SUPPLEMENTARY MATERIAL

Early pregnancy exposure to endocrine disrupting chemical mixtures are associated with inflammatory changes in maternal and neonatal circulation

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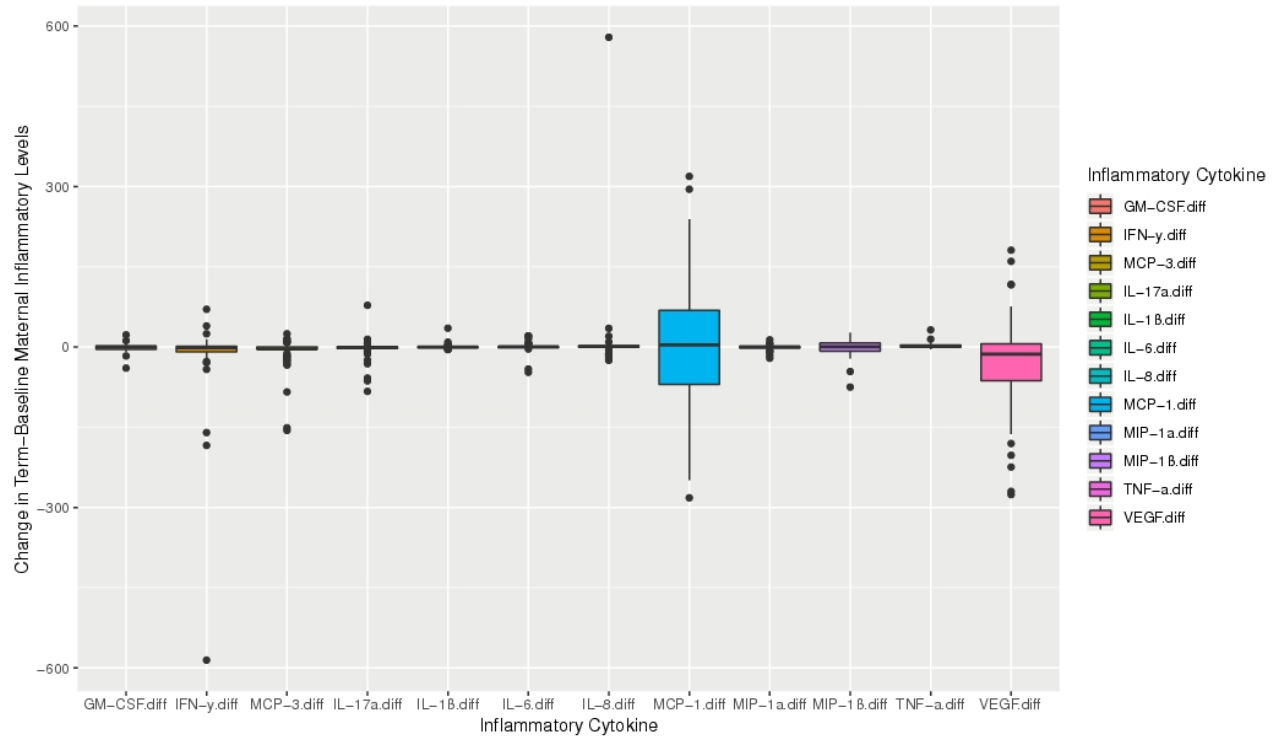
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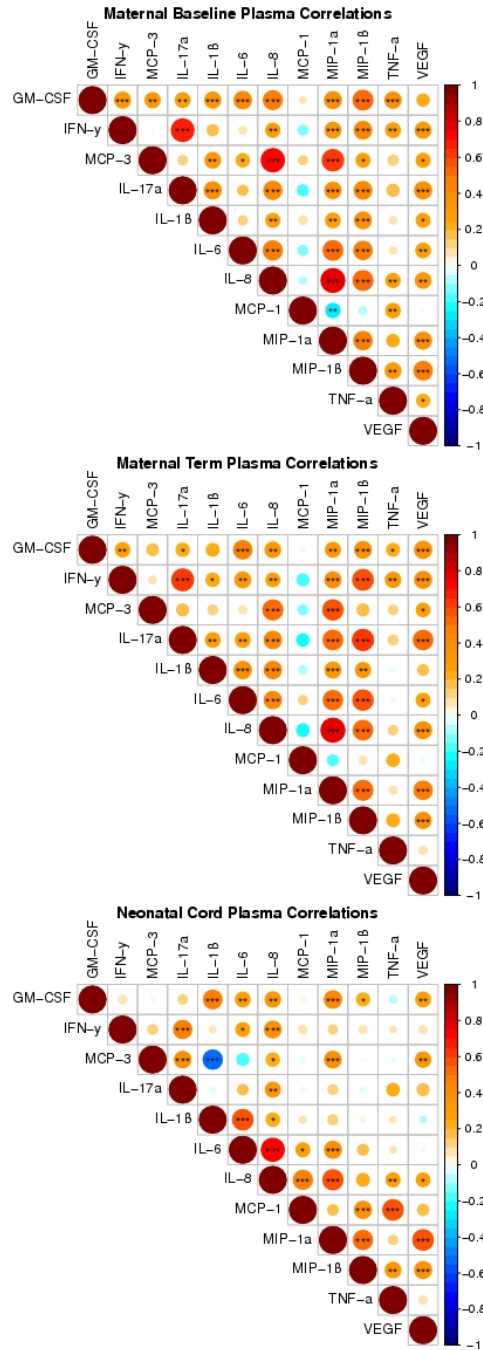
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Supplemental Figure 1. Longitudinal differences between maternal baseline and term cytokine levels.

Supplemental Figure 2. Spearman correlations between cytokines measured in first trimester, at term, and in cord blood.

Supplemental Table 1: Urinary measures of first trimester exposures in MMIP (n = 56*)

Urinary Analyte	Geometric Mean, *u*g/L	95% CI, *u*g/L
As	4.30	(3.07, 6.00)
Ba	5.00	(3.88, 6.44)
Be	0.04	(0.03, 0.04)
Cd	0.08	(0.07, 0.11)
Cr	0.69	(0.60, 0.80)
Cu	8.10	(6.64, 9.89)
Hg	0.07	(0.06, 0.09)
Mn	1.44	(1.20, 1.73)
Mo	49.20	(38.31, 63.19)
Ni	3.77	(3.06, 4.64)
Pb	0.22	(0.17, 0.28)
Se	41.63	(33.23, 52,15)
Sn	0.31	(0.23, 0.43)
Tl	0.16	(0.13, 0.20)
U	0.01	(0.01, 0.01)
W	0.16	(0.14, 0.17)
Zn	169.87	(129.09, 223.54)
MnBP	6.87	(5.11, 9.23)
MBzP	4.20	(2.91, 6.06)
MCOMHP	4.18	(2.89, 6.04)
mCINP	1.29	(0.98, 1.71)
MCPP	1.38	(0.90, 2.11)
MeCPP	5.14	(3.79, 6.97)
MEHHP	5.30	(3.92, 7.16)
MEHP	1.93	(1.51, 2.47)
MEOHP	2.76	(2.03, 3.76)
MEP	18.04	(12.20, 26.67)
MiBP	3.34	(2.37, 4.70)
mINP	0.36	(0.34, 0.39)
DCP24	0.40	(0.29, 0.54)
DCP25	0.42	(0.28, 0.63)
BP3	58.35	(34.52, 98.61)
BPA	0.71	(0.52, 0.98)
BPF	0.26	(0.20, 0.36)
BPS	0.21	(0.18, 0.26)
BuPB	0.27	(0.20, 0.37)
EtPB	1.07	(0.57, 2.00)

MePB	53.08	(32.20, 87.49)
PrPB	8.21	(4.67, 14.42)
TCC	0.17	(0.14, 0.21)
TCS	14.50	(8.28, 25.40)

*For metals, n=55.

Supplemental Table 2. Inflammatory cytokine values measured at baseline (first trimester), term, and in cord blood.

	Baseline	**Term**	**Umbilical Cord**
Cytokine	Mean (SD) (pg/mL)	Mean (SD) (pg/mL)	Mean (SD) (pg/mL)
GM-CSF	7.75 (10.57)	7.02 (10.48)	2.30 (3.12)
IFN-y	32.47 (89.56)	14.64 (25.85)	3.39 (11.27)
MCP-3	66.13 (126.80)	55.41 (101.56)	40.01 (90.19)
IL-17α	16.16 (36.93)	12.05 (31.89)	0.67 (0.67)
IL-1	2.10 (1.83)	2.46 (5.05)	1.03 (1.53)
IL-6	6.60 (17.95)	7.00 (13.76)	41.78 (136.42)
IL-8	12.10 (20.21)	22.01 (79.73)	25.62 (52.97)
MCP-1	260.41 (90.56)	263.80 (93.37)	640.22 (527.89)
MIP-1α	8.82 (9.89)	8.16 (8.41)	7.20 (8.20)
MIP-1β	24.03 (19.10)	22.25 (17.58)	35.18 (23.83)
TNF-α	6.05 (2.88)	8.26 (5.61)	17.07 (6.12)
VEGF	114.25 (161.61)	82.34 (129.69)	69.06 (152.79)

Supplemental Data for Tables 4-7

Supplemental Dataset - Table 4

Model: Linear Regression - Maternal Baseline				
Inflammatory Cytokine	*PC Grouping*	*Estimate*	*Standard Error*	*p-value*
IL-6	PC4	0.34	0.09	0.00
IL-1	PC6	(0.35)	0.11	0.00
IL-17α	PC6	(0.33)	0.11	0.01
IL-6	PC11	0.36	0.12	0.01
IL-8	PC1	0.15	0.05	0.01
IFN-γ	PC11	(0.44)	0.16	0.01
IL-8	PC4	0.28	0.11	0.02
VEGF	PC6	(0.28)	0.12	0.02
IFN-γ	PC1	0.14	0.06	0.03
IL-8	PC5	0.24	0.11	0.04
GM-CSF	PC6	(0.24)	0.11	0.04
GM-CSF	PC4	0.23	0.11	0.04

Supplemental Dataset - Table 5

Model: Linear Regression - Maternal Term				
Inflammatory Cytokine	*PC Grouping*	*Estimate*	*Standard Error*	*p-value*
IL-17α	PC1	0.17	0.05	0.00
VEGF	PC4	0.34	0.11	0.00
IL-6	PC11	0.43	0.14	0.01
MCP-1	PC1	(0.17)	0.05	0.01
IL-17α	PC9	0.37	0.12	0.01
IL-17α	PC10	(0.33)	0.12	0.01
MCP-1	PC11	(0.38)	0.14	0.01
IL-1	PC9	0.36	0.13	0.01
IL-1	PC2	(0.25)	0.10	0.02
IL-6	PC4	0.26	0.11	0.02
IL-17α	PC4	0.23	0.10	0.02
IFN-γ	PC1	0.13	0.06	0.03
MCP-1	PC4	0.25	0.11	0.03
IL-8	PC5	0.31	0.13	0.03
GM-CSF	PC4	0.27	0.13	0.04
MIP-1α	PC5	0.26	0.13	0.05
TNF-α	PC4	(0.22)	0.11	0.05
MIP-1α	PC4	0.25	0.12	0.05
MCP-3	PC5	0.25	0.12	0.05

Supplemental Dataset - Table 6

Model: Linear Regression – Neonatal Cord				
Inflammatory Cytokine	*PC Grouping*	*Estimate*	*Standard Error*	*p-value*
MCP-3	PC5	0.36	0.12	0.00
IL-8	PC8	(0.43)	0.14	0.01
IL-6	PC11	0.36	0.14	0.01
MCP-3	PC1	0.14	0.06	0.02
MCP-1	PC8	(0.34)	0.15	0.03
VEGF	PC7	0.33	0.14	0.03
MIP-1α	PC10	0.31	0.14	0.03
IL-1	PC11	0.31	0.14	0.04
MIP-1α	PC7	0.29	0.13	0.04
IL-8	PC10	0.29	0.14	0.05
GM-CSF	PC7	0.30	0.14	0.05

Supplemental Dataset - Table 7

Model: LMM - Main Effects				
Inflammatory Cytokine	*PC Grouping*	*Estimate*	*Standard Error*	*p-value*
IL-17α	PC6	(0.33)	0.10	0.00
IL-1	PC6	(0.32)	0.11	0.01
IL-6	PC4	0.30	0.10	0.01
IFN-γ	PC11	(0.43)	0.15	0.01
IL-6	PC11	0.37	0.13	0.01
VEGF	PC6	(0.29)	0.11	0.02
IFN-γ	PC1	0.13	0.05	0.02
IL-17α	PC1	0.11	0.05	0.02
IL-8	PC1	0.13	0.06	0.03
TNF-α	PC1	0.12	0.05	0.04
GM-CSF	PC4	0.24	0.12	0.05
IL-8	PC4	0.25	0.12	0.05
GM-CSF	PC6	(0.24)	0.12	0.06
VEGF	PC4*time	0.22	0.10	0.04
IL-17α	PC2*time	(0.16)	0.08	0.05

Model: LMM - Interaction Effect				
Inflammatory Cytokine	*PC Grouping*	*Estimate*	*Standard Error*	*p-value*
MCP-1	PC1*time	(0.15)	0.04	0.00
TNF-α	PC1*time	(0.11)	0.03	0.00
IL-1	PC4*time	(0.28)	0.09	0.00
IFN-γ	PC11*time	0.50	0.16	0.00
MIP-1β	PC2*time	(0.19)	0.07	0.01
MIP-1β	PC1*time	(0.07)	0.03	0.01
IL-1	PC6*time	0.25	0.09	0.01
MIP-1α	PC10*time	(0.18)	0.07	0.02
MIP-1α	PC6*time	0.14	0.06	0.02
MIP-1β	PC6*time	0.21	0.09	0.03
IL-8	PC10*time	(0.26)	0.11	0.03
IL-1	PC9*time	0.24	0.11	0.04
VEGF	PC4*time	0.22	0.10	0.04
IL-17α	PC2*time	(0.16)	0.08	0.05