



Supplementary Figure 1. T cell phenotyping in healthy controls and patients with gastroschisis. **(A)** Comparable production of IL-4 by CD4⁺ T cells in the cord blood of patients with gastroschisis. Fetal blood PBMCs were stimulated with PMA and Ionomycin and stained with antibodies to CD3, CD4, CD8, IL-4. Each symbol represents a single patient; small horizontal bars indicate the mean. Control n=20, gastroschisis n=22. **(B-C)** Regulatory T cell phenotyping in healthy controls and patients with gastroschisis. Flow cytometric analysis of purified **(B)** cord blood and **(C)** maternal blood PBMCs from healthy controls and patients with gastroschisis stained with antibodies to CD3, CD4, CD8, FoxP3 and Helios. Numbers refer to the percentages of cells in the respective quadrants among CD4⁺ T cells. Histogram represents the statistical analysis of the experiment. Each symbol represents a single patient; small horizontal bars indicate the mean. Cord blood: control n=20, gastroschisis n=21; p=0.0552 by Mann-Whitney test. Maternal blood: control n=20, gastroschisis n=22; p=0.5455 by Mann-Whitney test. **(D-G)** Increased Th17 cells and CD4⁺ EM T cells in the maternal blood of patients with gastroschisis. Maternal blood PBMCs were stimulated with PMA and Ionomycin and stained with antibodies to CD3, CD4, CD8, IL-17 and IFN- γ to determine the percentage of T cells producing each cytokine. **(D)** IL-17 production by CD4⁺ T cells. **(E)** IFN- γ production by CD4⁺ T cells. **(F)** IFN- γ production by CD8⁺ T cells. **(G)** Compiled analysis of purified maternal PBMCs from healthy controls and patients with gastroschisis stained with antibodies to CD3, CD4, CD8, CD45RA and CCR7 to detect naïve (N: CCR7⁺CD45RA⁺), central memory (CM: CCR7⁺CD45RA⁻) and effector memory (EM: CCR7⁻CD45RA⁻; EMRA: CCR7⁻CD45RA⁺) cells. Each symbol represents a single patient; small horizontal bars indicate the mean. Control n=20, gastroschisis n=22. *p<0.05 by Mann-Whitney test.

Table SI. Clinical characteristics of patients with gastroschisis (n=27)

Clinical characteristic	
Presence of other anomalies*	8 (29.6%)
<i>Intestinal atresia</i>	1
<i>Cardiac anomalies</i>	1
<i>Skeletal anomalies</i>	2
<i>Genitourinary anomalies</i>	5
Pregnancy complications**	16 (59.3%)
<i>Intrauterine growth restriction</i>	7
<i>Preterm labor / PPRM</i>	10
<i>Oligohydramnios</i>	3
Days in Silo	2 (0-7)
Repair type	
<i>Primary closure</i>	13 (48.1%)
<i>Secondary closure</i>	14 (51.9%)

Data presented as average (range) or n (%).

PPROM: preterm premature rupture of membranes

Silo: Surgical method to allow slow reduction of the intestines into the abdomen.

*Some patients had more than one anomaly.

**Some patients had more than one pregnancy complication.

Table SII. Levels of all cytokines measured in the cord blood of healthy controls and patients with gastroschisis (GS).

	Control (n=23)	Gastroschisis Quick (n=17)	Gastroschisis Slow (n=9)	p-values		Tau Coefficient
				Rank- sum**	Tau Test***	
<i>Chemokines and Growth Factors</i>						
EGF	299.8 (112.5-515.3)	442.2 (130.7-530.4)	654.3 (353.2-913.8)	0.280	0.102	0.22
Eotaxin-1	74.8 (51.1-84.9)	177.3 (134.3-233.3)	229.9 (189.5-243.9)	<0.001	<0.001	0.73
FGF-2	79.2 (59.6-97.0)	81.2 (54.0-163.3)	93.0 (84.1-121.3)	0.408	0.430	0.11
Flt-3 Ligand	13.4 (1.6-29.8)	18.8 (1.6-38.8)	13.5 (1.6-23.1)	0.366	0.496	0.09
Fractalkine	127.1 (68.3-151.8)	112.4 (69.7-142.6)	105.3 (90.3-123.6)	0.533	0.493	-0.09
CXCL1	455.7 (289.8-634.5)	666.6 (527.2-1106.7)	378.7 (351.6-403.8)	0.033	0.268	0.15
IP-10	162.1 (106.2-206.8)	143.1 (109.1-202.1)	142.1 (106.8-309.7)	0.930	0.895	-0.02
MCP-1	181.6 (111.4-448.5)	675.3 (399.6-956.3)	484.2 (248.3-687.0)	<0.001	0.002	0.42
MCP-3	16.2 (11.5-24.4)	15.6 (9.1-20.4)	14.8 (13.2-20.4)	0.565	0.721	-0.05
MDC	2087.1 (1352.1-2585.9)	1209.0 (901.7-1693.3)	1026.8 (956.2-1288.3)	<0.001	<0.001	-0.50
MIP-1 α	12.1 (6.2-20.8)	14.7 (6.1-21.8)	7.9 (7.6-38.3)	0.704	0.639	0.06
MIP-1 β	68.9 (49.4-127.7)	69.6 (51.5-104.1)	94.2 (57.7-200.9)	0.704	0.348	0.13
TGF α	8.9 (3.6-15.0)	3.9 (1.6-4.5)	10.8 (4.8-14.2)	0.058	0.252	-0.15
VEGF	156.5 (114.9-218.2)	114.9 (102.2-212.0)	191.3 (138.4-211.2)	0.376	0.750	-0.04
<i>Inflammatory Mediators</i>						
G-CSF	83.5 (35.0-189.2)	171.5 (87.3-213.6)	49.9 (30.7-401.2)	0.122	0.320	0.13
GM-CSF	22.2 (15.1-43.7)	27.3 (18.0-33.7)	20.4 (17.8-27.1)	0.915	0.680	-0.06
IFN α 2	41.7 (26.0-77.2)	45.3 (32.6-66.3)	47.7 (29.7-54.8)	0.977	0.999	0.00
IFN- γ	6.7 (4.7-10.4)	6.0 (5.1-7.7)	4.9 (3.4-6.3)	0.255	0.098	-0.22
IL-1 α	4.3 (1.6-12.3)	8.0 (2.7-16.7)	6.8 (1.6-14.7)	0.180	0.312	0.13
IL-1 β	8.3 (1.9-31.5)	4.0 (1.6-7.5)	35.2 (3.1-153.0)	0.532	0.925	0.01
IL-1R α	89.2 (45.5-312.3)	498.0 (86.6-2863.6)	383.4 (224.9-701.0)	0.016	0.016	0.32
IL-6	5.7 (3.1-110.1)	39.5 (30.9-138.2)	128.1 (25.3-254.4)	0.007	0.007	0.36
IL-8	17.3 (7.7-125.8)	65.5 (36.8-134.5)	222.8 (169.8-766.6)	0.003	<0.001	0.47
IL-10	13.0 (4.8-23.8)	15.3 (5.5-32.2)	16.3 (6.6-31.2)	0.413	0.447	0.10
IL-12(p40)	44.6 (28.7-50.4)	34.0 (15.1-47.5)	18.4 (3.2-40.2)	0.059	0.048	-0.26
IL-12(p70)	6.8 (3.7-13.4)	8.4 (4.7-10.6)	8.0 (5.7-11.0)	0.915	0.895	0.02
sIL-2Ra [#]	109.0 (49.9-230.2)	362.4 (303.6-477.6)	354.4 (171.7-569.6)	<0.001	0.001	0.47
TNF α	16.7 (13.7-20.5)	17.9 (13.5-22.0)	24.3 (15.4-39.2)	0.280	0.128	0.20
sCD40L	20000 (20000-20000)	20000 (20000-25356)	26339 (20000-28673)	0.313	0.142	0.18

Infants with GS were stratified into groups based on their timing of being able to tolerate enteral feeds. Quick and slow feeders are defined as beginning feeds ≤ 15 or > 15 days from abdominal wall closure, since 15 days was the 75 percentile for the group.

Data are presented as median (interquartile range).

*Cytokines that were out of the sensitivity of the assay were not included in the statistical analysis and included IL-2, IL-3, IL-4, IL-5, IL-7, IL-9, IL-13, IL-15, IL-17 and TNF β . One patient with intestinal atresia was excluded from the analysis of slow feeders.

**Wilcoxon rank-sum test between all controls and all patients with gastroschisis.

***Kendall's tau-c test for trend across control, GS quick, and GS slow groups.

[#]sIL-2Ra levels were measured in 19 control and 22 patients with gastroschisis.

Table SIII. Levels of all cytokines measured in the maternal blood of healthy controls and patients with GS.

	Control (n=23)	Gastroschisis Quick (n=16)	Gastroschisis Slow (n=9)	p-values		
				Rank-sum**	Tau Test***	Tau Coefficient
<i>Chemokines and Growth Factors</i>						
EGF	49.6 (19.2-86.4)	45.0 (24.3-76.6)	23.8 (15.4-79.9)	0.779	0.491	-0.09
Eotaxin-1	44.1 (32.6-62.7)	38.3 (30.2-57.6)	43.2 (31.6-86.1)	0.357	0.614	-0.07
FGF-2	53.9 (47.5-74.5)	45.7 (30.4-67.5)	52.6 (37.1-68.0)	0.326	0.352	-0.13
Flt-3 Ligand	4.7 (1.6-22.2)	1.6 (1.6-5.2)	1.6 (1.6-14.4)	0.065	0.123	-0.19
Fractalkine	87.0 (62.6-104.2)	51.4 (28.6-94.1)	58.2 (32.2-80.5)	0.019	0.028	-0.30
CXCL1	313.0 (107.0-421.9)	248.6 (118.1-415.6)	192.3 (152.0-328.2)	0.795	0.614	-0.07
P-10	230.7 (149.1-421.4)	222.5 (138.4-302.6)	178.1 (152.2-242.8)	0.689	0.548	-0.08
MCP-1	143.2 (100.2-194.9)	124.8 (91.4-221.5)	154.2 (132.5-184.8)	0.920	0.877	0.02
MCP-3	16.3 (3.3-23.3)	11.1 (6.1-17.1)	13.2 (5.4-16.3)	0.367	0.404	-0.11
MDC	498.6 (401.3-675.5)	588.8 (435.2-836.8)	474.6 (214.9-483.9)	0.888	0.362	-0.12
MIP-1 α	3.5 (1.6-7.3)	1.6 (1.6-4.8)	1.6 (1.6-4.9)	0.103	0.124	-0.20
MIP-1 β	29.8 (16.1-38.4)	23.3 (14.9-30.0)	20.5 (9.9-33.5)	0.193	0.211	-0.17
FGF α	5.7 (2.8-13.8)	4.3 (1.8-5.8)	3.2 (1.9-5.8)	0.057	0.101	-0.22
VEGF	96.0 (42.6-149.0)	76.3 (32.5-119.0)	66.6 (19.4-123.6)	0.293	0.362	-0.12
<i>Inflammatory Mediators</i>						
GM-CSF	78.9 (23.5-121.7)	81.6 (30.0-124.3)	30.6 (24.8-81.7)	0.631	0.432	-0.11
GM-CSF	22.3 (15.7-30.6)	15.0 (11.0-22.0)	13.8 (12.2-21.0)	0.043	0.036	-0.28
FN α 2	28.4 (15.8-41.2)	25.0 (19.1-42.2)	18.4 (10.4-24.4)	0.452	0.273	-0.15
FN- γ	6.4 (3.6-14.1)	8.0 (3.9-19.0)	7.4 (3.5-9.3)	0.952	0.756	-0.04
L-1 α	4.6 (1.6-7.7)	1.6 (1.2-3.6)	2.0 (1.6-6.8)	0.089	0.142	-0.19
L-1 β	2.5 (1.6-5.4)	1.6 (0.7-2.2)	1.6 (1.5-2.6)	0.106	0.229	-0.16
L-1R α	6.1 (1.6-103.0)	18.7 (3.6-46.3)	1.6 (1.6-25.3)	1.000	0.617	-0.07
L-6	7.8 (3.6-16.9)	18.8 (1.6-31.8)	1.7 (1.6-9.6)	0.658	0.280	-0.15
L-8	8.6 (3.7-10.1)	7.0 (3.9-15.4)	4.2 (3.1-10.5)	0.849	0.516	-0.09
L-10	8.1 (5.7-18.2)	5.6 (2.0-18.3)	4.5 (1.6-7.9)	0.248	0.127	-0.21
L-12(p40)	6.6 (1.6-19.2)	1.6 (1.6-19.5)	1.6 (1.6-1.6)	0.204	0.122	-0.20
L-12(p70)	6.2 (2.9-13.2)	4.2 (1.6-7.7)	4.6 (2.6-6.2)	0.036	0.071	-0.24
sIL-2R α [#]	1.6 (1.6-15.2)	1.6 (1.6-21.2)	1.6 (1.6-53.2)	0.622	0.621	-0.07
TNF α	6.4 (4.4-9.4)	5.8 (4.5-6.7)	4.9 (4.6-7.6)	0.214	0.163	-0.19
sCD40L	3667.6 (2444.6-11383)	3442.2 (2641.8-7402.7)	4485.8 (2840.4-8592.9)	0.711	0.691	-0.05

Mothers of infants with GS were stratified into groups based on their timing of being able to tolerate enteral feeds. Quick and slow feeders are defined as beginning feeds ≤ 15 or > 15 days from abdominal wall closure, since 15 days was the 75 percentile for the group.

Data are presented as median (interquartile range).

*Cytokines that were out of the sensitivity of the assay were not included in the statistical analysis and included IL-2, IL-3, IL-4, IL-5, IL-7, IL-9, IL-13, IL-15, IL-17 and TNF β . One patient with intestinal atresia was excluded from the analysis of slow feeders.

**Wilcoxon rank-sum test between all controls and all patients with gastroschisis.

***Kendall's tau-c test for trend across control, GS quick, and GS slow groups.

[#]sIL-2R α levels were only measured in 19 control and 22 patients with gastroschisis.