Table S1. Placental transport efficiency (PTE) of 18 toxic and/or essential elements.*

Elements	Mean ± SD	Median
Toxic elements		
Al	94.1%±70.3%	82.5%
As	132.8%±147.1%	93.0%
Cd	120.3%±79.9%	98.4%
Hg	404.8%±838.6%	111.1%
Pb	130.4%±119.1%	82.0%
Sb	107.8%±43.0%	104.9%
Essential trace elements		
B	161.5%±365.0%	97.4%
Co	86.3%±58.9%	74.3%
Cr	105.9%±85.9%	86.0%
Cu	19.4%±17.8%	13.7%
Fe	253.2%±145.4%	207.3%
Ni	91.6%±55.0%	71.0%
Mn	575.6%±1058.1%	286.8%
Se	56.6%±16.3%	54.0%
Zn	116.7%±25.4%	116.0%
Rb	135.5%±50.4%	125.0%
Sr	123.2%±47.9%	108.2%
Mo	98.6%±35.9%	93.0%

*: Placental transport efficiency was measured by concentrations of cord plasma/ concentrations of maternal plasma at 3rd trimester of pregnancy. This parameter was initially a supplement to placental barrier's ability which is speculated by comparison between concentrations of maternal plasma at 3rd trimester and cord plasma. However, to be succinct and clear, we decided to remove it from our manuscript.

Table S2. Data on toxic and essential elements in maternal blood (MB) and cord blood (CB) of pregnant women reported in previous studies.

Elements	Country	Women n.	MB (μg/L)	CB (μg/L)	References
Toxic elements					
Al	South Africa	425		6.79	(Röllin et al. 2018)
	China	292	62.04		(Ma et al. 2022)
As	Canada	2001	0.69		(Ettinger et al. 2017)
	Flanders	235	0.64	0.54	(Baeyens et al. 2014)
	China	215	0.52		(Jin et al. 2014)
	South Africa	62	0.57	0.46	(Rudge et al. 2009)
	Australia	173	1.26		(Callan et al. 2013)
	North Norway	211	1.40		(Hansen et al. 2011)
	Japan	78			(Shirai et al. 2010)
	Italy	40	1.8		(Bocca et al. 2019)
	Italy	32		1.2	(Bocca et al. 2019)
Cd	Canada	2001	0.20		(Arbuckle et al. 2016)
	Flanders	235	0.31	0.07	(Baeyens et al. 2014)
	China	215	0.47		(Jin et al. 2014)
	China	209	0.48	0.15	(Sun et al. 2014)
	South Africa	62	0.15	0.02	(Rudge et al. 2009)
	Germany	50	0.34		(Kopp et al. 2012)
	South Korea	79	0.59	0.04	(Kim et al. 2015)
	North Norway	163	0.15		(Hansen et al. 2011)
	Saudi Arabia	1579	0.98	0.70	(Al-Saleh et al. 2014)
	Spain	140	0.60	0.27	(García-Esquinas et al. 2013)
	Japan	78			(Shirai et al. 2010)
	UK	4286	0.29		(Taylor et al. 2014)
	Italy	40	0.4		(Bocca et al. 2019)
	Italy	32		0.5	(Bocca et al. 2019)

Hg	Canada	2001	0.56	0.80	(Arbuckle et al. 2016)
	China	215	0.26		(Jin et al. 2014)
	China	292	0.28		(Ma et al. 2022)
	South Africa	62	0.65	1.2	(Rudge et al. 2009)
	Germany	50	0.44	1.48	(Kopp et al. 2012)
	South Korea	79	2.66	5.58	(Kim et al. 2015)
	North Norway	211	1.20		(Hansen et al. 2011)
	Saudi Arabia	1579	1.95	2.87	(Al-Saleh et al. 2014)
	Spain	140	4.61	7.66	(García-Esquinas et al. 2013)
	UK	4134	1.86		(Taylor et al. 2014)
	Italy	40	1.8		(Bocca et al. 2019)
	Italy	32		2.8	(Bocca et al. 2019)
Pb	Canada	2001	5.59	7.67	(Arbuckle et al. 2016)
	Flanders	235	11.1[a]	8.6[a]	(Baeyens et al. 2014)
	China	215	24.5		(Jin et al. 2014)
	China	209	40.5	32.3	(Sun et al. 2014)
	China	292	7.80		(Ma et al. 2022)
	Germany	50	11.5	10.3	(Kopp et al. 2012)
	South Korea	79	10.2	8.8	(Kim et al. 2015)
	North Norway	210	7.50		(Hansen et al. 2011)
	Saudi Arabia	1579	25.4	20.5	(Al-Saleh et al. 2014)
	Spain	140	18.9	13.8	(García-Esquinas et al. 2013)
	Japan	78			(Shirai et al. 2010)
	UK	4285	34.1		(Taylor et al. 2014)
	Italy	40	12		(Bocca et al. 2019)
	Italy	32		7.9	(Bocca et al. 2019)
Essential elements					
B	Israel	40	122		(Silberstein et al. 2015)
	Argentina	194	133		(Igra et al. 2016)

Co	South Africa	62	0.60	0.27	(Rudge et al. 2009)
	Western Australia	173	0.18		(Callan et al. 2013)
	China	292	0.19		(Ma et al. 2022)
	North Norway	211	0.10		(Hansen et al. 2011)
	Italy	40	0.3		(Bocca et al. 2019)
	Italy	32		0.3	(Bocca et al. 2019)
Cr	Australia	173	<1.0		(Callan et al. 2013)
	Ankara	100	0.337	0.121	(Yüksel et al. 2021)
	China	52	0.177	0.075	(Zhou et al. 2019)
	China	156	3.42	7.44	(Li et al. 2019)
	Italy	40	0.5		(Bocca et al. 2019)
	Italy	32		0.6	(Bocca et al. 2019)
Cu	Flanders	235	1312	600	(Baeyens et al. 2014)
	South Africa	62	1730	657	(Rudge et al. 2009)
	Germany	50	1120	470	(Kopp et al. 2012)
	Australia	173	1252		(Callan et al. 2013)
	America	1857	1874		(Zheng et al. 2019)
	North Norway	211	1650		(Hansen et al. 2011)
	Japan	78			(Shirai et al. 2010)
	China	292	1807.49		(Ma et al. 2022)
	Italy	40	1664		(Bocca et al. 2019)
	Italy	32		623	(Bocca et al. 2019)
Fe	Israel	40	1857		(Silberstein et al. 2015)
	China	52	624.02	536.35	(Zhou et al. 2019)
	Taiwan, China	145	292.30	414.40	(Huang et al. 2017)
Ni	Ankara	100	0.128	0.099	(Yüksel et al. 2021)
	China	156	12.8	4.47	(Li et al. 2019)
	China	292	1.50		(Ma et al. 2022)
	Australia	173	<2.0		(Callan et al. 2013)

	Italy	40	0.6		(Bocca et al. 2019)
	Italy	32		0.7	(Bocca et al. 2019)
Mn	Canada	2001	12.6	31.9	(Arbuckle et al. 2016)
	Flanders	235	12.1	31.2	(Baeyens et al. 2014)
	South Africa	62	16.8	34.9	(Rudge et al. 2009)
	South Africa	441	15.85		(Okereafor et al. 2020)
	Germany	50	17.0	28.8	(Kopp et al. 2012)
	Australia	173	9.14		(Callan et al. 2013)
	North Norway	211	10.7		(Hansen et al. 2011)
	Italy	40	16		(Bocca et al. 2019)
	Italy	32		28	(Bocca et al. 2019)
Se	South Africa	62	104	111	(Rudge et al. 2009)
	South Africa	444	62.82		(Okereafor et al. 2020)
	Australia	173	88		(Callan et al. 2013)
	America	1857	123		(Zheng et al. 2019)
	Norway	211	85		(Hansen et al. 2011)
	Japan	78			(Shirai et al. 2010)
	China	209	131	126	(Sun et al. 2014)
	China	292	88.03		(Ma et al. 2022)
	Italy	40	107		(Bocca et al. 2019)
	Italy	32		100	(Bocca et al. 2019)
Zn	South Africa	62	6290	2548	(Rudge et al. 2009)
	South Africa	446	497.8		(Okereafor et al. 2020)
	Germany	50	5120	1340	(Kopp et al. 2012)
	Australia	173	2330		(Callan et al. 2013)
	North Norway	211	5110		(Hansen et al. 2011)
	America	1857	806		(Zheng et al. 2019)
	Italy	40	6708		(Bocca et al. 2019)
	Italy	32		2311	(Bocca et al. 2019)

Sr	Israel	40	54	(Silberstein et al. 2015)
	China	292	26.5	(Ma et al. 2022)
Mo	America	1857	1.9	(Zheng et al. 2019)

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