

The metallome of human placenta in gestational diabetes mellitus

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supporting information

Table S1: Detection limits given as ppm per dry weight (d.w.) of placenta.

Elem.	Detection limit	Elem.	Detection limit	Elem.	Detection limit
Al	1.4	Fe	0.88	Pb	0.069
As	0.015	Ga	0.047	Rb	0.022
B	2.7	Gd	0.0089	Sb	0.33
Ba	0.43	K	5.2	Se	0.14
Ca	7.6	La	0.012	Sn	0.093
Cd	0.0091	Mg	1.3	Sr	0.039
Ce	0.012	Mn	0.038	Ta	0.050
Co	0.014	Mo	0.013	Ti	0.19
Cr	0.31	Na	3.1	V	0.012
Cs	0.0073	Ni	0.17	Zn	0.85
Cu	0.097	P	9.3	Zr	0.13

Table S2: analytical recoveries obtained in the ICP-MS analyses of placentas.

Elem.	%Rec.	Elem.	%Rec.	Elem.	%Rec.
Al	102	Hf	109	Sb	104
As	102	Ho	100	Se	113
Ba	98	K	121	Sm	102
Be	98	La	100	Sn	101
Ca	109	Mg	99	Sr	100
Cd	100	Mn	100	Ta	105
Ce	100	Mo	102	Th	98
Co	100	Na	99	Ti	74
Cr	96	Nb	104	Tl	93
Cs	100	Nd	102	Tm	100
Cu	113	Ni	103	U	97
Dy	100	P	390	V	97
Er	100	Pb	90	W	104
Eu	101	Pr	100	Yb	99
Fe	102	Rb	114	Zn	110
Ga	104	Re	106	Zr	102
Gd	99				

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Table S3: instrumental errors, errors related to the procedure, and errors related to procedure and sampling (given as ppm d.w. mean standard deviation).

Elem.	Instrum. error	Procedure error	Procedure and sampling error
Al	0.066	4.9	12
Ca	4.2	88	580
Cd	0.0014	0.0014	0.0032
Co			0.072
Cu	0.010	0.13	0.062
Fe	1.2	37	14
K	14	330	570
Mg	1.2	19	28
Mn	0.0022	0.035	0.047
Na	11	130	150
P	29	510	670
Rb	0.024	0.56	0.85
Sb	0.0037		
Se	0.0094	0.025	0.039
Sr	0.0031	0.044	0.14
Ti	0.016	0.19	0.044
Zn	0.16	1.6	2.7
Zr			0.074

Table S4: Statistical comparison of the elemental concentration between maternal and fetal side in each of the five analyses performed on the placenta samples.

Element	analysis									
	1		2		3		4		5	
	control	GDM	control	GDM	control	GDM	control	GDM	control	GDM
Al	////	////						97.5		
As	////	////					////	////	////	////
Ba	////	////	////	////	////	////	////	////	////	////
Ca	////	////		96.9					96.2	
Cd	95.1									
Ce	////	////	////	////	////	////			////	////
Co	////	////					////	////	////	////
Cr							////	////	////	////
Cs					99.0				////	////
Cu										
Fe							97.5		99.7	
Ga	////	////	////	////	////	////	////	////	////	////
Gd	////	////	////	////	////	////	////	////	////	////
K	99.0				96.2					
La	////	////	////	////	////	////			////	////
Mg									98.6	
Mn	////	////								
Mo	////	////	////	////	////	////	////	////	////	////
Na	95.1					97.1				
Ni	////	////	////	////	////	////	////	////	////	////
P									98.5	
Pb	////	////					////	////	////	////
Rb	99.1				97.5					
Se						95.8			99.7	
Sn	////	////	////	////	////	////	////	////	////	////
Sr	////	////		97.0					95.6	
Ta	////	////	////	////	////	////	////	////	////	////
Ti	////	////								
Tl	////	////	////	////	////	////	////	////	////	////
V	////	////			////	////	////	////	////	////
Zn									96.8	
Zr	////	////								

//// No test can be performed
 negative test
 positive test ((1 - p)% value)

Table S5: Statistical comparison of the elemental concentration between diabetic and control women in each of the five analyses performed on the placenta samples.

Element	Analisi				
	1	2	3	4	5
Al	////		test M. W.	test M. W.	test M. W.
As	////				////
Ba	////	////	////	////	////
Ca	////				
Cd	test M. W.	test M. W.	test t	test t	
Ce	////	////	////		////
Co	////		both tests	////	////
Cr	test t		test M. W.		////
Cs	both tests			test M. W.	test M. W.
Cu				test t	
Fe	both tests				
Ga	////	////			////
Gd	////	////	////	////	////
K			both tests		
La	////	////	////		////
Mg			test M. W.		test t
Mn	////				
Mo	////	////	////	////	////
Na					
Ni	////	////	////	////	////
P			test M. W.		
Pb	////	both tests			////
Rb		both tests	test M. W.	test M. W.	
Se	both tests	test M. W.			both tests
Sn	////	////	////	////	////
Sr	////			test t	test t
Ta	////	////	////	////	////
Ti	////				
Tl	////	////	////	////	////
V	////		////	////	////
Zn			test M. W.		test t
Zr	////				

//// no test can be performed □ both test negative ■ test positive (test name)

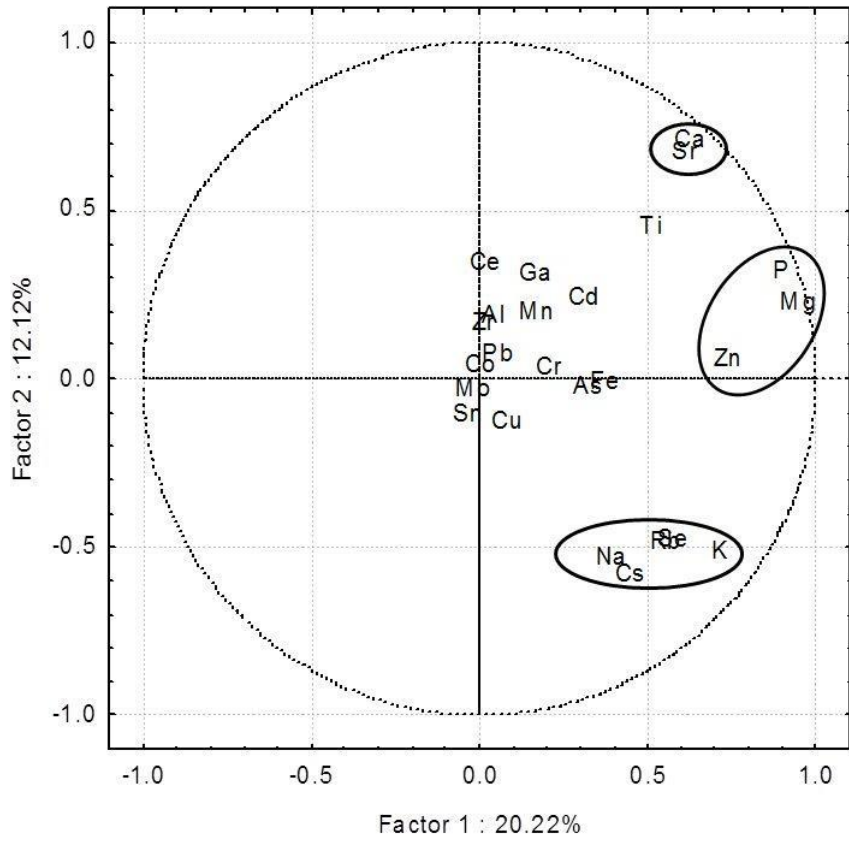


Figure S1: Loadings in the analysis of placentas.

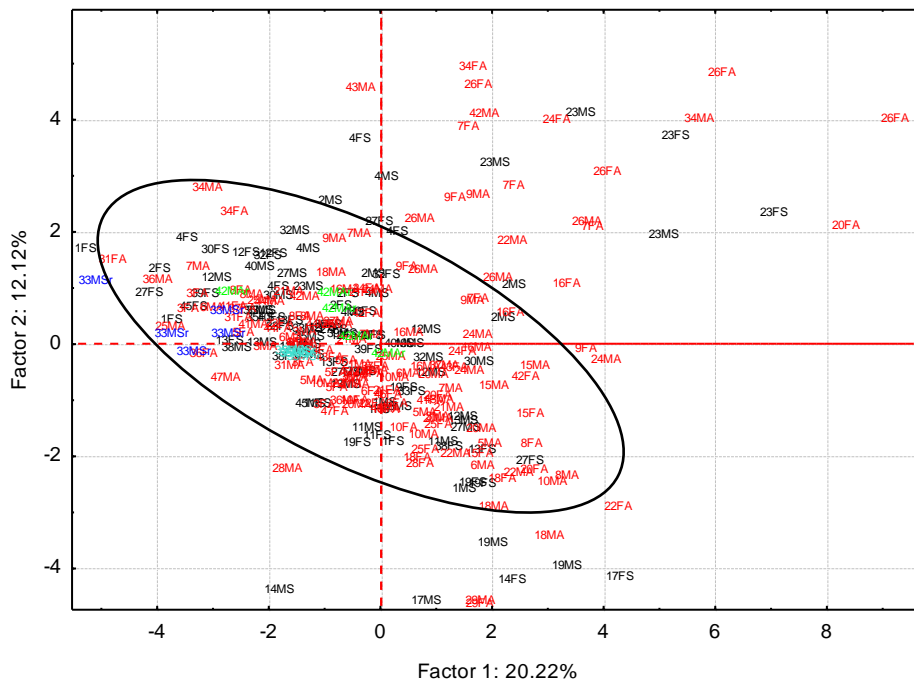


Figure S2: PCA in the analysis of placentas. Black = control women, Red = diabetic women, Light blue = instrumental error, Blue = procedure error, Green = procedure + sampling error.