suspended in HCl (1 M), centrifuged and the supernatant was discarded. Finally, the material was washed with water several times using centrifugation technique.

2.3 Reduction of graphene oxide to reduced graphene oxide (rGO)

Obtained GO (20 mg) was suspended in distilled water (200 mL). To the suspension, NaBH₄ (2.28 g) and CaCl₂ (1.78 g) were added. The reaction mixture was allowed to stir at room temperature for 12 h to obtain reduced graphene oxide (rGO). Then, the rGO was filtered and washed with distilled water for several times to remove the unreacted NaBH₄ and CaCl₂.³

2.4 General procedure for preparation of GO-MPc-PDA (3 and 4) and rGO-MPc- PDA (5 and 6)

The general procedure for the synthesis of graphene-metallophthalocyanine-PDA materials (**3-6**) is presented in the scheme **1.** Typically 10 mg of carbon nanomaterials (GO or rGO) was suspended in 50 mL of water and DMSO (1:1 volume ratio) and sonicated for 30 min to disperse the material. To the dispersion, metallophthalocyanine **1**/or **2** (5 mg) was added and sonicated for another 15 min. Then, dopamine (5 mg) was added to the suspension and further sonicated for 3 h.⁴ The suspension was washed with water followed by methanol using centrifugation method. The elemental composition of the materials was quantified using Energy Dispersive X-ray Spectroscopy (EDAX). The data are provided as follows.

GO-CuPc-PDA **3** (C-52.82 %, O-33.74 %, N-10.57%, Cu-2.87), GO-MnPc-PDA **4** (C-54.43 %, O-29.23 %, N-11.29 %, Mn-5.06 %), rGO-CuPc-PDA **5** (C-42.49 %, O-11.01 %, N-12.35 %, Ca-2.4 %, Cu-9.03 %), rGO-MnPc-PDA **6** (C-47.44 %, O-12.50, N-18.11 %, Ca-7.72, Mn-9.75 %)

3. Scanning electron microscopy (SEM)

Materials (3-6) were dispersed individually in the methanol (1 mg/1 mL) in a separate Eppendorf tube and sonicated for 30 min. The dispersion (20 μ L) was drop casted over the separate SEM grid containing carbon tape and allowed it to dry at room temperature. The prepared grids were subjected to the SEM analysis. The presence of polydopamine (PDA) in materials **3-6** was evident from SEM image (Figure S4). The PDA covered the graphene sheets by forming a thin uniform layer, SEM images showing the crinkled morphology of graphene sheets, and in agreement with findings of earlier reports on similar materials.^{4,5}

4. Figures



Figure S1. UV-visible spectra for the pretreated plasma (100 μ L) sample spiked in the phosphate buffer (1900 μ L). Concentration of the proteins = absorbance at 280 nm divided by path length⁶ (1 cm).

Eager 300 Report

Page: 1 Sample: HBS-RS-SK-S1 (HBS-RS-SK-S1)

Method Name	:	PGAPP28092017			
Method File	:	D:\CHNS-2017\PGAPP28092	2017.mth		
Chromatogram	:	HBS-RS-SK-S1			
Operator ID	:	Prakash	Company Name	:	C.E. Instruments
Analysed	:	09/28/2017 16:51	Printed	:	10/9/2017 10:36
Sample ID	:	HBS-RS-SK-S1 (# 33)	Instrument N.	:	Instrument #1
Analysis Type	:	UnkNown (Area)	Sample weight	:	.876

Calib. method : using 'K Factors'

!!! Warning missing one or more peaks.

Element Name	8	Ret.Time	Area	BC	Area ratio	K factor
1	0.0000	6	2767	RS		0.0000
Nitrogen	18.3763	43	174608	RS	8.327803	.108468E+07
Carbon	62.7508	67	1454101	RS	1.000000	.263711E+07
Hydrogen	2.3929	190	138112	RS	10.528420	.658869E+07
Totals	83.5200		1769588			

Figure S2. Elemental analysis (CHN) report for CuPc (1).

```
Eager 300 Report
Page: 1 Sample: HBS-RS-Mn-PC-2 (HBS-RS-Mn-PC-2)
Method Name : RM-TP-031117
Method File : D:\CHNS-2017\RM-TP-031117.mth
Chromatogram : HBS-RS-Mn-PC-2
Operator ID: T.PRAPAKARANCompany Name : C.E. InstrumentsAnalysed: 11/03/2017 17:09Printed: 11/3/2017 19:19Sample ID: HBS-RS-Mn-PC-2 (# 19)Instrument N. : Instrument #1
Analysis Type : UnkNown (Area)
                                                        Sample weight : .736
Calib. method : using 'K Factors'
!!! Warning missing one or more peaks.
                           % Ret.Time Area BC Area ratio K factor
 Element Name

        0.0000
        6
        16882 RS
        0.0000

        15.7039
        43
        124323 RS
        9.234244
        .107564E+07

        58.5757
        66
        1148029 RS
        1.000000
        .265620E+07

        2.2896
        193
        117780 RS
        9.747232
        .698943E+07

        76.5692
        1407014
        1407014
        1407014

     1
Nitrogen
Carbon
Hydrogen
                                76.5692
                                                              1407014
Totals
```

Figure S3. Elemental analysis (CHN) report for MnPc (1).



Ν	7	K-series	28.54	28.54	26.84	4.34	0.254	1.124	1.000	1.000
0	8	K-series	5.91	5.91	4.86	1.10	0.043	1.372	1.000	1.000
Cu	29	K-series	4.04	4.04	0.84	0.21	0.012	2.861	1.000	1.181
		Total:	100.00	100.00	100.00	 				

Figure S4. EDX analysis report for GO-CuPc-PDA (3).

С 6



Figure S5. EDX analysis report for GO-MnPc-PDA (4).



Spectrum: Acquisition 6926

El	AN	Series	unn. C	norm. C	Atom. C	Error	(1 Sigma)	K fact.	Z corr.	A corr.	F corr.
			[wt.%]	[wt.%]	[at.%]		[wt.%]				
С	6	K-series	67.80	70.40	83.12		7.77	1.099	0.640	1.000	1.000
0	8	K-series	14.47	15.02	13.31		2.11	0.135	1.114	1.000	1.000
Cu	29	K-series	11.70	12.15	2.71		0.46	0.046	2.447	1.000	1.087
Ca	20	K-series	2.34	2.43	0.86		0.10	0.006	3.850	1.000	1.038
		Total:	96.31	100.00	100.00						

Figure S6. EDX analysis report for rGO-CuPc-PDA (5).



Figure S7. EDX analysis report for rGO-MnPc-PDA (6).



Figure S8. Raman spectra of, a) materials 1, 3, and 5, and b) materials 2, 4, and 6.



Figure S9. SEM images: a) GO-CuPc-PDA (3), b) rGO-CuPc-PDA (5), c) GO-MnPc-PDA (4), and d) rGO-MnPc-PDA (6).



Figure S10. Linear sweep voltammogram of CuPc coated electrode (1') towards GSH show the electrode fouling behavior of electrode 1' at the concentration GSH 200 μ M.



Figure S11. Current response of the modified electrodes 1'-6' towards Cys, GSH and Hcys (50 µM).



Figure S12. Linear sweep voltammogram of rGO-MnPc-PDA coated electrode (**3'**) towards Cys at various concentration (0, 5 μ M, 10 μ M, 50 μ M, 100 μ M, 200 μ M, 500 μ M and 1 mM).



Figure S13. a) LDA score plot was generated using the difference in current data obtained using the CuPc (1'), GO-CuPc-PDA (3') and rGO-CuPc-PDA (5'). b) LDA score plot was generated using the difference in current data obtained using the MnPc (2'), GO-MnPc-PDA (4') and rGO-MnPc-PDA (6'). c) LDA score plot was generated using the difference in current data obtained using the GO-CuPc-PDA (3') and GO-MnPc-PDA (4'), rGO-CuPc-PDA (5') and rGO-MnPc-PDA (6'). d) LDA score plot was generated using the difference in current data obtained using the difference in current data obtained using the difference in current data obtained using the GO-CuPc-PDA (3') and GO-MnPc-PDA (4'), rGO-CuPc-PDA (5') and rGO-MnPc-PDA (6'). d) LDA score plot was generated using the difference in current data obtained using all the array electrodes (see also figure 6b). Note: Thiol concentrations 5, 50, and 100 refers thiol concentrations, the current responses were collected at 0.45 V.



Figure S14. Linear sweep voltammograms a-f show the response of respective electrode 1'-6' towards the thiols spiked in the diluted goat plasma; Conditions: [RSH]-50 μ M, scan rate- 20mV/s.



Figure S15. LDA score plot showing the poor discriminatory ability of electrode array (1'-6') towards thiols spiked in diluted plasma sample that doesn't contain added redox indicator (AA, DA, and UA).



Figure S16. a) LDA score plot was generated using the difference in current data obtained using the CuPc (1'), GO-CuPc-PDA (3') and rGO-CuPc-PDA (5'). b) LDA score plot was generated using the difference in current data obtained using the MnPc (2'), GO-MnPc-PDA (4') and rGO-MnPc-PDA (6'). c) LDA score plot was generated using the difference in current data obtained using the GO-CuPc-PDA (3') and GO-MnPc-PDA (4'), rGO-CuPc-PDA (5') and rGO-MnPc-PDA (6'). d) LDA score plot was generated using the difference in current data obtained using the difference in current data obtained using the GO-CuPc-PDA (3') and GO-MnPc-PDA (4'), rGO-CuPc-PDA (5') and rGO-MnPc-PDA (6'). d) LDA score plot was generated using the difference in current data obtained using all the array electrodes (see also figure 10). Note: Thiol concentrations 5, 50, and 100 refers thiol concentrations, the current responses were collected at 0.38, 0.48 and 0.58 V.



Figure S17. Predicted *vs* experimental concentration plots generated using PLS-R model for a) Cys, b) GSH, and c) Hcys. Calibration samples (Black dots) and its regression line (Black line), validation samples (Red dots) and its regression line (Red line).



Figure S18. a) LSV of electrode **1'** in plasma spiked PBS contains AA (line red) and without AA (black line), and AA modified electrode **1'** in plasma spiked PBS (line blue), b) LSV of electrode **1'** in plasma spiked PBS contains UA (line red) and without UA (black line), and UA modified electrode **1'** in plasma spiked PBS (line blue), c) LSV of electrode **1'** in plasma spiked PBS contains DA (line red) and without DA (black line), and DA modified electrode **1'** in plasma spiked PBS (line blue).



Figure S19. a) LSV of electrode **2'** in plasma spiked PBS contains AA (line red) and without AA (black line), and AA modified electrode **2'** in plasma spiked PBS (line blue), b) LSV of electrode **2'** in plasma spiked PBS contains UA (line red) and without UA (black line), and UA modified electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS contains DA (line red) and without DA (black line), and DA modified electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue), c) LSV of electrode **2'** in plasma spiked PBS (line blue) (line red) and without DA (black line), and DA modified electrode **2'** in plasma spiked PBS (line blue)



Figure S20. a) LSV of electrode **4'** in plasma spiked PBS contains AA (line red) and without AA (black line), and AA modified electrode **4'** in plasma spiked PBS (line blue), b) LSV of electrode **4'** in plasma spiked PBS contains UA (line red) and without UA (black line), and UA modified electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS contains DA (line red) and without DA (black line), and DA modified electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue), c) LSV of electrode **4'** in plasma spiked PBS (line blue) (line red) and without DA (black line), and DA modified electrode **4'** in plasma spiked PBS (line blue)



Figure S21. a) LSV of electrode **5'** in plasma spiked PBS contains AA (line red) and without AA (black line), and AA modified electrode **5'** in plasma spiked PBS (line blue), b) LSV of electrode **5'** in plasma spiked PBS contains UA (line red) and without UA (black line), and UA modified electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS contains DA (line red) and without DA (black line), and DA modified electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue), c) LSV of electrode **5'** in plasma spiked PBS (line blue) (line red) and without DA (black line), and DA modified electrode **5'** in plasma spiked PBS (line blue)



Figure S22. a) LSV of electrode **6'** in plasma spiked PBS contains AA (line red) and without AA (black line), and AA modified electrode **6'** in plasma spiked PBS (line blue), b) LSV of electrode **6'** in plasma spiked PBS contains UA (line red) and without UA (black line), and UA modified electrode **6'** in plasma spiked PBS (line blue), c) LSV of electrode **6'** in plasma spiked PBS contains DA (line red) and without DA (black line), and DA modified electrode **6'** in plasma spiked PBS (line blue).



Figure S23. Shows the plot of AA oxidation current as a function of square root of scan rate for the electrodes a) **1'**, b) **3'** and c) **5'**.



Figure S24. Shows the plot of DA oxidation current as a function of square root of scan rate for the electrodes a) **1'**, b) **2'**, c) **3'**, d) **4'**, e) **5'**, f) **6'**



Figure S25. Shows the plot of DA oxidation current as a function of square root of scan rate for the electrodes a) 1', b) 2', c) 3', d) 4', e) 5', f) 6'

4. Tables

Electr odes		CuPc			MnPc		GO-	CuPc-F	PDA	rGO	-CuPc-]	PDA	GO-	MnPc-I	PDA	rGO-	MnPc-	PDA
Repilc	380	480	580	380	480	580	380	480	580	380	480	580	380	480	580	380	480	580
ates	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV
	6.12	6.53	4.61	4.36	8.37	9.6	6.3	7.5	8.7	1.0	1.1	9.0	9.7	1.0	1.7	1.2	1.4	1.1
Plasm	E-	E-	E-	E-	E-	1E-	6E-	7E-	3E-	1E-	3E-	1E-	1E-	7E-	2E-	2E-	8E-	6E-
a-1	07	07	07	07	07	07	07	07	07	06	06	07	07	06	06	06	06	06
	8.12	7.85	5.95	3.9	7.52	1.0	9.8	1.1	1.1	1.4	1.3	1.1	1.3	1.4	1.9	1.7	1.9	1.5
Plasm	E-	E-	E-	E-	E-	2E-	3E-	8E-	8E-	E-	8E-	3E-	5E-	1E-	1E-	2E-	9E-	4E-
a-1	07	07	07	07	07	06	07	06	06	06	06	06	06	06	06	06	06	06
51	9.04	7.99	6.34	4.5	8.38	1.0	1.0	1.2	1.2	1.4	1.3	1.1	1.5	1.6	2.1	1.8	2.0	1.5
Plasm	E-	E-	E-	E-	E-	8E-	3E-	5E-	E-	6E-	6E-	2E-	1E-	2E-	9E-	E-	9E-	8E-
a-1	07	07	07	07	07	06	06	06	06	06	06	06	06	06	06	06	06	06
Diagona	9.24 E	7.94 E	6.46 E	3.97	7.56	9.7	9.6 9E	1.2 E		1.4	1.3	1.1 5E	1.3	1.4 9E	1.9	1.8	2.1	1.6 2E
	E- 07	E- 07	E- 07	E- 07	E- 07	0E- 07	0E-	E- 06	06-	3E- 06	0E-	3E- 06	/E- 06	0E- 06	3E- 06	0E-	/E- 06	3E- 06
a-1	0/	7.4	5.02	4.06	7.84	1.0	07	1.2	1.2	1.4	1.4	1.2	1.3	1.5	00	1.8	2 2	1.6
Plasm	9.41 F-	7.4 E-	5.02 E-	4.00 F-	7.84 E-	2E-	9.9 9E-	0E-	1.2 6E-	1.4 4E-	3E-	1.2 4E-	1.3 4E-	1.5 E-	2E-	1.0 8E-	2.2 1E-	1.0 5E-
a-1	07	07	07	07	07	2L- 06	07	06	06	-1L- 06	06	06	-06	06	2L- 06	06	06	06
uı	1 36	1 44	1 74	6 65	1.03	12	13	1.6	17	2.2	21	20	1.6	17	2.2	32	3 5	3.6
Plasm	E-	E-	E-	E-	E-	9E-	2E-	8E-	4E-	5E-	3E-	6E-	1E-	7E-	5E-	5E-	1E-	1E-
a-1	06	06	06	07	06	06	06	06	06	06	06	06	06	06	06	06	06	06
	8.57	6.92	5.08		7.98	1.0	9.5	1.2	1.2	1.5	1.4	1.2	1.3	1.5	2.1	1.8	1.7	1.3
Plasm	E-	E-	E-	4E-	E-	2E-	2E-	8E-	2E-	6E-	5E-	9E-	8E-	9E-	6E-	E-	9E-	E-
a-1	07	07	07	07	07	06	07	06	06	06	06	06	06	06	06	06	06	06
									-		-	-			-		-	-
	3.91	3.02	2.61	9.64	1.9	1.9	4.8	3.9	1.5	2.0	6.4	3.6	3.1		1.8	1.5	5.2	4.9
Cys-	E-	E-	E-	E-	E-	9E-	6E-	6E-	E-	4E-	E-	E-	E-	1E-	E-	6E-	E-	E-
50	07	07	07	08	07	07	07	07	08	07	08	08	07	07	07	07	08	07
	2 70	a a z	1.00	0.01	2.26	•	0.0	6.0	2.0		2.0		•	1.6	0.0		1.5	-
Court	3./8 E	2.87	1.99 E	2.31	3.26 E	2.9 (E	8.2	6.8 E	3.0 1E	2.6 7E	3.0	3.3 0E	2.9	1.6	9.0 0E	2.2 4E	1.5	5.8 E
Cys-	E- 07	E- 07	E- 07	E- 07	E- 07	0E- 07	3E- 07	E- 07	16-	/E- 07	0E- 10	9E-	3E- 07	9E- 07	9E- 08	4E- 07	9E- 08	E- 07
50	07	07	07	07	07	07	07	07	07	07	10	08	07	07	08	07	08	07
	3 73	3 16	3.01	1.08	1 91	17	48	39	15	21	49	11	21	13	1.0	3.0	11	58
Cvs-	E-	E-	E-	E-	E-	9E-	6E-	6E-	E-	7E-	E-	E-	5E-	3E-	2E-	8E-	1E-	E-
50	07	07	07	07	07	07	07	07	08	07	08	08	07	07	07	07	07	07
									-									
	3.66	2.98	2.74	8.76	1.83	1.6	4.7	4.1	4.5	3.4	-	2.9	2.3	1.3	3.4	3.2	1.2	-
Cys-	E-	E-	E-	E-	E-	5E-	6E-	7E-	E-	E-	1E-	3E-	5E-	4E-	2E-	8E-	1E-	6E-
50	07	07	07	08	07	07	07	07	08	07	08	08	07	07	08	07	07	07
											-	-			-			-
-	3.29	2.89	2.41	5.43	1.14	8.5	4.5	4.1	-	1.1	1.3	7.1	2.8	1.3	4.8	3.2	7.0	6.9
Cys-	E-	E-	E-	E-	E-	4E-	4E-	9E-	3E-	5E-	E-	E-	4E-	9E-	E-	3E-	8E-	E-
50	07	07	07	08	07	08	07	07	08	07	07	08	07	07	08	07	08	07
G	1.64	1.75	2.04	5.17	8.25	9.9	1.5	1.7	1.9	3.1	2.7	2.5	1.7	1.6	2.1	2.2	2.4	2.6
Cys-	E-	E-	E-	E-	E-	SE-	3E-	9E-	9E-	/E-	IE-	6E-	2E-	6E-	9E-	3E-	9E-	3E-
30	06	06	06	0/	0/	0/	06	06	06	00	06	06	06	00	00	00	00	00
	2 72	287	3 75	5 25	1 / 2	16	5 2	5 2	1.0	10	62	61	3.0	17	3 2	3.1	3 2	
Cvs-	2.75 F-	∠.07 F-	5.25 F-	5.25 F-	F-	1.0 8F-	5.2 6F-	5.5 5F-	8F-	1.9 7F-	0.2 F-	0.1 F-	3E-	1./ 9F-	5.2 F-	3E-	5.5 1F-	- 5F-
50	07	07	07	08	07	07	07	07	07	07	08	10	07	07	08	07	07	07

Table S1. Raw data used for generating LDA score plot shown in figure 10.

GSH-	3.57 E-	3.34 E-	3.4 E-	4.91 E-	1.19 E-	2.5 6E-	5.8 4E-	7.0 6E-	5.1 5E-	1.2 5E-	6.3 5E-	5.1 5E-	7.8 8E-	6.2 1E-	3.5 8E-	8.3 8E-	3.8 1E-	2.2 1E-
50	4.39	4.48	4.48	7.6	1.66	3.1	4.5	6.5	4.2	7.4	1.9	1.7	7.4	6.5	3.7	8.0	2.8	9.6
GSH- 50	E- 07	E- 07	E- 07	E- 08	E- 07	2E- 07	2E- 07	7E- 07	4E- 07	1E- 07	4E- 07	3E- 07	4E- 07	6E- 07	7E- 07	2E- 07	9E- 07	4E- 08
COLL	3.75	4.04	4.27	5.34	1.21	2.5	3.2	5.9	2.8	6.5	9.2	8.4	6.8	6.4	3.2	8.5	4.4	1.9
GSH- 50	E- 07	E- 07	E- 07	E- 08	E- 07	5E- 07	E- 07	6E- 07	9E- 07	6E- 07	2E- 08	8E- 08	6E- 07	5E- 07	9E- 07	3E- 07	E- 07	6E- 07
	3.01	3.5	4.00		1 1 5	26	23		20	6.4	15	- 0.5	71	7.0	28	7.0	15	1 8
GSH-	E-	E-	4.09 E-	5E-	E-	2.0 3E-	2.5 E-	6E-	4E-	5E-	2E-	9.5 Е-	3E-	3E-	2.8 6E-	4E-	4.5 5E-	3E-
50	07	07	07	08	07	07	07	07	07	07	09	09	07	07	07	07	07	07
	3.88	4.01	4.29	5.71	1.41	3.1	3.3	7.1	4.1	5.7	9.1	7.4	6.6	7.0	4.9	8.1	4.6	1.7
GSH- 50	E- 07	E- 07	E- 07	E- 08	E- 07	1E- 07	5E- 07	1E- 07	4E- 07	7E- 07	E- 08	E- 08	5E- 07	6E- 07	7E- 07	5E- 07	2E- 07	1E- 07
COLL	1.74	1.79	2.06	4.7 E	8.15 E	1.2	1.4	1.9	1.9 7E	3.5	3.1	2.8	2.0	2.1	2.6	2.7	2.8	2.9
50	D6	D6	D6	07	С- 07	2E- 06	8E- 06	/E- 06	/E- 06	4E- 06	06	/E- 06	4E- 06	9E- 06	/E- 06	4E- 06	/E- 06	/E- 06
GSH-	3.23 E-	3.32 E-	3.36 E-	4.64 E-	9.4 E-	2.1 3E-	3.3 2E-	8.5 3E-	4.9 5E-	9.3 5E-	1.4 85-	1.2 1E-	6.3 5E-	7.3 3E-	3.8 8E-	7.1 8E-	3.3 7E-	5.6 8E-
50	07	07	07	08	08	07	07	07	07	07	07	07	07	07	07	07	07	08
	7.5	5.29	5.57	3.31	3.16	2.6	4.9	3.1	1.9	8.2	4.8	4.6	3.3	2.4	1.2	2.8	5.8	- 1.4
Hcys-	E-	E-	E-	E-	E-	1E-	3E-	6E-	4E-	7E-	6E-	3E-	8E-	E-	6E-	4E-	9E-	E-
50	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	08	- 07
Harra	9.31	6.7	7.54 E	4.01	3.73	2.3	4.8 2E	3.2 2E	1.8	112	6.2	6.5	3.0 2E	2.9	1.6 E	4.2	1.6	9.6 E
50	E- 07	E- 07	E- 07	E- 07	E- 07	3E- 07	3E- 07	3E- 07	4E- 07	1E- 06	9E- 07	0E- 07	2E- 07	/E- 07	E- 07	8E- 07	1E- 07	E- 08
Heve	7.25 E-	5.31 E-	6.11 F-	4.14 E-	4.04 E-	2.6 1E-	7.1 8E-	4.7 85-	3.2 E-	8.9 1E-	5.1 85-	5.7 3E-	2.7 6E-	3.5 6E-	1.7 5E-	3.6 7E-	1.1 F-	- 2E-
50	07	07	07	07	07	07	07	07	07	07	07	07	07	01-	07	07	07	07
	8.04	5.98	6.56	4.08	4.17	2.6	3.8	2.8	1.6	9.0	4.8	5.4	1.6	3.6	2.9	2.5	3.6	- 3.4
Hcys-	E-	E-	E-	E-	E-	4E-	9E-	E-	1E-	8E-	2E-	4E-	3E-	9E-	5E-	5E-	6E-	E-
50	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	09	- 07
Heve	8.45 E-	6.11 F-	6.88 E-	4.1 E-	4.35 E-	2.6 2E-	3.2 3E-	2.4 5E-	1.4 85-	8.5 E-	3.6 7E-	4.2	3.0 2E-	2.9 7E-	1.6 E-	4.0	2.4 E-	1.3 E-
50	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
Heys-	1.71 E-	1.58 E-	1.93 E-	7.14 E-	9.66 E-	1.3 4E-	2.1 4E-	2.0 8E-	1.9 5E-	3.4 9E-	2.9 2E-	2.8 5E-	1.4 6E-	1.6 7E-	1.8 4E-	2.3 E-	2.4 1E-	2.6 2E-
50	06	06	06	07	07	06	06	06	06	06	06	06	06	06	06	06	06	06
	8.58	6.11	7.49	3.53		2.0		7.8	4.9	5.8	2.1	3.5	-	3.3	1.5	4.0	1.1	- 3.4
Hcys-	E-	E-	E-	E-	4E-	7E-	1E-	9E-	3E-	6E-	7E-	7E-	5E-	9E-	3E-	5E-	3E-	E-
50	- 07	- 07	- 07	07	07	07	06	07	07	07	07	07	08	07	07	07	07	07
	2.1 E-	2.1 E-	1.6 E-	1.97 E-	1.85 E-	2.7 9E-	2.6 2E-	5.1 8E-	7.2 3E-	2.4 8E-	4.0	1.7 5E-	4.2 7E-	4.1 E-	3.7 3E-	7.7 4E-	5.7 E-	3.7 5E-
Cys 5	08	07	07	07	07	9E- 07	2E- 07	07	07	07	07	07	07	07	07	4E- 07	07	07
	-	- 2.3	-	2.11	1.57	2.6	2.3	4.4	5.5	4.9	5.9	2.5	1.4	1.7	1.5	7.4	5.5	2.9
	E-	E-	E-	E-	E-	7E-	4E-	E-	8E-	E-	E-	8E-	1E-	E-	4E-	6E-	8E-	9E-
Cys 5	- 08	07	- 07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
	4.3	3.2 E	2.4	2.3	1.7	3.2	2.8	5.0	6.1	2.7	2.9	8.5 E	2.3	3.2	2.9	1.1	7.7	5.1
Cys 5	08	07	07	07	с- 07	0E- 07	/E- 07	07	4E- 07	с- 07	07	08	с- 07	9E- 07	9E- 07	2E- 06	4E- 07	07

Cys 5	- 2.6 E- 08	2E- 07	- 9.2 E- 08	1.53 E- 07	1.62 E- 08	1.4 8E- 07	2.3 7E- 07	4.6 2E- 07	5.7 1E- 07	3.3 3E- 07	1.8 3E- 07	- 1.8 E- 07	2.1 8E- 07	1.5 6E- 07	1.8 1E- 07	7.5 5E- 07	4.7 2E- 07	1.8 E- 07
Cys 5	- 2.2 E- 08	- 8.1 E- 08	5.8 E- 08	1.93 E- 07	6.01 E- 08	2.2 1E- 07	1.7 9E- 07	3.3 2E- 07	3.5 1E- 07	3.4 3E- 07	1.4 8E- 07	2.3 E- 07	2.3 2E- 07	2.0 8E- 07	2.8 E- 07	9.2 6E- 07	5.3 9E- 07	1.9 5E- 07
Cys 5	5.5 E- 08	- 2E- 07	- 5E- 08	1.71 E- 07	3.27 E- 08	1.7 5E- 07	2.3 4E- 07	4.4 E- 07	5.5 8E- 07	2.6 3E- 07	4.7 E- 08	3.3 E- 07	2.8 6E- 07	2.2 8E- 07	3.4 9E- 07	7.5 2E- 07	4.1 4E- 07	8.5 4E- 08
Cys 5	9.2 E- 08	2.9 E- 07	1.2 E- 07	1.49 E- 07	2.44 E- 08	2.1 2E- 07	1.1 5E- 07	2.7 8E- 07	3.0 8E- 07	2.9 4E- 07	1.2 8E- 08	- 4E- 07	2.4 4E- 07	2.6 8E- 07	4.4 8E- 07	9.1 4E- 07	4.9 E- 07	1.0 1E- 07
GSH 5	7.9 E- 08	3.3 E- 08	- 9.4 E- 08	1.87 E- 07	2.67 E- 07	3.6 9E- 07	2.3 5E- 07	4.6 1E- 07	3.9 3E- 07	9.0 7E- 07	7.0 8E- 07	5.8 E- 07	3.9 7E- 07	1.7 8E- 07	1.5 6E- 07	4.2 8E- 07	2.6 E- 07	1.8 1E- 07
GSH 5	2.28 E- 07	1.32 E- 07	1.08 E- 07	2.26 E- 07	3.4 E- 07	5.2 2E- 07	2.1 2E- 07	4.3 8E- 07	4.0 4E- 07	7.9 1E- 07	6.5 2E- 07	5.3 4E- 07	4.1 8E- 07	1.6 8E- 07	1.5 2E- 07	6.7 7E- 07	4.1 6E- 07	3.0 5E- 07
GSH 5	1.94 E- 07	9.64 E- 08	8.18 E- 08	1.69 E- 07	2.48 E- 07	3.4 5E- 07	1.6 2E- 07	4.1 1E- 07	3.9 8E- 07	7.0 3E- 07	5.6 4E- 07	4.7 4E- 07	4.4 3E- 07	1.7 E- 07	1.6 3E- 07	6.6 1E- 07	3.6 4E- 07	2.3 2E- 07
GSH 5	2.38 E- 07	1.53 E- 07	1.73 E- 07	1.79 E- 07	2.56 E- 07	2.8 E- 07	1.3 1E- 07	3.8 9E- 07	3.7 9E- 07	7.6 3E- 07	5.9 4E- 07	5.0 4E- 07	4.0 4E- 07	1.3 2E- 07	1.3 2E- 07	8.1 8E- 07	4.6 1E- 07	3.1 3E- 07
GSH 5	1.45 E- 07	1.04 E- 07	1.89 E- 07	1.56 E- 07	2.37 E- 07	3.0 4E- 07	1.1 E- 07	3.6 8E- 07	3.6 5E- 07	6.4 2E- 07	5.2 4E- 07	4.5 E- 07	2.5 5E- 07	5.0 7E- 08	I.I E- 07	8.3 1E- 07	4.4 1E- 07	2.7 8E- 07
GSH 5	8.55 E- 08	5.25 E- 08	1.47 E- 07	1.51 E- 07	2.29 E- 07	2.4 4E- 07	6.5 9E- 08	3.1 4E- 07	2.9 E- 07	7.7 8E- 07	5.8 E- 07	4.9 2E- 07	3.0 4E- 07	6.3 8E- 08	1.1 5E- 07	8.8 5E- 07	4.8 3E- 07	3.0 8E- 07
GSH 5	3.6 E- 08	5.58 E- 08	2.36 E- 07	1.61 E- 07	2.58 E- 07	3.2 3E- 07	3.9 E- 08	1.1 4E- 07	1.3 E- 07	7.6 4E- 07	5.1 9E- 07	4.3 9E- 07	3.4 1E- 07	1.5 8E- 07	2.9 3E- 07	9.7 7E- 07	5.1 E- 07	3.1 6E- 07
Hcys 5	1.9 E- 07	2.01 E- 07	2.05 E- 07	2.78 E- 08	4.09 E- 08	9.1 9E- 08	1.3 5E- 07	2.2 8E- 07	1.6 9E- 07	6.7 7E- 07	5.4 8E- 07	4.5 2E- 07	5.2 1E- 07	3.7 9E- 07	4E- 07	6.0 2E- 07	3.5 4E- 07	3.1 6E- 07
Hcys 5	3.55 E- 07	3.14 E- 07	2.53 E- 07	1.19 E- 07	1.83 E- 07	2.8 4E- 07	1.2 4E- 07	2.3 8E- 07	1.8 3E- 07	9.8 3E- 07	7.4 3E- 07	6.1 2E- 07	5.4 7E- 07	4.1 E- 07	4.7 1E- 07	E- 07	4.5 3E- 07	4.1 6E- 07
Hcys 5	E- 07	2.01 E- 07	2.03 E- 07	0.90 E- 08	E- 07	2.2 7E- 07	1.0 5E- 07	2.4 1E- 07	1.9 1E- 07	1.0 1E- 06	7.0 4E- 07	0.5 9E- 07	4.9 2E- 07	3.4 7E- 07	5.8 6E- 07	0.2 5E- 07	4.0 2E- 07	2E- 07
Hcys 5	E- 07	E- 07	E- 07	E- 07 8.82	E- 07	5E- 07	5E- 07	6E- 07	2.5 3E- 07	7E- 06	E- 07	9E- 07	2E- 07 4.6	6E- 07	9E- 07	4.8 2E- 07	4E- 07	2.6 1E- 07
Hcys 5	E- 07	E- 07 8 18	E- 07	E- 08 9.52	E- 07	8E- 07	E- 07	7E- 07	8E- 07	8E- 06	5E- 07	E- 07	9E- 07 4 0	7E- 07	8E- 07	3E- 07	E- 07	1E- 07
Hcys 5	E- 08 4 91	E- 08	E- 08	E- 08	E- 07 9.03	3E- 07	3E- 07	1E- 07	2.3 5E- 07	9E- 06	4E- 07 85	8E- 07	2E- 07	6E- 07	7E- 07	6E- 07	6E- 07	3E- 07
Hcys 5 Cys	E- 08 2.93	E- 08 5.86	E- 08 1.5	4E- 08 5.77	E- 08 3.05	3E- 07 4.5	1E- 07 6.6	9E- 07 9.2	3E- 07 7.9	5E- 06 8.5	4E- 07 6.5	E- 07 7.4	2E- 07 5.0	6E- 07 5.7	5E- 07 2.4	3E- 07 9.9	8E- 07 9.6	8E- 07 5.7

100	E- 07	E- 08	E- 07	E- 07	E- 07	2E- 07	5E- 07	4E- 07	5E- 07	8E- 07	2E- 07	7E- 07	4E- 07	8E- 07	1E- 07	2E- 07	4E- 07	7E- 07
	2.04	- 7 2	1.07	5 1	2 42	4.2	7.2	1.0	07	1.2	0.2	1 1	5.0	7.4	2.6	1.0	1 1	8.0
Cys	2.94 E-	7.2 E-	1.07 E-	5.1 E-	2.43 E-	4.2 E-	7.3 7E-	1.0 5E-	8.3 3E-	1.2 5E-	9.3 5E-	1.1 5E-	5.0 1E-	4E-	э.ө 9Е-	1.0 5E-	1.1 2E-	8.0 9E-
100	07	08	07	07	07	07	07	06	07	06	07	06	07	07	07	06	06	07
	2.33	1.4	7.75	3.82	1.3	2.9	1.0	1.3	1.0	1.1	8.5	1.1	3.9	5.5	2.4	1.1	1.1	9.3
100 Cys	E- 07	E- 07	E- 08	E- 07	E- 07	2E- 07	5E- 06	3E- 06	1E- 06	6E- 06	8E- 07	5E- 06	/E- 07	3E- 07	8E- 07	E- 06	9E- 06	1E- 07
	1 13	- 23	7 94	4 28	1 41	27	96	13	11	12	8 1	11	35	51	25	11	11	99
Cys	E-	E-	E-	E-	E-	E-	3E-	3E-	1E-	1E-	1E-	E-	E-	2E-	7E-	7E-	8E-	8E-
100	07	- 07	09	07	07	07	07	06	06	06	07	06	07	07	07	06	06	07
Cue	1.86 E	2.1 E	3.14 E	4.58 E	2.12 E	3.2 7E	8.1 5E	1.2 E	9.5 5E	9.7 7E	6.4 5E	9.9 7E	1.9 7E	5.6 0E	1.9 1E	9.8 0E	6.3 8E	5.9 5E
100	07	07	08	07	07	07	07	06	07	07	07	07	07	07	07	07	07	07
	2.48	- 1.6	7.42		1.67	2.8	7.1	1.1	8.8		7.2	1.1	5.7	5.2	1.3	1.0	1.0	8.9
Cys	E-	E- 07	E-	4E-	E-	7E-	3E-	3E-	2E-	1E-	8E-	5E-	7E-	3E-	8E-	6E-	1E- 06	4E-
100	07	-	-	07	07	07	07	00	07	00	07	00	08	07	07	00	00	07
Cvs	6.87 E-	3.1 E-	4.3 E-	2.51 E-	6.47 E-	2.2 4E-	7.1 9E-	1.1 9E-	9.3 2E-	1.1 1E-	6.1 3E-	8.9 6E-	- 1E-	4.0 3E-	4.7 3E-	6.2 3E-	1.9 2E-	9.1 6E-
100	08	07	08	07	08	07	07	06	07	06	07	07	07	07	08	07	07	08
GSH	7.34 E-	7.6 E-	6.83 E-	2.36 E-	4.33 E-	6.9 6E-	2.2 7E-	5.1 4E-	5.3 8E-	1.3 1E-	1.1 2E-	1.0 4E-	3.8 9E-	8.2 1E-	6.2 8E-	7.8 7E-	7.8 4E-	4.3 3E-
100	07	07	07	07	07	07	07	07	07	06	06	06	07	07	07	07	07	07
GSH	8.09 E-	9.47 E-	9.51 E-	2.44 E-	4.44 E-	7.3 2E-	4.2 1E-	8.4 4E-	7.8 8E-	1.4 4E-	1.2 2E-	7E-	5E-	9E-	о.о 7Е-	1.2 1E-	7E-	4.7 E-
100	07 9.01	07	07	07	07	07 64	07	07 9.6	07	06	06	06	$\frac{07}{24}$	07 69	07	06	06	07 62
GSH	E-	E-	E-	E-	E-	5E-	3E-	2E-	3E-	E-	E-	9E-	6E-	9E-	2E-	1E-	8E-	9E-
100	07	07 8.98	07 9.43	2.35	4.34	07 7.2	<u>07</u> 4.5	<u>07</u> 9.0	07 7.9	06	06	06	$\frac{07}{1.8}$	<u>07</u> 6.2	<u>07</u> 4.6	06	06 9.7	<u>07</u> 2.8
GSH	E-	E-	E-	E-	E-	6E-	E-	6E-	3E-	3E-	4E-	2E-	2E-	1E-	8E-	1E-	4E-	7E-
100	7.68	8.9	9.19	1.73	3.4	5.6	4.0	8.6	7.4	1.0	8.8	8.8	2.1	6.7	5.3	1.1	8.6	1.2
GSH 100	E- 07	E- 07	E- 07	E- 07	E- 07	5E- 07	3E- 07	2E- 07	1E- 07	5E- 06	E- 07	3E- 07	4E- 07	5E- 07	5E- 07	2E- 06	7E- 07	2E- 07
COL	7.34	8.3	8.85	1.85	3.51	5.6	4.5	9.5	7.6	1.0	9.5	9.8	1.1	5.7	5.0	1.9	1.2	3.5
GSH 100	E- 07	E- 07	E- 07	E- 07	E- 07	6E- 07	9E- 07	7E- 07	9E- 07	2E- 06	E- 07	9E- 07	5E- 07	6E- 07	4E- 07	E- 06	E- 06	7E- 07
	7 4 5	8 4 7	9.09	1 69	3 36	5.8	52	1.0	9.0	1.0	1.0	11	39	8.8	7.0	1.0	7.0	- 34
GSH	E-	E-	E-	E-	E-	9E-	2E-	7E-	1E-	8E-	6E-	7E-	8E-	E-	8E-	4E-	8E-	E-
100	07	07	07	07	07	07	07	06	07	06	06	06	07	07	07	06	07	- 08
Heve	9.8 E-	8.59 E-	9.85 E-	9.82 E-	9.51 E-	1.0 8E-	3.8 8E-	7.1 95-	7.8 7E-	1.9 1E-	1.3 2E-	1.2 4E-	4.6 8E-	9.5 8E-	7.9 1E-	1.4 3E-	3.5 1E-	1.8 E-
100	07	07	07	07	07	06	07	07	07	06	06	06	07	07	07	06	07	07
Hevs	1.04 E-	8.87 E-	1.03 E-	1.24 E-	1.24 E-	1.3 1E-	5.5 3E-	1E-	1.0 8E-	1.8 E-	1.2 5E-	1.2 2E-	5.1 6E-	1.0 9E-	9.6 1E-	1.8 9E-	6.0 1E-	7.9 3E-
100	06	07	06	06	06	06	07	06	06	06	06	06	07	06	07	06	07	08
	1.07	9.15	1.07	1.2	1.21	1.2	5.4	9.9	1.0	1.5	9.7	9.3	6.0	1.2	1.0	1.7	3.6	- 1.3
Hcys	E-	E-	E-	E-	E-	6E-	3E-	2E-	9E-	3E-	8E-	3E-	2E-	3E-	6E-	7E-	6E-	E-
Hcys	1.15	9.74	1.13	1.16	1.22	1.2	6.7	1.2	1.2	1.6	1.0	1.0	4.9	1.2	1.0	2.1	7.5	1.6
100	E-	E-	E-	E-	E-	7E-	8E-	3E-	6E-	E-	5E-	2E-	8E-	2E-	5E-	8E-	1E-	8E-

	06	07	06	06	06	06	07	06	06	06	06	06	07	06	06	06	07	07
																		-
	1.15	9.83	1.14	1.07	1.14	1.1	6.1	1.1	1.1	1.4	8.8	8.8	4.1	1.1	9.4	1.8	5.1	6.4
Hcys	E-	E-	E-	E-	E-	9E-	4E-	1E-	7E-	E-	9E-	1E-	8E-	1E-	1E-	8E-	3E-	E-
100	06	07	06	06	06	06	07	06	06	06	07	07	07	06	07	06	07	08
																		-
	1.18	1.01	1.18	1.09	1.19	1.2	6.2	1.1	1.2	1.6	1.0	1.0	4.9	1.1	1.0	1.7	2.6	2.6
Hcys	E-	E-	E-	E-	E-	4E-	E-	9E-	4E-	1E-	4E-	2E-	3E-	3E-	2E-	8E-	2E-	E-
100	06	06	06	06	06	06	07	06	06	06	06	06	07	06	06	06	07	07
		8.44		1.08	1.2	1.2	6.3	1.1	1.2	1.5	9.4	8.8	3.6	1.1	9.6	1.8	5.1	-
Hcys	1E-	E-	1E-	E-	E-	E-	4E-	8E-	3E-	4E-	7E-	4E-	E-	E-	7E-	8E-	6E-	7E-
100	06	07	06	06	06	06	07	06	06	06	07	07	07	06	07	06	07	08

Table S2. Raw data used for generating LDA score plot shown in figure 11b.

Electr ode		CuPc			MnPc		GO-	-CuPc-I	PDA	rGO	-CuPc-	PDA	GO-	MnPc-l	PDA	rGO·	-MnPc-	PDA
Repilc ates	380 mV	480 mV	580 mV															
	1.6	1.4	1.5	1.4	2.4	3.62	2.02	3.76	6.3	5.14	6.93	3.36	5.06	1.73	1.75	8.75	4.57	3.05
	8E-	3E-	5E-	3E-	5E-	E-												
A	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
	2.5	4.5	1.8	1.7	2.6	4.76	1.72	3.79	4.04	7.61	5.85	5.43	5.26	1.89	1.16	8.32	4.64	3.16
	8E-	1E-	2E-	9E-	3E-	E-												
A	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
	1.2 5E	9.5 9E	1.5 1E	1.2 E	2.5 1E	5.41 E	1.54 E	3.5/ E	3.98 E	/.14 E	5.43 E	5.19 E	5.06 E	1.4/ E	1.51 E	5./ E	4.61 E	3.13 E
٨	3E- 07	0E- 08	1E- 07	E- 07	07	07	D6	07	D7	07	07	D8	07	07	07	07	07	07
Π	07	00	07	07	07	07	00	07	07	07	07	00	07	07	07	07	07	07
	2.0	-	41	29	17	3 92	5.04	1 25	1 44	8 77	641	9 97	3 74	5 95	2.07	9 89	7 00	5 91
	2E-	2E-	E-	7E-	8E-	E-												
В	07	07	07	07	07	07	07	06	06	07	07	07	07	07	07	07	07	07
		-																
	2.3	9.0	3.2	3.8	1.9	3.7	5.25	1.15	1.47	1.12	6.28	1.15	3.77	4.23	1.33	1.06	1.02	8.95
	8E-	6E-	3E-	4E-	7E-	E-												
В	08	08	07	07	07	07	07	06	06	06	07	06	07	07	07	06	06	07
		-							• • -			0.07						1 0 0
	2.5	3.6	7.5 (F	2.1	5.5	3.27	5.74	1.49	2.07	1.23	7.13	8.96	1.02	5.54	3.02	6.23	1.26	1.00
D	1E- 07	E- 07	0E-	/E- 07	5E- 07	E-	E- 07											
D	07	07	07	07	07	07	07	00	00	00	07	07	07	07	08	07	07	07
	82	74	59	46	42	2 51	4 4 8	3.02	1 48	8.08		5.00	2 38	2 42	1 14	2 77	1 1 4	53
	7E-	E-	4E-	9E-	9E-	E-	E-	E-	E-	E-	6E-	E-						
С	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	08	07	07
																		-
	8.0	7.7	5.1	4.8	4.7	2.7	3.8	2.91	1.8	9.03	5.14	4.85	3.24	2.4	2.69	2.93	1.2	5.8
	1E-	8E-	2E-	1E-	3E-	E-												
С	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
																		-
	7.4	6.2	6.1	4.2	4.1	2.27	4.06	4.91	2.45	8.61	4.46	4.25	3.1	2.75	1.03	3.7	9.02	5.5
C	4E-	2E-	E- 07	6E-	2E- 07	E-	E- 07	E-	E-	E-	E- 07							
U	0/	07	07	07	0/	0/	0/	0/	0/	0/	0/	0/	0/	0/	0/	0/	08	07

DI	6.1	6.5	4.6	4.3	8.3	9.61	6.36	7.57	8.73	1.01	1.13	9.01	9.71	1.07	1.72	1.22	1.48	1.16
Plasm	2E- 07	3E- 07	1E- 07	6E- 07	7E- 07	E-	E- 07	E- 07	E- 07	E- 06	E- 06	E- 07	E- 07	E- 06	E- 06	E- 06	E- 06	E- 06
<u>u-1</u>	8.1	7.8	5.9	3.9	7.5	1.02	9.83	1.18	1.18	1.4	1.38	1.13	1.35	1.41	1.91	1.72	1.99	1.54
Plasm	2E-	5E-	5E-	E-	2E-	E-	E-	Е-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
a-1	07	07	07	07	07	06	07	06	06	06	06	06	06	06	06	06	06	06
Diama	9.0	7.9	6.3	4.5 E	8.3	1.08	1.03 E	1.25 E	1.2 E	1.46	1.36	1.12 E	1.51	1.62 E	2.19 E	1.8 E	2.09	1.58 E
a-1	4E- 07	9E- 07	4E- 07	E- 07	8E- 07	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06
<u>u 1</u>	9.2	7.9	6.4	3.9	7.5	9.78	9.68	1.2	1.16	1.45	1.38	1.15	1.37	1.48	1.93	1.88	2.17	1.63
Plasm	4E-	4E-	6E-	7E-	6E-	E-	E-	Е-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
a-1	07	07	07	07	07	07	07	06	06	06	06	06	06	06	06	06	06	06
Dlagma	9.4	7.4 E	5.0 2E	4.0	7.8 4E	1.02	9.99 E	1.29 E	1.26 E	1.44 E	1.43	1.24 E	1.34	I.5	26	1.88	2.21 E	1.65 E
a-1	07	с- 07	2E- 07	0E- 07	4E- 07	06	07	D6	06	06	06	06	06	06	2E- 06	06	D6	D6
	1.3	1.4	1.7	6.6	1.0	1.29	1.32	1.68	1.74	2.25	2.13	2.06	1.61	1.77	2.25	3.25	3.51	3.61
Plasm	6E-	4E-	4E-	5E-	3E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
a-1	06	06	06	07	06	06	06	06	06	06	06	06	06	06	06	06	06	06
Plasm	8.5 7E-	6.9 2E-	5.0 8E-	4E-	/.9 8E-	1.02 E-	9.52 E-	1.28 E-	1.22 E-	1.56 E-	1.45 E-	1.29 E-	1.38 E-	1.59 E-	2.16 E-	1.8 F-	1./9 E-	1.3 E-
a-1	07	07	07	07	07	06	07	06	06	06	06	06	06	06	06	06	06	06
									-		-	-			-		-	-
	3.9	3.0	2.6	9.6	1.9	1.99	4.86	3.96	1.5	2.04	6.4	3.6	3.1		1.8	1.56	5.2	4.9
Cys-	1E-	2E-	1E-	4E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	1E-	E-	E-	E-	E-
50	0/	07	0/	08	0/	0/	0/	0/	08	0/	08	08	0/	0/	0/	0/	08	0/
	3.7	2.8	1.9	2.3	3.2	2.96	8.25	6.8	3.01	2.67	3.06	3.39	2.93	1.69	9.09	2.24	1.59	5.8
Cys-	8E-	7E-	9E-	1E-	6E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
50	07	07	07	07	07	07	07	07	07	07	10	08	07	07	08	07	08	07
	27	2.1	2.0	1.0	1.0	1 70	100	2.00	-	2.17	-	-	2.15	1 22	1.02	2.00	1 1 1	-
Cvs-	3./ 3E-	3.1 6E-	3.0 1E-	1.0 8E-	1.9 1E-	I./9 F-	4.86 F-	3.96 F-	1.5 F-	2.17	4.9 F-	1.1 F-	2.15 F-	1.33 F-	1.02 F-	5.08 F-	1.11 F-	5.8 F-
50	07	07	07	07	07	07	07	07	08	07	08	08	07	07	07	07	07	07
									-									
0	3.6	2.9	2.7	8.7	1.8	1.65	4.76	4.17 E	4.5	3.4	-	2.93	2.35	1.34	3.42	3.28	1.21	- (F
Cys-	6E- 07	8E- 07	4E- 07	6E- 08	3E- 07	E-	E- 07	E- 07	E- 08	E-	1E- 08	E- 08	E-	E- 07	E- 08	E-	E- 07	6E- 07
	07	07	07	00	07	07	07	07	00	07	-	-	07	07	-	07	07	-
	3.2	2.8	2.4	5.4	1.1	8.54	4.54	4.19	-	1.15	1.3	7.1	2.84	1.39	4.8	3.23	7.08	6.9
Cys-	9E-	9E-	1E-	3E-	4E-	E-	E-	E-	3E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
50	0/	07	0/	08	07	08	0/	07	1.00	$\frac{0}{217}$	$\frac{0}{271}$	2 56	$\frac{07}{1.72}$	0/	2 10	$\frac{0}{2}$	2 40	$\frac{0}{262}$
Cvs-	4E-	1.7 5E-	2.0 4E-	7E-	0.2 5E-	9.95 E-	1.55 E-	1.79 E-	1.99 E-	5.17 E-	2.71 E-	2.30 E-	1.72 E-	1.00 E-	2.19 E-	E-	2.49 E-	2.05 E-
50	06	06	06	07	07	07	06	06	06	06	06	06	06	06	06	06	06	06
											-	-						
Crea	2.7	2.8	3.2	5.2	1.4	1.68	5.26	5.35	1.08	1.97	6.2	6.1	3.03	1.79	3.2	3.13	3.31	- -
Cys-	3E- 07	/E- 07	5E- 07	5E- 08	3E- 07	E-	E- 07	E- 07	E- 07	E-	E- 08	E- 10	E- 07	E- 07	E- 08	E-	E- 07	5E- 07
	3.5	3.3	3.4	4.9	1.1	2.56	5.84	7.06	5.15	1.25	6.35	5.15	7.88	6.21	3.58	8.38	3.81	2.21
GSH-	7E-	4E-	E-	1E-	9E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
50	07	07	07	08	07	07	07	07	07	06	07	07	07	07	07	07	07	07
COLL	4.3	4.4	4.4	7.6 E	1.6	3.12	4.52	6.57	4.24	7.41	1.94	1.73	7.44	6.56	3.77	8.02	2.89	9.64
50	9E- 07	8E- 07	δE- 07	E- 08	0E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 08
- 50	3.7	4.0	4.2	5.3	1.2	2.55	3.2	5.96	2.89	6.56	9.22	8.48	6.86	6.45	3.29	8.53	4.4	1.96
GSH-	5E-	4E-	7E-	4E-	1E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
50	07	07	07	08	07	07	07	07	07	07	08	08	07	07	07	07	07	07
	20	25	4.0		1 1	262	2.2		2.04	6 15	1.50	-	7 1 2	7.02	200	7.04	155	1 02
GSH-	5.0 1F-	3.3 F-	4.0 9F-	5E-	1.1 5E-	2.03 F-	∠.3 F-	6F-	2.94 F-	0.45 F-	1.52 F-	9.3 F-	7.13 F-	7.05 F-	∠.80 F-	/.94 F-	4.33 F-	1.83 F-
50	07	07	07	08	07	07	07	07	07	07	09	09	07	07	07	07	07	07

GSH-	3.8 8E- 07	4.0 1E- 07	4.2 9E- 07	5.7 1E- 08	1.4 1E- 07	3.11 E- 07	3.35 E- 07	7.11 E- 07	4.14 E- 07	5.77 E- 07	9.1 E- 08	7.4 E-	6.65 E- 07	7.06 E- 07	4.97 E- 07	8.15 E- 07	4.62 E- 07	1.71 E- 07
	1.7	1.7	2.0	4.7	8.1	1.22	1.48	1.97	1.97	3.54	3.11	2.87	2.04	2.19	2.67	2.74	2.87	2.97
GSH- 50	4E- 06	9E- 06	6E- 06	E- 07	5E- 07	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06	E- 06
CSU	3.2 2E	3.3 2E	3.3	4.6	9.4 E	2.13 E	3.32	8.53 E	4.95	9.35 E	1.48 E	1.21 E	6.35	7.33	3.88	7.18 E	3.37 E	5.68 E
50	07	2E- 07	0E- 07	4E- 08	С- 08	D7	07	с- 07	07	07	D7	D7	07	07	07	D7	с- 07	С- 08
	7.5	5 2	5.5	2 2	2 1	2.61	1 03	3 16	1.0/	8 27	186	1.63	2.28	24	1.26	281	5 80	- 1 /
Hcys-	E-	9E-	7E-	1E-	6E-	E-	ч.95 Е-	E-	E-	E-	ч.80 Е-	E-	E-	E-	E-	2.04 E-	5.87 E-	E-
50	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	08	07
	9.3	6.7	7.5	4.0	3.7	2.33	4.83	3.23	1.84		6.29	6.56	3.02	2.97	1.6	4.28	1.61	9.6
Hcys-	1E- 07	E- 07	4E- 07	1E- 07	3E- 07	E- 07	E- 07	E- 07	E- 07	1E- 06	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 08
	7.2	5.3	6.1	4.1	4.0	2.61	7.18	4.78	3.2	8.91	5.18	5.73	2.76	3.56	1.75	3.67	1.1	-
Hcys- 50	5E- 07	1E- 07	1E- 07	4E- 07	4E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	2E- 07
		5.0		1.0	4.1	0.04	2.00	2.0	1.(1	0.00	4.00	5.44	1.0	2.00	2.05	0.55	2.00	-
Hcys-	8.0 4E-	5.9 8E-	6.5 6E-	4.0 8E-	4.1 7E-	2.64 E-	3.89 E-	2.8 E-	1.61 E-	9.08 E-	4.82 E-	5.44 E-	1.63 E-	3.69 E-	2.95 E-	2.55 E-	3.66 E-	3.4 E-
50	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	09	07
	8.4	6.1	6.8	4.1	4.3	2.62	3.23	2.45	1.48	8.5	3.67	4.21	3.02	2.97	1.6	4.05	2.4	1.3
Hcys-	5E-	1E- 07	8E-	E- 07	5E-	E- 07	E-	E- 07	E-	E-	E- 07	E-	E-	E-	E-	E- 07	E- 07	E- 07
	1.7	1.5	1.9	7.1	9.6	1.34	2.14	2.08	1.95	3.49	2.92	2.85	1.46	1.67	1.84	2.3	2.41	2.62
Hcys-	1E- 06	8E- 06	3E-	4E- 07	6E- 07	E- 06	E- 06	E- 06	E-	E-	E- 06	E-	E-	E-	E-	E- 06	E- 06	E- 06
- 50		00	00	07	07	00	00	00	00	00	00			00		00	00	-
Heys-	8.5 8E-	6.1 1E-	7.4 9E-	3.5 3E-	4E-	2.07 E-	1E-	7.89 E-	4.93 E-	5.86 E-	2.17 E-	3.57 E-	- 5E-	3.39 E-	1.53 E-	4.05 E-	1.13 E-	3.4 E-
50	07	07	07	07	07	07	06	07	07	07	07	07	08	07	07	07	07	07
	- 2.1	- 2.1	- 1.6	1.9	1.8	2.79	2.62	5.18	7.23	2.48	4.05	1.75	4.27	4.1	3.73	7.74	5.7	3.75
	E-	E-	E-	7E-	5E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
Cys 5	- 08	- 07	- 07	07	07	07	07	07	07	07	07	0/	07	07	07	07	07	07
	1.1 E	2.3 E	1.7 E	2.1	1.5 7E	2.67 E	2.34	4.4 E	5.58	4.9	5.9 E	2.58	1.41 E	1.7 E	1.54	7.46 E	5.58 E	2.99 E
Cys 5	08	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
	- 43	- 32	- 24	23	17	3.26	2.87	5.07	6 14	27	2.98	- 85	23	3 29	2 99	1 12	7 74	5 13
	E-	Б-	E-	E-	E-	E-	E-	E-	E-	E-	E-							
Cys 5	- 08	07	07	07	07	07	07	07	07	07	07	- 08	07	07	07	06	07	07
	2.6	-	9.2	1.5	1.6	1.48	2.37	4.62	5.71	3.33	1.83	1.8	2.18	1.56	1.81	7.55	4.72	1.8
Cvs 5	E- 08	2E- 07	E- 08	3E- 07	2E- 08	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07
	-	-	5.0	1.0	()	2.21	1.70		2.51	2.42	1 40	-	2.22	2.00	2.0	0.20	5.20	1.05
	2.2 E-	8.1 E-	э.8 Е-	1.9 3E-	6.0 1E-	2.21 E-	1.79 E-	3.32 E-	5.51 E-	5.43 E-	1.48 E-	2.3 E-	2.32 E-	2.08 E-	2.8 E-	9.26 E-	5.39 E-	1.95 E-
Cys 5	08	08	08	07	08	07	07	07	07	07	07	07	07	07	07	07	07	07
	5.5	-	-	1.7	3.2	1.75	2.34	4.4	5.58	2.63	4.7	3.3	2.86	2.28	3.49	7.52	4.14	8.54
Cvs 5	E-	2E- 07	5E- 08	1E- 07	7E- 08	E- 07	E- 07	E- 07	E- 07	E- 07	E- 08	E- 07	E- 07	E- 07	E- 07	E- 07	E- 07	E- 08
	-	-	-	1.4	2.4	2.12	1.15	2.78	3.08	2.94	1.28	-	2.44	2.68	4.48	9.14	4.9	1.01
Cys 5	9.2	2.9	1.2	9E-	4E-	Е-	E-	Е-	E-	E-	Е-	4E-	E-	E-	E-	Е-	E-	E-

	E-	E-	E-	07	08	07	07	07	07	07	08	07	07	07	07	07	07	07
	08	- 07	- 07															
	7.9	3.3	9.4	1.8	2.6	3.69	2.35	4.61	3.93	9.07	7.08	5.8	3.97	1.78	1.56	4.28	2.6	1.81
GSH	E-	E-	E-	7E-	7E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
5	08	08	08	07	0/	5 22	$\frac{07}{212}$	07	07	7.01	6.52	5 2 4	07	07	07	677	07	2.05
GSH	8E-	1.5 2E-	1.0 8E-	2.2 6E-	5.4 E-	5.22 E-	2.12 E-	4.30 E-	4.04 E-	F-	0.52 E-	5.54 E-	4.10 E-	1.00 E-	E-	E-	4.10 E-	5.05 E-
5	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
	1.9	9.6	8.1	1.6	2.4	3.45	1.62	4.11	3.98	7.03	5.64	4.74	4.43	1.7	1.63	6.61	3.64	2.32
GSH	4E-	4E-	8E-	9E-	8E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
3	23	1.5	1.7	17	2.5	$\frac{0}{28}$	1 31	3.80	3 70	7.63	5.9/	5.04	4.04	1 32	1 32	818	0/	3 13
GSH	8E-	3E-	3E-	9E-	6E-	E-	E-	E-	E-	E-	E-	5.04 E-	ч.04 Е-	E-	E-	E-		E-
5	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
	1.4	1.0	1.8	1.5	2.3	3.04	1.1	3.68	3.65	6.42	5.24	4.5	2.55	5.07	1.1	8.31	4.41	2.78
GSH	5E-	4E-	9E-	6E-	7E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
3	85	5 2	0/	0/	22	$\frac{0}{244}$	6 59	3 14	29	7 78	5.8	4 92	3.04	6 38	0/	8.85	4 83	3.08
GSH	5E-	5E-	7E-	1E-	9E-	E-	E-	E-	E-	E-	E-	ч.92 Е-	E-	0.50 E-	E-	E-	ч.65 Е-	Б.00 Е-
5	08	08	07	07	07	07	08	07	07	07	07	07	07	08	07	07	07	07
							-											
COLL	3.6	5.5 9E	2.3	1.6	2.5	3.23	3.9	1.14	1.3 E	7.64	5.19 E	4.39 E	3.41	1.58	2.93	9.77	5.1	3.16
5	E- 08	8E- 08	0E- 07	1E- 07	8E- 07	E- 07	E- 08	E- 07	E- 07	E- 07	E- 07							
	1.9	2.0	2.0	2.7	4.0	9.19	1.35	2.28	1.69	6.77	5.48	4.52	5.21	3.79	07	6.02	3.54	3.16
Hcys	E-	1E-	5E-	8E-	9E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	4E-	E-	E-	E-
5	07	07	07	08	08	08	07	07	07	07	07	07	07	07	07	07	07	07
Have	3.5	3.1	2.5 2E	1.1 0E	1.8 2E	2.84	1.24	2.38	1.83 E	9.83	7.43	6.12 E	5.47	4.1 E	4.71	7.7 E	4.53	4.16 E
5	07	4E- 07	5E- 07	9E- 07	3E- 07	07	07	07	D7	07	67	E- 07	D7	D7	07	07	E- 07	E- 07
	1.9	2.0	2.0	6.9	1.2	2.27	1.05	2.41	1.91	1.01	7.64	6.39	4.92	3.47	3.86	6.25	4.02	3.72
Hcys	E-	1E-	5E-	6E-	4E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
5	07	07	07	08	07	07	07	07	07	06	07	07	07	07	07	07	07	07
Heve	2.7 7E-	2.7 5E-	2.1 E-	1.2 1E-	2.0 4E-	3.85 E-	1.15 E-	3.16 F-	2.53 E-	1.07	7.9 E-	6.59 E-	6.32 E-	4.46 E-	4.99	4.82	3.14 E-	2.81 E-
5	07	07	07	07	07	07	07	07	07	06	07	07	07	07		07	07	07
	2.6	3.0	2.5	8.8	1.6	3.18	1.3	3.07	2.18	1.08	8.05	6.8	4.69	2.97	2.78	5.93	3.2	2.61
Hcys	7E-	9E-	3E-	2E-	6E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
5	07	07	07	08	07	07	07	07	07	06	07	07	07	07	07	07	07	07
Hevs	0.0 4E-	8.1 85-	3.4 8E-	9.3 2E-	1./ 4F-	5.15 F-	1.55 F-	2.91 F-	2.33 F-	1.09 F-	8.04 F-	0.88 F-	4.02 F-	2.00 E-	5.17 F-	3.80 F-	2.30 E-	2.43 E-
5	08	08	08	08	07	07	07	07	07	06	07	07	07	07	07	07	07	07
	4.9	6.5	3.6		9.0	1.23	1.51	3.59	2.83	1.15	8.54	7.5	3.92	2.06	1.15	5.13	2.88	2.58
Hcys	1E-	E-	3E-	4E-	3E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
5	2.0	<u> 08</u> 5.8	08	08 5.7	2.0	0/	6.65	0/	7.05	<u> </u>	6.52	7 47	5.04	5 78	$\frac{0}{241}$	0/	0/	5 77
Cvs	2.9 3E-	6E-	г.э Е-	7E-	5E-	4.52 E-	E-	9.24 E-	E-	6.56 E-	0.52 E-	7.47 E-	5.04 E-	5.78 E-	E-	E-	9.04 E-	5.77 E-
100	07	08	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07
		-																
	2.9	7.2	1.0	5.1	2.4	4.2	7.37	1.05	8.33	1.25	9.35	1.15	5.61	7.44	3.69	1.05	1.12	8.09
100	4E- 07	E- 08	/E- 07	E- 07	3E- 07	E-	E- 07	E- 06	E- 07	E- 06	E- 07	E- 06	E- 07	E- 07	E-	E- 06	E- 06	E- 07
100	07	-			07									0,				
	2.3	1.4	7.7	3.8	1.3	2.92	1.05	1.33	1.01	1.16	8.58	1.15	3.97	5.53	2.48	1.1	1.19	9.31
Cys	3E-	E-	5E-	2E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
100	07	07	08	07	07	07	06	06	06	06	07	06	07	07	07	06	06	07
	11	23	79	42	14	2.7	9.63	1.33	1.11	1.21	8.11	11	3.5	5.12	2.57	1.17	1.18	9.98
Cys	3E-	E-	4E-	8E-	1E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-	E-
100	07	07	09	07	07	07	07	06	06	06	07	06	07	07	07	06	06	07

Cys	1.8 6E-	- 2.1 E-	3.1 4E-	4.5 8E-	2.1 2E-	3.27 E-	8.15 E-	1.2 E-	9.55 E-	9.77 E-	6.45 E-	9.97 E-	1.97 E-	5.69 E-	1.91 E-	9.89 E-	6.38 E-	5.95 E-
100	07	07	08	07	07	07	07	06	07	07	07	07	07	07	07	07	07	07
Cys 100	2.4 8E- 07	- 1.6 E- 07	7.4 2E- 08	4E- 07	1.6 7E- 07	2.87 E- 07	7.13 E- 07	1.13 E- 06	8.82 E- 07	1E- 06	7.28 E- 07	1.15 E- 06	5.77 E- 08	5.23 E- 07	1.38 E- 07	1.06 E- 06	1.01 E- 06	8.94 E- 07
Cys 100	6.8 7E- 08	- 3.1 E- 07	- 4.3 E- 08	2.5 1E- 07	6.4 7E- 08	2.24 E- 07	7.19 E- 07	1.19 E- 06	9.32 E- 07	1.11 E- 06	6.13 E- 07	8.96 E- 07	- 1E- 07	4.03 E- 07	4.73 E- 08	6.23 E- 07	1.92 E- 07	9.16 E- 08
GSH 100	7.3 4E- 07	7.6 E- 07	6.8 3E- 07	2.3 6E- 07	4.3 3E- 07	6.96 E- 07	2.27 E- 07	5.14 E- 07	5.38 E- 07	1.31 E- 06	1.12 E- 06	1.04 E- 06	3.89 E- 07	8.21 E- 07	6.28 E- 07	7.87 E- 07	7.84 E- 07	4.33 E- 07
GSH 100	8.6 9E- 07	9.4 7E- 07	9.3 1E- 07	2.4 4E- 07	4.4 4E- 07	7.52 E- 07	4.21 E- 07	8.44 E- 07	7.88 E- 07	1.44 E- 06	1.22 E- 06	1.17 E- 06	3.05 E- 07	7.89 E- 07	6.67 E- 07	1.21 E- 06	1.07 E- 06	4.7 E- 07
GSH 100	9.0 1E- 07 7.9	E- 07	2E- 07	2E- 07	4E- 07 4 3	0.43 E- 07 7.26	E- 07 4 5	9.02 E- 07	E- 07 7 93	E- 06	E- 06	E- 06	E- 07	E- 07	E- 07 4 68	E- 06	E- 06 9 74	E- 07
GSH 100	9E- 07	8E- 07	3E- 07	5E- 07	4E- 07 3 4	E- 07	E- 07	E- 07 8.62	E- 07 7 41	E- 06	E- 06	E- 06	E- 07	E- 07	E- 07	E- 06	E- 07 8.67	E- 07
GSH 100	8E- 07	E- 07	9E- 07	3E- 07	E- 07	E- 07	E- 07	E- 07	7.41 E- 07	E- 06	E- 07	E- 07	E- 07	E- 07	E- 07	E- 06	E- 07	E- 07
GSH 100	4E- 07	E- 07	5E- 07	5E- 07	1E- 07	E- 07	E- 07	E- 07	E- 07	E- 06	E- 07	E- 07	E- 07	E- 07	E- 07	E- 06	E- 06	E- 07
GSH 100	7.4 5E- 07	8.4 7E- 07	9.0 9E- 07	1.6 9E- 07	3.3 6E- 07	5.89 E- 07	5.22 E- 07	1.07 E- 06	9.01 E- 07	1.08 E- 06	1.06 E- 06	1.17 E- 06	3.98 E- 07	8.8 E- 07	7.08 E- 07	1.04 E- 06	7.08 E- 07	3.4 E- 08
Hcys 100	9.8 E- 07	8.5 9E- 07	9.8 5E- 07	9.8 2E- 07	9.5 1E- 07	1.08 E- 06	3.88 E- 07	7.19 E- 07	7.87 E- 07	1.91 E- 06	1.32 E- 06	1.24 E- 06	4.68 E- 07	9.58 E- 07	7.91 E- 07	1.43 E- 06	3.51 E- 07	- 1.8 E- 07
Hcys 100	1.0 4E- 06	8.8 7E- 07	1.0 3E- 06	1.2 4E- 06	1.2 4E- 06	1.31 E- 06	5.53 E- 07	1E- 06	1.08 E- 06	1.8 E- 06	1.25 E- 06	1.22 E- 06	5.16 E- 07	1.09 E- 06	9.61 E- 07	1.89 E- 06	6.01 E- 07	7.93 E- 08
Hcys 100	1.0 7E- 06	9.1 5E- 07	1.0 7E- 06	1.2 E- 06	1.2 1E- 06	1.26 E- 06	5.43 E- 07	9.92 E- 07	1.09 E- 06	1.53 E- 06	9.78 E- 07	9.33 E- 07	6.02 E- 07	1.23 E- 06	1.06 E- 06	1.77 E- 06	3.66 E- 07	- 1.3 E- 07
Hcys 100	1.1 5E- 06	9.7 4E- 07	1.1 3E- 06	1.1 6E- 06	1.2 2E- 06	1.27 E- 06	6.78 E- 07	1.23 E- 06	1.26 E- 06	1.6 E- 06	1.05 E- 06	1.02 E- 06	4.98 E- 07	1.22 E- 06	1.05 E- 06	2.18 E- 06	7.51 E- 07	1.68 E- 07
Hcys 100	1.1 5E- 06	9.8 3E- 07	1.1 4E- 06	1.0 7E- 06	1.1 4E- 06	1.19 E- 06	6.14 E- 07	1.11 E- 06	1.17 E- 06	1.4 E- 06	8.89 E- 07	8.81 E- 07	4.18 E- 07	1.11 E- 06	9.41 E- 07	1.88 E- 06	5.13 E- 07	- 6.4 E- 08
Hcys 100	1.1 8E- 06	1.0 1E- 06	1.1 8E- 06	1.0 9E- 06	1.1 9E- 06	1.24 E- 06	6.2 E- 07	1.19 E- 06	1.24 E- 06	1.61 E- 06	1.04 E- 06	1.02 E- 06	4.93 E- 07	1.13 E- 06	1.02 E- 06	1.78 E- 06	2.62 E- 07	- 2.6 E- 07
Hcys 100	1E- 06	8.4 4E- 07	1E- 06	1.0 8E- 06	1.2 E- 06	1.2 E- 06	6.34 E- 07	1.18 E- 06	1.23 E- 06	1.54 E- 06	9.47 E- 07	8.84 E- 07	3.6 E- 07	1.1 E- 06	9.67 E- 07	1.88 E- 06	5.16 E- 07	- 7E- 08

Table S3. Shows the oxidation peak potentials of different biothiols in presence of RIs. Each voltammogram shows peak currents at two potentials. Comparison of the data shows, three values (0.38, 0.48, and 0.48 V) are qualified for the LDA and PLS-R process.

Electrode	Analyte	Potential 1 (mV)	Potential 2 (mV)
	Cys	0.41	0.57
CuPc (1')	GSH	0.41	0.57
	Hcys	0.38	0.58
	Cys	0.38	0.48
MnPc (2')	GSH	0.38	0.48
	Hcys	0.38	0.44
	Cys	0.46	0.57
GO-CuPc-PDA (3')	GSH	0.48	0.60
	Hcys	0.39	-
	Cys	0.38	0.57
GO-MnPc-PDA (4')	GSH	0.42	0.6
	Hcys	0.41	0.64
	Cys	0.37	0.46
rGO-CuPc-PDA (5')	GSH	0.37	0.48
	Hcys	0.37	0.48
	Cys	0.33	0.47
rGO-MnPc-PDA (6')	GSH	0.36	0.48
	Hcys	0.36	0.48

		Cys	Cys		GSH	GSH		Hcys	Hcys	Р-		%
from $\ to$	Cys	100	5	GSH	100	5	Hcys	100	5	1	Total	correct
Cys	6	0	0	1	0	0	0	0	0	0	7	85.71%
Cys 100	0	7	0	0	0	0	0	0	0	0	7	100.00%
Cys 5	0	0	7	0	0	0	0	0	0	0	7	100.00%
GSH	1	0	0	6	0	0	0	0	0	0	7	85.71%
GSH 100	0	0	0	0	7	0	0	0	0	0	7	100.00%
GSH 5	0	0	0	0	0	7	0	0	0	0	7	100.00%
Hcys	1	0	0	0	0	0	6	0	0	0	7	85.71%
Hcys 100	0	0	0	0	0	0	0	7	0	0	7	100.00%
Hcys 5	0	0	0	0	0	0	0	0	7	0	7	100.00%
P-1	0	0	0	0	0	0	0	0	1	5	6	83.33%
Total	8	7	7	7	7	7	6	7	8	5	69	94.20%

Table S5. Results of the fitted regression curves for predicted vs. experimental values and RMSE, for the calibration and validation measurements of the individual samples (Cys, GSH, and Hcys). (Intervals calculated at the 95% confidence level)

Analytes	R ² _{Cal} value	R^2 val value	RMSE _{Cal}	RMSE _{Val}
Cys	0.833	0.966	15.88	7.28
GSH	0.902	0.977	12.18	5.57

Hcys	0.974	0.942	6.29	9.48
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	R Square valu	ies - Redox Indicators	
	AA	DA	UA
Electrode	i vs (v) ^{1/2} /(mVs ⁻¹) ^{1/2}	i vs (v) ^{1/2} /(mVs ⁻¹) ^{1/2}	i vs (υ) ^{1/2} /(mVs ⁻¹) ^{1/2}
1' (CuPc)	0.95907	0.96251	0.98701
2' (MnPc)	×	0.96132	0.97094
3' (GO-CuPc-PDA)	0.97512	0.989	0.9903
4' (GO-MnPc-PDA)	×	0.97748	0.98284
5' (rGO-CuPc- PDA)	0.94267	0.98016	0.96895
6' (rGO-MnPc- PDA)	×	0.94961	0.98693

Table S6. Shows the R² value obtained from the plot of current as a function of square root of scan rate.

×- Refers the absence of oxidation current signal.

🗶 i 🔓	17-0	# ~ ↓								Report - M	Aicrosoft Exc	el							_	0	×
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	I Forn	hat Painter	B I U		×. •		-=	· · ·	lick VI	STAT	.00	*.º Forma	tting + as Ta	ble - Styles -	*	* *	Clea	Filte	r * Select *		
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1	А	В	С	D	E	F	G	Н	1	J	K	L	М	N	0	Р	Q	R	S	Т	-
1			_																	-	
2				Cu-Pc			Mn-Pc			GO-Cu-PC			rGO-Cu-PC	0		GO-Mn-PC	2		rGO-Mn-PC		- 11
3		D 1	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV	Η.
4 K	eplicates	P-1	0.12E-07	0.53E-07	4.01E-07	4.30E-07	8.3/E-0/	9.012-07	0.30E-07	7.5/E-0/	8.73E-07	1.01E-00	1.13E-00	9.01E-07	9.71E-07	1.0/E-06	1.72E-00	1.222-00	1.48193E-06	1.102-00	
5		P1	9.045.07	7.005.07	5.33E-07	4 55 07	9 295 07	1.022-00	1.025.06	1.102-00	1.102-00	1.465.06	1.365.06	1.132-00	1.532-00	1.412-00	2 195 06	1.722-00	2.099225.06	1.546-00	
7		P.1	9.245.07	7.945.07	6 465 07	2 975 07	7 565 07	9.795.07	9.695.07	1.250-00	1 165 06	1.402-00	1.302-00	1.120-00	1.375.06	1.020-00	1.925.06	1.00-00	2.089232-00	1.535-00	
8		P-1	9.415-07	7.45-07	5.02E-07	4.06E-07	7.84F-07	1.02E-06	9.995-07	1.295-06	1.26E-06	1.44E-06	1.43E-06	1.24E-06	1.34E-06	1.55-06	2E-06	1.88F-06	2.21375E-06	1.65E-06	
9		P-1	1.36E-06	1.44E-06	1.74E-06	6.65E-07	1.03E-06	1.29E-06	1.32E-06	1.68E-06	1.74E-06	2.25E-06	2.13E-06	2.06E-06	1.61E-06	1.77E-06	2.25E-06	3.25E-06	3.50739E-06	3.61E-06	
10		P-1	8.57E-07	6.92E-07	5.08E-07	4E-07	7.98E-07	1.02E-06	9.52E-07	1.28E-06	1.22E-06	1.56E-06	1.45E-06	1.29E-06	1.38E-06	1.59E-06	2.16E-06	1.8E-06	1.79108E-06	1.3E-06	
11		Cvs-50	3.91E-07	3.02E-07	2.61E-07	9.64E-08	1.9E-07	1.99E-07	4.86E-07	3.96E-07	-1.5E-08	2.04E-07	-6.4E-08	-3.6E-08	3.1E-07	1E-07	-1.8E-07	1.56E-07	-5.2186E-08	-4.9E-07	
12		Cys-50	3.78E-07	2.87E-07	1.99E-07	2.31E-07	3.26E-07	2.96E-07	8.25E-07	6.8E-07	3.01E-07	2.67E-07	3.06E-10	3.39E-08	2.93E-07	1.69E-07	9.09E-08	2.24E-07	1.5869E-08	-5.8E-07	
13		Cys-50	3.73E-07	3.16E-07	3.01E-07	1.08E-07	1.91E-07	1.79E-07	4.86E-07	3.96E-07	-1.5E-08	2.17E-07	-4.9E-08	-1.1E-08	2.15E-07	1.33E-07	1.02E-07	3.08E-07	1.10778E-07	-5.8E-07	
14		Cys-50	3.66E-07	2.98E-07	2.74E-07	8.76E-08	1.83E-07	1.65E-07	4.76E-07	4.17E-07	-4.5E-08	3.4E-07	-1E-08	2.93E-08	2.35E-07	1.34E-07	3.42E-08	3.28E-07	1.2146E-07	-6E-07	
15		Cys-50	3.29E-07	2.89E-07	2.41E-07	5.43E-08	1.14E-07	8.54E-08	4.54E-07	4.19E-07	-3E-08	1.15E-07	-1.3E-07	-7.1E-08	2.84E-07	1.39E-07	-4.8E-08	3.23E-07	7.08E-08	-6.9E-07	
16		Cys-50	1.64E-06	1.75E-06	2.04E-06	5.17E-07	8.25E-07	9.95E-07	1.53E-06	1.79E-06	1.99E-06	3.17E-06	2.71E-06	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49359E-06	2.63E-06	
17		Cys-50	2.73E-07	2.87E-07	3.25E-07	5.25E-08	1.43E-07	1.68E-07	5.26E-07	5.35E-07	1.08E-07	1.97E-07	-6.2E-08	-6.1E-10	3.03E-07	1.79E-07	3.2E-08	3.13E-07	3.31115E-07	-5E-07	
18		GSH-50	3.57E-07	3.34E-07	3.4E-07	4.91E-08	1.19E-07	2.56E-07	5.84E-07	7.06E-07	5.15E-07	1.25E-06	6.35E-07	5.15E-07	7.88E-07	6.21E-07	3.58E-07	8.38E-07	3.81165E-07	2.21E-07	
19	_	GSH-50	4.39E-07	4.48E-07	4.48E-07	7.6E-08	1.66E-07	3.12E-07	4.52E-07	6.57E-07	4.24E-07	7.41E-07	1.94E-07	1.73E-07	7.44E-07	6.56E-07	3.77E-07	8.02E-07	2.89307E-07	9.64E-08	
20		GSH-50	3.75E-07	4.04E-07	4.27E-07	5.34E-08	1.21E-07	2.55E-07	3.2E-07	5.96E-07	2.89E-07	6.56E-07	9.22E-08	8.48E-08	6.86E-07	6.45E-07	3.29E-07	8.53E-07	4.40369E-07	1.96E-07	
21		GSH-50	3.01E-07	3.5E-07	4.09E-07	5E-08	1.15E-07	2.63E-07	2.3E-07	6E-07	2.94E-07	6.45E-07	1.52E-09	-9.5E-09	7.13E-07	7.03E-07	2.86E-07	7.94E-07	4.55017E-07	1.83E-07	
22	_	GSH-50	3.88E-07	4.01E-07	4.29E-07	5.71E-08	1.41E-07	3.11E-07	3.35E-07	7.11E-07	4.14E-07	5.77E-07	-9.1E-08	-7.4E-08	6.65E-07	7.06E-07	4.97E-07	8.15E-07	4.62341E-07	1.71E-07	
23	_	GSH-50	1.74E-06	1.79E-06	2.06E-06	4.7E-07	8.15E-07	1.22E-06	1.48E-06	1.97E-06	1.97E-06	3.54E-06	3.11E-06	2.87E-06	2.04E-06	2.19E-06	2.67E-06	2.74E-06	2.87232E-06	2.97E-06	
24		GSH-50	3.23E-07	3.32E-07	3.36E-07	4.64E-08	9.4E-08	2.13E-07	3.32E-07	8.53E-07	4.95E-07	9.35E-07	1.48E-07	1.21E-07	6.35E-07	7.33E-07	3.88E-07	7.18E-07	3.36914E-07	5.68E-08	-
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5. Step wise procedure for generating LDA score plot shown in Figure 10

Red Box: Contains difference in current value at particular potential (380 mV, 480mV and 580 mV) obtained from the LSV. **Green Box**: Shows the label of the replicates. **Black Box**: Shows the name the electrodes used as working electrode.

X	Image: Section 1 Image: Report - Microsoft Excel − 0																				
File	Home	e Inser	Page I	ayout F	ormulas	Dat	ta Rev	riew Vie	w Add-	Ins XLS	TAT									6	১ 🕜 🗆 🗟
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2	Choos	se DA		Cu-Pc			Multiple C	orrecoonder	nce Analysis	(MACA)	SO-Cu-PC			rGO-Cu-P	с		GO-Mn-P	с		rGO-Mn-PC	
3			380 mV	480 mV	580 m\		Multiple C	onesponde	ice Analysis	(MICA)	180 mV	580 mV	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV	380 mV	480 mV	580 mV
4 Re	plicates	P-1	6.12E-07	6.53E-07	4.61E	NDS 1	Multidime	nsional Scal	ing (MDS)		7.57E-07	8.73E-07	1.01E-06	1.13E-06	9.01E-07	9.71E-07	1.07E-06	1.72E-06	1.22E-06	1.48193E-06	1.16E-06
5	1	P-1	8.12E-07	7.85E-07	5.95E	Co F	Principal C	oordinate A	nalysis		1.18E-06	1.18E-06	1.4E-06	1.38E-06	1.13E-06	1.35E-06	1.41E-06	1.91E-06	1.72E-06	1.99249E-06	1.54E-06
5		P-1	9.04E-07	7.99E-07	6.34E-	ا 💕	k-means cl	ustering			1.25E-06	1.2E-06	1.46E-06	1.36E-06	1.12E-06	1.51E-06	1.62E-06	2.19E-06	1.8E-06	2.08923E-06	1.58E-06
7		P-1	9.24E-07	7.94E-07	6.46E	罚 /	Agglomera	tive hierarcl	hical clusterin	ng (AHC)	1.2E-06	1.16E-06	1.45E-06	1.38E-06	1.15E-06	1.37E-06	1.48E-06	1.93E-06	1.88E-06	2.17346E-06	1.63E-06
В		P-1	9.41E-07	7 7.4E-07	5.02E	•	Gaussian M	Mixture Mod	lels		1.29E-06	1.26E-06	1.44E-06	1.43E-06	1.24E-06	1.34E-06	1.5E-06	2E-06	1.88E-06	2.21375E-06	1.65E-06
9		P-1	1.36E-06	5 1.44E-06	1.74E-	ŧ (Univariate	clustering			1.68E-06	1.74E-06	2.25E-06	2.13E-06	2.06E-06	1.61E-06	1.77E-06	2.25E-06	3.25E-06	3.50739E-06	3.61E-06
0		P-1	8.57E-07	6.92E-07	5.08E-0)7	4E-07	7.98E-07	1.02E-06	9.52E-07	1.28E-06	1.22E-06	1.56E-06	1.45E-06	1.29E-06	1.38E-06	1.59E-06	2.16E-06	1.8E-06	1.79108E-06	1.3E-06
1		Cys-50	3.91E-07	7 3.02E-07	2.61E-0	07 9	.64E-08	1.9E-07	1.99E-07	4.86E-07	3.96E-07	-1.5E-08	2.04E-07	-6.4E-08	-3.6E-08	3.1E-07	1E-07	-1.8E-07	1.56E-07	-5.2186E-08	-4.9E-07
2		Cys-50	3.78E-07	2.87E-07	1.99E-0	07 2	2.31E-07	3.26E-07	2.96E-07	8.25E-07	6.8E-07	3.01E-07	2.67E-07	3.06E-10	3.39E-08	2.93E-07	1.69E-07	9.09E-08	2.24E-07	1.5869E-08	-5.8E-07
3		Cys-50	3.73E-07	7 3.16E-07	3.01E-0	07 1	.08E-07	1.91E-07	1.79E-07	4.86E-07	3.96E-07	-1.5E-08	2.17E-07	-4.9E-08	-1.1E-08	2.15E-07	1.33E-07	1.02E-07	3.08E-07	1.10778E-07	-5.8E-07
4		Cys-50	3.66E-07	2.98E-07	2.74E-0	07 8	.76E-08	1.83E-07	1.65E-07	4.76E-07	4.17E-07	-4.5E-08	3.4E-07	-1E-08	2.93E-08	2.35E-07	1.34E-07	3.42E-08	3.28E-07	1.2146E-07	-6E-07
5		Cys-50	3.29E-07	7 2.89E-07	2.41E-0	07 5	.43E-08	1.14E-07	8.54E-08	4.54E-07	4.19E-07	-3E-08	1.15E-07	-1.3E-07	-7.1E-08	2.84E-07	1.39E-07	-4.8E-08	3.23E-07	7.08E-08	-6.9E-07
6		Cys-50	1.64E-06	5 1.75E-06	2.04E-0	6 5	.17E-07	8.25E-07	9.95E-07	1.53E-06	1.79E-06	1.99E-06	3.17E-06	2.71E-06	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49359E-06	2.63E-06
7		Cys-50	2.73E-07	7 2.87E-07	3.25E-0)7 5	.25E-08	1.43E-07	1.68E-07	5.26E-07	5.35E-07	1.08E-07	1.97E-07	-6.2E-08	-6.1E-10	3.03E-07	1.79E-07	3.2E-08	3.13E-07	3.31115E-07	-5E-07
8		GSH-50	3.57E-07	7 3.34E-07	3.4E-0	07 4	.91E-08	1.19E-07	2.56E-07	5.84E-07	7.06E-07	5.15E-07	1.25E-06	6.35E-07	5.15E-07	7.88E-07	6.21E-07	3.58E-07	8.38E-07	3.81165E-07	2.21E-07
9		GSH-50	4.39E-07	4.48E-07	4.48E-0)7	7.6E-08	1.66E-07	3.12E-07	4.52E-07	6.57E-07	4.24E-07	7.41E-07	1.94E-07	1.73E-07	7.44E-07	6.56E-07	3.77E-07	8.02E-07	2.89307E-07	9.64E-08
0		GSH-50	3.75E-07	4.04E-07	4.27E-0)7 5	.34E-08	1.21E-07	2.55E-07	3.2E-07	5.96E-07	2.89E-07	6.56E-07	9.22E-08	8.48E-08	6.86E-07	6.45E-07	3.29E-07	8.53E-07	4.40369E-07	1.96E-07
1		GSH-50	3.01E-07	7 3.5E-07	4.09E-0)7	5E-08	1.15E-07	2.63E-07	2.3E-07	6E-07	2.94E-07	6.45E-07	1.52E-09	-9.5E-09	7.13E-07	7.03E-07	2.86E-07	7.94E-07	4.55017E-07	1.83E-07
2		GSH-50	3.88E-07	4.01E-07	4.29E-0	07 5	.71E-08	1.41E-07	3.11E-07	3.35E-07	7.11E-07	4.14E-07	5.77E-07	-9.1E-08	-7.4E-08	6.65E-07	7.06E-07	4.97E-07	8.15E-07	4.62341E-07	1.71E-07
3		GSH-50	1.74E-06	5 1.79E-06	2.06E-0	6	4.7E-07	8.15E-07	1.22E-06	1.48E-06	1.97E-06	1.97E-06	3.54E-06	3.11E-06	2.87E-06	2.04E-06	2.19E-06	2.67E-06	2.74E-06	2.87232E-06	2.97E-06
4		GSH-50	3.23E-07	7 3.32E-07	3.36E-0	07 4	.64E-08	9.4E-08	2.13E-07	3.32E-07	8.53E-07	4.95E-07	9.35E-07	1.48E-07	1.21E-07	6.35E-07	7.33E-07	3.88E-07	7.18E-07	3.36914E-07	5.68E-08
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7		P.1	9.04E-07	7.992-07	6.46E-07	4.5E-07	0.30E-07	9.795-07	9.695-07	1.252-00	1 165.05	1.402-00	1.302-00	1.122-00	1.312-00	1.022-00	1.925.06	1.00-00	2.00323E-00	1.585-00
2		P-1	9.415-07	7.45-07	5.025-07	4.065-07	7.945-07	1.025-06	9.995-07	1.205-06	1.102-00	1.452-00	1.382-00	1.132-00	1.375-00	1.462-00	25-06	1.000-00	2.1/3402-00	1.655-06
2		P-1	1.365-06	1.44E-06	1 745-06	6.65E-07	1.03E-06	1.022-00	1.325-06	1.685-06	1.202-00	2 255-06	2 135-06	2.065-06	1.61E-06	1.775-06	2 255-06	3 255-06	3 507395-06	3.61E-06
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2		Cvs-50	3.78E-07	2.87E-07	1.99E-07	2.31E-07	3.26E-07	2.96E-07	8.25E-07	6.8E-07	3.01E-07	2.67E-07	3.06E-10	3.39E-08	2.93E-07	1.69E-07	9.09E-08	2.24E-07	1.5869E-08	-5.8E-07
3		Cvs-50	3.73E-07	3.16E-07	3.01E-07	1.08E-07	1.91E-07	1.79E-07	4.86E-07	3.96E-07	-1.5E-08	2.17E-07	-4.9E-08	-1.1E-08	2.15E-07	1.33E-07	1.02E-07	3.08E-07	1.10778E-07	-5.8E-07
4		Cvs-50	3.66E-07	2.98E-07	2.74E-07	8.76E-08	1.83E-07	1.65E-07	4.76E-07	4.17E-07	-4.5E-08	3.4E-07	-1E-08	2.93E-08	2.35E-07	1.34E-07	3.42E-08	3.28E-07	1.2146E-07	-6E-07
5		Cys-50	3.29E-07	2.89E-07	2.41E-07	5.43E-08	1.14E-07	8.54E-08	4.54E-07	4.19E-07	-3E-08	1.15E-07	-1.3E-07	-7.1E-08	2.84E-07	1.39E-07	-4.8E-08	3.23E-07	7.08E-08	-6.9E-07
6		Cys-50	1.64E-06	1.75E-06	2.04E-06	5.17E-07	8.25E-07	9.95E-07	1.53E-06	1.79E-06	1.99E-06	3.17E-06	2.71E-06	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49359E-06	2.63E-06
7		Cys-50	2.73E-07	2.87E-07	3.25E-07	5.25E-08	1.43E-07	1.68E-07	5.26E-07	5.35E-07	1.08E-07	1.97E-07	-6.2E-08	-6.1E-10	3.03E-07	1.79E-07	3.2E-08	3.13E-07	3.31115E-07	-5E-07
8		GSH-50	3.57E-07	3.34E-07	3.4E-07	4.91E-08	1.19E-07	2.56E-07	5.84E-07	7.06E-07	5.15E-07	1.25E-06	6.35E-07	5.15E-07	7.88E-07	6.21E-07	3.58E-07	8.38E-07	3.81165E-07	2.21E-07
9		GSH-50	4.39E-07	4.48E-07	4.48E-07	7.6E-08	1.66E-07	3.12E-07	4.52E-07	6.57E-07	4.24E-07	7.41E-07	1.94E-07	1.73E-07	7.44E-07	6.56E-07	3.77E-07	8.02E-07	2.89307E-07	9.64E-08
0		GSH-50	3.75E-07	4.04E-07	4.27E-07	5.34E-08	1.21E-07	2.55E-07	3.2E-07	5.96E-07	2.89E-07	6.56E-07	9.22E-08	8.48E-08	6.86E-07	6.45E-07	3.29E-07	8.53E-07	4.40369E-07	1.96E-07
1		GSH-50	3.01E-07	3.5E-07	4.09E-07	5E-08	1.15E-07	2.63E-07	2.3E-07	6E-07	2.94E-07	6.45E-07	1.52E-09	-9.5E-09	7.13E-07	7.03E-07	2.86E-07	7.94E-07	4.55017E-07	1.83E-07
2		GSH-50	3.88E-07	4.01E-07	4.29E-07	5.71E-08	1.41E-07	3.11E-07	3.35E-07	7.11E-07	4.14E-07	5.77E-07	-9.1E-08	-7.4E-08	6.65E-07	7.06E-07	4.97E-07	8.15E-07	4.62341E-07	1.71E-07
3		GSH-50	1.74E-06	1.79E-06	2.06E-06	4.7E-07	8.15E-07	1.22E-06	1.48E-06	1.97E-06	1.97E-06	3.54E-06	3.11E-06	2.87E-06	2.04E-06	2.19E-06	2.67E-06	2.74E-06	2.87232E-06	2.97E-06
4		GSH-50	3.23E-07	3.32E-07	3.36E-07	4.64E-08	9.4E-08	2.13E-07	3.32E-07	8.53E-07	4.95E-07	9.35E-07	1.48E-07	1.21E-07	6.35E-07	7.33E-07	3.88E-07	7.18E-07	3.36914E-07	5.68E-08
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6		P-1	9.04E-07	7.99E-07	6.34E-07	4.5E-07	8.38E-07		X / Quanti	tative				12E-06	1.51E-06	1.62E-06	2.19E-06	1.8E-06	2.08923E-06	1.58E-06	1
7		P-1	9.24E-07	7.94E-07	6.46E-07	3.97E-07	7.56E-07	_	The first r	ow contains i	numerical data	while it is ex	pected to	15E-06	1.37E-06	1.48E-06	1.93E-06	1.88E-06	2.17346E-06	1.63E-06	
8		P-1	9.41E-07	7.4E-07	5.02E-07	4.06E-07	7.84E-07		contain va	riable labels.				24E-06	1.34E-06	1.5E-06	2E-06	1.88E-06	2.21375E-06	1.65E-06	
9		P-1	1.36E-06	1.44E-06	1.74E-06	6.65E-07	1.03E-06		- Click "Co	ntinue" if it is	normal that s	ome or all the	labels are	2.06E-06	1.61E-06	1.77E-06	2.25E-06	3.25E-06	3.50739E-06	3.61E-06	
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11		Cys-50	3.91E-07	3.02E-07	2.61E-07	9.64E-08	1.9E-07		- Click "Ba	ck" to go bac the data sel	k to the dialog	box and mod	ify the	-3.6E-08	3.1E-07	1E-07	-1.8E-07	1.56E-07	-5.2186E-08	-4.9E-07	
12		Cys-50	3.78E-07	2.87E-07	1.99E-07	2.31E-07	3.26E-07						-	3.39E-08	2.93E-07	1.69E-07	9.09E-08	2.24E-07	1.5869E-08	-5.8E-07	
13		Cys-50	3.73E-07	3.16E-07	3.01E-07	1.08E-07	1.91E-07		XLSTAT 2018	3.2 Exc	el 14.0.4734 (32bit)	Windows 10	-1.1E-08	2.15E-07	1.33E-07	1.02E-07	3.08E-07	1.10778E-07	-5.8E-07	
14		Cys-50	3.66E-07	2.98E-07	2.74E-07	8.76E-08	1.83E-07		Build 50634					2.93E-08	2.35E-07	1.34E-07	3.42E-08	3.28E-07	1.2146E-07	-6E-07	
15		Cys-50	3.29E-07	2.89E-07	2.41E-07	5.43E-08	1.14E-07	https://w	ww.xlstat.com	1		1		-7.1E-08	2.84E-07	1.39E-07	-4.8E-08	3.23E-07	7.08E-08	-6.9E-07	
16		Cys-50	1.64E-06	1.75E-06	2.04E-06	5.17E-07	8.25E-07				ntinue	Back	Cancel	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49359E-06	2.63E-06	
17		Cys-50	2.73E-07	2.87E-07	3.25E-07	5.25E-08	1.43E-07	1.68E-07	5.26E-07	5.35E-0	1.08E-07	1.97E-07	-6.2E-08	-6.1E-10	3.03E-07	1.79E-07	3.2E-08	3.13E-07	3.31115E-07	-5E-07	
18		GSH-50	3.57E-07	3.34E-07	3.4E-07	4.91E-08	1.19E-07	2.56E-07	5.84E-07	7.06E-01	5.15E-07	1.25E-06	6.35E-07	5.15E-07	7.88E-07	6.21E-07	3.58E-07	8.38E-07	3.81165E-07	2.21E-07	
19		GSH-50	4.39E-07	4.48E-07	4.48E-07	7.6E-08	1.66E-07	3.12E-07	4.52E-07	6.57E-0	4.24E-07	7.41E-07	1.94E-07	1.73E-07	7.44E-07	6.56E-07	3.77E-07	8.02E-07	2.89307E-07	9.64E-08	
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22		GSH-50	3.88E-07	4.01E-07	4.29E-07	5.71E-08	1.41E-07	3.11E-07	3.3			-07	-9.1E-08	-7.4E-08	6.65E-07	7.06E-07	4.97E-07	8.15E-07	4.62341E-07	1.71E-07	
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24		GSH-50	3.23E-07	3.32E-07	3.36E-07	4.64E-08	9.4E-08	2.13E-07	3.32E-07	8.53E-0	4.95E-07	9.35E-07	1.48E-07	1.21E-07	6.35E-07	7.33E-07	3.88E-07	7.18E-07	3.36914E-07	5.68E-08	
25		Hcys-50	7.5E-07	5.29E-07	5.57E-07	3.31E-07	3.16E-07	2.61E-07	4.93E-07	3.16E-0	7 1.94E-07	8.27E-07	4.86E-07	4.63E-07	3.38E-07	2.4E-07	1.26E-07	2.84E-07	5.8899E-08	-1.4E-07	-
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16		Cys-50	1.64E-06	1.75E-06	2.04E-06	5.17E-07	8.25E-07	9.95E-07	1.53E-06	1.79E-06	1.99E-06	3.17E-06	2.71E-06	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49359E-06	2.63E-06	5
17		Cys-50	2.73E-07	2.87E-07	3.25E-07	5.25E-08	1.43E-07	1.68E-07	5.26E-07	5.35E-07	1.08E-07	1.97E-07	-6.2E-08	-6.1E-10	3.03E-07	1.79E-07	3.2E-08	3.13E-07	3.31115E-07	-5E-07	7
18		GSH-50	3.57E-07	3.34E-07	3.4E-07	4.91E-08	1.19E-07	2.56E-07	5.84E-07	7.06E-07	5.15E-07	1.25E-06	6.35E-07	5.15E-07	7.88E-07	6.21E-07	3.58E-07	8.38E-07	3.81165E-07	2.21E-07	7
19		GSH-50	4.39E-07	4.48E-07	4.48E-07	7.6E-08	1.66E-07	3.12E-07	4.52E-07	6.57E-07	4.24E-07	7.41E-07	1.94E-07	1.73E-07	7.44E-07	6.56E-07	3.77E-07	8.02E-07	2.89307E-07	9.64E-08	1
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23		GSH-50	1.74E-06	1.79E-06	2.06E-06	4.7E-07	8.15E-07	1.22E-06	1.48E-06	1.97E-06	1.97E-06	3.54E-06	3.11E-06	2.87E-06	2.04E-06	2.19E-06	2.67E-06	2.74E-06	2.87232E-06	2.97E-06	5
24		GSH-50	3.23E-07	3.32E-07	3.36E-07	4.64E-08	9.4E-08	2.13E-07	3.32E-07	8.53E-07	4.95E-07	9.35E-07	1.48E-07	1.21E-07	6.35E-07	7.33E-07	3.88E-07	7.18E-07	3.36914E-07	5.68E-08	1
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3 R	eplicates A	1.68E-0	7 1.43E-07	1.55E-07	1.43E-07	2.45E-07	3.62E-07	2.02E-07	3.76E-07	6.3E-07	5.14E-07	6.93E-07	3.36E-07	5.06E-07	1.73E-07	1.75E-07	8.75E-07	4.57E-07	3.05E-07		
4	A	2.58E-0	7 1E-07	1.82E-07	1.79E-07	2.63E-07	4.76E-07	1.72E-07	3.79E-07	4.04E-07	7.61E-07	5.85E-07	5.43E-07	5.26E-07	1.89E-07	1.16E-07	8.32E-07	4.64E-07	3.16E-07	_	
5	A	1.25E-0	7 9.58E-08	1.51E-07	1.2E-07	2.51E-07	5.41E-07	1.54E-06	3.57E-07	3.98E-07	7.14E-07	5.43E-07	5.19E-08	5.06E-07	1.47E-07	1.51E-07	5.7E-07	4.61E-07	3.13E-07		
6	В	2.02E-0	7 -2E-07	-4.1E-07	2.97E-07	1.78E-07	3.92E-07	5.04E-07	1.25E-06	1.44E-06	8.77E-07	6.41E-07	9.97E-07	3.74E-07	5.95E-07	2.07E-07	9.89E-07	7.00E-07	5.91E-07	_	
7	В	2.38E-0	8 -9.06E-08	3.23E-07	3.84E-07	1.97E-07	3.7E-07	5.25E-07	1.15E-06	1.47E-06	1.12E-06	6.28E-07	1.15E-06	3.77E-07	4.23E-07	1.33E-07	1.06E-06	1.02E-06	8.95E-07		
8	В	2.51E-0	7 -3.6E-07	7.56E-07	2.17E-07	5.55E-07	3.27E-07	5.74E-07	1.49E-06	2.07E-06	1.23E-06	7.13E-07	8.96E-07	1.02E-07	5.54E-07	3.02E-08	6.23E-07	1.26E-07	1.00E-07	_	
9	0	8.2/E-0	/ /.4E-0/	5.94E-07	4.69E-07	4.29E-07	2.51E-07	4.48E-07	3.02E-07	1.48E-07	8.08E-07	6E-07	5.00E-07	2.38E-07	2.42E-07	1.14E-07	2.7/E-08	1.14E-07	-5.3E-07	_	
10	0	8.01E-0	7 6.225.07	5.12E-07	4.81E-07	4./3E-07	2.7E-07	3.8E-07	2.91E-07	1.8E-07	9.03E-07	5.14E-07	4.85E-07	3.24E-07	2.4E-07	2.69E-07	2.93E-07	1.2E-07	-5.8E-07	_	
12	P.1	6 125-0	7 6 525-07	4.615-07	4.202-07	9.275-07	9.615-07	4.00E-07	4.516-07	2.432-07	1.015-06	1.125-06	9.015-07	9 715-07	1.075-06	1.032-07	1.225-06	1.495-06	1 165-06	_	
12	P.1	0.120-0	7 7 955.07	5.055.07	2 95.07	7.525.07	1.025.06	0.302-07	1 195.06	1 195.06	1.45.06	1.132-00	1 125.06	1 255.06	1.415-06	1.915.06	1.725-06	1.402-00	1.545.06	_	
14	P.1	9.045-0	7 7 995-07	6 34E-07	4 55-07	8 385-07	1.02E-00	1.035-06	1.255-06	1.102-00	1.465-06	1.365-00	1.125-00	1.515-00	1.412-00	2 195-06	1.722-00	2.095-06	1.545-06	_	
15	P.1	9.245-0	7 7 945-07	6.46E-07	3 97E-07	7.56E-07	9 785-07	9.685-07	1.252-00	1 165-06	1.455-06	1.38E-06	1.155-06	1.37E-06	1.02E-00	1.935-06	1.88E-06	2.05E-00	1.63E-06	_	
16	P.1	9.415-0	7 745-07	5.02E-07	4.065-07	7.84E-07	1.025-06	9 995-07	1 295-06	1.26E-06	1.445-06	1.43E-06	1 245-06	1 345-06	1.55-06	2E-06	1 88E-06	2 21E-06	1.655-06	_	
17	P-1	1.36E-0	6 1.44E-06	1.74E-06	6.65E-07	1.03E-06	1.29E-06	1.32E-06	1.68E-06	1.74E-06	2.25E-06	2.13E-06	2.06E-06	1.61E-06	1.77E-06	2.25E-06	3.25E-06	3.51E-06	3.61E-06		
18	P-1	8.57E-0	7 6.92E-07	5.08E-07	4E-07	7.98E-07	1.02E-06	9.52E-07	1.28E-06	1.22E-06	1.56E-06	1.45E-06	1.29E-06	1.38E-06	1.59E-06	2.16E-06	1.8E-06	1.79E-06	1.3E-06	_	
19	Cvs	3.91E-0	7 3.02E-07	2.61E-07	9.64E-08	1.9E-07	1.99E-07	4.86E-07	3.96E-07	-1.5E-08	2.04E-07	-6.4E-08	-3.6E-08	3.1E-07	1E-07	-1.8E-07	1.56E-07	-5.2E-08	-4.9E-07	_	
20	Cvs	3.78E-0	7 2.87E-07	1.99E-07	2.31E-07	3.26E-07	2.96E-07	8.25E-07	6.8E-07	3.01E-07	2.67E-07	3.06E-10	3.39E-08	2.93E-07	1.69E-07	9.09E-08	2.24E-07	1.59E-08	-5.8E-07	_	
21	Cvs	3.73E-0	7 3.16E-07	3.01E-07	1.08E-07	1.91E-07	1.79E-07	4.86E-07	3.96E-07	-1.5E-08	2.17E-07	-4.9E-08	-1.1E-08	2.15E-07	1.33E-07	1.02E-07	3.08E-07	1.11E-07	-5.8E-07		
22	Cvs	3.66E-0	7 2.98E-07	2.74E-07	8.76E-08	1.83E-07	1.65E-07	4.76E-07	4.17E-07	-4.5E-08	3.4E-07	-1E-08	2.93E-08	2.35E-07	1.34E-07	3.42E-08	3.28E-07	1.21E-07	-6E-07		
23	Cys	3.29E-0	7 2.89E-07	2.41E-07	5.43E-08	1.14E-07	8.54E-08	4.54E-07	4.19E-07	-3E-08	1.15E-07	-1.3E-07	-7.1E-08	2.84E-07	1.39E-07	-4.8E-08	3.23E-07	7.08E-08	-6.9E-07		
24	Cys	1.64E-0	6 1.75E-06	2.04E-06	5.17E-07	8.25E-07	9.95E-07	1.53E-06	1.79E-06	1.99E-06	3.17E-06	2.71E-06	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49E-06	2.63E-06		
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Step wise procedure for generating LDA score plot shown in Figure 11b.

Red Box: Contains difference in current value at particular potential (380 mV, 480mV and 580 mV) obtained from the LSV. **Green Box**: Shows the label of the replicates. **Black Box**: Shows the name the electrode used as working electrode.

	Hor	∽ ↓	rt Pagela	wout Fr	ormulas	Data Pr	view Vie	ew Add	For sir pre	sentation Un	knowns - N	licrosoft Exc	el						-	- 0	X		
XLST	AT Recent	Order	Preparing De	escribing Vis data + Discov	cualizing Ana data - di er, explain a	alyzing Mode ata - predict	eling Machin a * learnin	ne Correla	2 ation/Associa tests *	ation Parame tests Test a hyp	tric Nonpara test	ametric Testin s * outl	ng for iers * XLST	Advance feature	ed XLSTAT-	D I 3DPlot XLS	LG	V ols					
_	A1		(n	fx	An	alyzing data															~		
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2			280	480	580	280	480	580	380	GO-CUPC-	2DA 580	290	rGO-CUPC-	PDA 590	280	GO-MINPC-	PDA 580	280	rGO-MhPC	-PDA 590	- 1		
3	Replicates	A	1.68E-07	1.43E-07	1.55E-07	1.43E-07	2.45E-07	3.62E-07	2.02E-07	3.76E-07	6.3E-07	5.14E-07	6.93E-07	3.36E-07	5.06E-07	1.73E-07	1.75E-07	8.75E-07	4.57E-07	3.05E-07			
4		A	2.58E-07	1E-07	1.82E-07	1.79E-07	2.63E-07	4.76E-07	1.72E-07	3.79E-07	4.04E-07	7.61E-07	5.85E-07	5.43E-07	5.26E-07	1.89E-07	1.16E-07	8.32E-07	4.64E-07	3.16E-07		_	
5		A	1.25E-07	9.58E-08	1.51E-07	1.2E-07	2.51E-07	5.41E-07	1.54E-06	3.57E-07	3.98E-07	7.14E-07	5.43E-07	5.19E-08	5.06E-07	1.47E-07	1.51E-07	5.7E-07	4.61E-07	3.13E-07			
6		В	2.02E-07	-2E-07	-4.1E-07	2.97E-07	1.78E-07	3.92E-07	5.04E-07	1.25E-06	1.44E-06	8.77E-07	6.41E-07	9.97E-07	3.74E-07	5.95E-07	2.07E-07	9.89E-07	7.00E-07	5.91E-07		5	step 2
7		В	2.38E-08	-9.06E-08	3.23E-07	3.84E-07	1.97E-07	3.7E-07	5.25E-07	1.15E-06	1.47E-06	1.12E-06	6.28E-07	1.15E-06	3.77E-07	4.23E-07	1.33E-07	1.06E-06	1.02E-06	8.95E-07		_	
8		В	2.51E-07	-3.6E-07	7.56E-07	2.17E-07	5.55E-07	3.27E-07	5.74E-07	1.49E-06	2.07E-06	1.23E-06	7.13E-07	8.96E-07	1.02E-07	5.54E-07	3.02E-08	6.23E-07	1.26E-07	1.00E-07			
9		C	8.27E-07	7.4E-07	5.94E-07	4.69E-07	4.29E-07	2.51E-07	4.48E-07	3.02E-07	1.48E-07	8.08E-07	6E-07	5.00E-07	2.38E-07	2.42E-07	1.14E-07	2.77E-08	1.14E-07	-5.3E-07	_		
10		C	8.01E-07	7.78E-07	5.12E-07	4.81E-07	4.73E-07	2.7E-07	3.8E-07	2.91E-07	1.8E-07	9.03E-07	5.14E-07	4.85E-07	3.24E-07	2.4E-07	2.69E-07	2.93E-07	1.2E-07	-5.8E-07	_		
11		C D 1	7.44E-07	6.22E-07	6.1E-07	4.26E-07	4.12E-07	2.27E-07	4.06E-07	4.91E-07	2.45E-07	8.61E-07	4.46E-07	4.25E-07	3.1E-07	2.75E-07	1.03E-07	3.7E-07	9.02E-08	-5.5E-07	_		
12		P-I	6.12E-07	6.53E-07	4.61E-07	4.36E-07	8.3/E-0/	9.61E-07	6.36E-07	7.5/E-0/	8.73E-07	1.01E-06	1.13E-06	9.01E-07	9.71E-07	1.0/E-06	1.72E-06	1.22E-06	1.48E-06	1.162-06	- 1		
13		P-1	8.12E-07	7.85E-07	5.95E-07	3.9E-07	7.52E-07	1.02E-00	9.83E-07	1.185-00	1.185-00	1.465.06	1.385-00	1.13E-00	1.352-00	1.412-00	1.912-00	1.72E-00	1.995-00	1.54E-00	_		
14		P.1	9.245-07	7.945-07	6.46E-07	2.975-07	7.565-07	9.795-07	9.695-07	1.252-00	1 165-06	1.402-00	1.302-00	1.122-00	1.375-06	1.022-00	1.925-06	1.825-06	2.032-00	1.585-00	_		
16		P.1	9.415-07	7.45-07	5.02E-07	4.065-07	7.845-07	1.025-06	9.995-07	1.205-06	1.265-06	1.445-06	1.435-06	1.245-06	1.345-06	1.402-00	2E-06	1.885-06	2.215-06	1.65E-06			
17		P-1	1.36E-06	1.44E-06	1.74E-06	6.65E-07	1.03E-06	1.29E-06	1.32E-06	1.68E-06	1.74E-06	2.25E-06	2.13E-06	2.06E-06	1.61E-06	1.77E-06	2.25E-06	3.25E-06	3.51E-06	3.61E-06			
18		P-1	8.57E-07	6.92E-07	5.08E-07	4E-07	7.98E-07	1.02E-06	9.52E-07	1.28E-06	1.22E-06	1.56E-06	1.45E-06	1.29E-06	1.38E-06	1.59E-06	2.16E-06	1.8E-06	1.79E-06	1.3E-06			
19		Cys	3.91E-07	3.02E-07	2.61E-07	9.64E-08	1.9E-07	1.99E-07	4.86E-07	3.96E-07	-1.5E-08	2.04E-07	-6.4E-08	-3.6E-08	3.1E-07	1E-07	-1.8E-07	1.56E-07	-5.2E-08	-4.9E-07			
20		Cys	3.78E-07	2.87E-07	1.99E-07	2.31E-07	3.26E-07	2.96E-07	8.25E-07	6.8E-07	3.01E-07	2.67E-07	3.06E-10	3.39E-08	2.93E-07	1.69E-07	9.09E-08	2.24E-07	1.59E-08	-5.8E-07			
21		Cys	3.73E-07	3.16E-07	3.01E-07	1.08E-07	1.91E-07	1.79E-07	4.86E-07	3.96E-07	-1.5E-08	2.17E-07	-4.9E-08	-1.1E-08	2.15E-07	1.33E-07	1.02E-07	3.08E-07	1.11E-07	-5.8E-07			
22		Cys	3.66E-07	2.98E-07	2.74E-07	8.76E-08	1.83E-07	1.65E-07	4.76E-07	4.17E-07	-4.5E-08	3.4E-07	-1E-08	2.93E-08	2.35E-07	1.34E-07	3.42E-08	3.28E-07	1.21E-07	-6E-07			
23		Cys	3.29E-07	2.89E-07	2.41E-07	5.43E-08	1.14E-07	8.54E-08	4.54E-07	4.19E-07	-3E-08	1.15E-07	-1.3E-07	-7.1E-08	2.84E-07	1.39E-07	-4.8E-08	3.23E-07	7.08E-08	-6.9E-07			
24		Cys	1.64E-06	1.75E-06	2.04E-06	5.17E-07	8.25E-07	9.95E-07	1.53E-06	1.79E-06	1.99E-06	3.17E-06	2.71E-06	2.56E-06	1.72E-06	1.66E-06	2.19E-06	2.23E-06	2.49E-06	2.63E-06			
14 4	► ► She	et1 PJ		2.075.07	2 255 07	F 255 00	1 435 07	1 000 07	F 200 07	C 255 07	1 005 07	1 075 07	11	C 17 10	2 025 07	1 705 07	2.25.00	2 425 07	2 245 07		•		
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Choo	ose DA	-07	1.43E-07	1.55E	Multipl	e Correspond	ence Analysis	(MCA)	3.76E-07	6.3E-07	5.14E-07	6.93E-07	3.36E-07	5.06E-07	1.73E-07	1.75E-07	8.75E-07	4.57E-07	3.05E-07		
	A	2.58E-07	1E-07	1.82E	os Multidi	mensional Sca	ling (MDS)		3.79E-07	4.04E-07	7.61E-07	5.85E-07	5.43E-07	5.26E-07	1.89E-07	1.16E-07	8.32E-07	4.64E-07	3.16E-07	_	Sten
	A	1.25E-07	9.58E-08	1.51E	Principa	I Coordinate	Analysis		3.57E-07	3.98E-07	7.14E-07	5.43E-07	5.19E-08	5.06E-07	1.47E-07	1.51E-07	5.7E-07	4.61E-07	3.13E-07		Otop
	В	2.02E-07	-2E-07	-4.1E	k-mean	s clustering			1.25E-06	1.44E-06	8.77E-07	6.41E-07	9.97E-07	3.74E-07	5.95E-07	2.07E-07	9.89E-07	7.00E-07	5.91E-07		
	В	2.38E-08	-9.06E-08	3.23E	Agglom	erative hierar	chical cluster	ing (AHC)	1.15E-06	1.47E-06	1.12E-06	6.28E-07	1.15E-06	3.77E-07	4.23E-07	1.33E-07	1.06E-06	1.02E-06	8.95E-07		
	В	2.51E-07	-3.6E-07	7.56E	Gaussia	n Mixture Mo	dels		1.49E-06	2.07E-06	1.23E-06	7.13E-07	8.96E-07	1.02E-07	5.54E-07	3.02E-08	6.23E-07	1.26E-07	1.00E-07		
	С	8.27E-07	7.4E-07	5.94E	Univaria	te clustering			3.02E-07	1.48E-07	8.08E-07	6E-07	5.00E-07	2.38E-07	2.42E-07	1.14E-07	2.77E-08	1.14E-07	-5.3E-07		
1	С	8.01E-07	7.78E-07	5.12E-0	/ 4.81E-0	/ 4./3E-U/	2./E-U/	3.8E-07	2.91E-07	1.8E-07	9.03E-07	5.14E-07	4.85E-07	3.24E-07	2.4E-07	2.69E-07	2.93E-07	1.2E-07	-5.8E-07		
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