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Supplemental information

**Pre-existing infant antibody-dependent cellular
cytotoxicity associates with reduced HIV-1
acquisition and lower morbidity**

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Supplementary Information for

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Thomas *et al.*

Table S1. Demographics for HIV-1 transmitting and non-transmitting mother-infant pairs^a
(Related to Figure 1)

Demographic parameters^b	TM/HEI	NTM/HEU
Mothers - Number	16	26
Age, years	26 (19-37)	26 (20-33)
Time PP Sample Collection, days	78 (12-260)	74 (1-256)
CD4 cells/mm ³	352 (210-595)	372 (258-677)
Log ₁₀ plasma VL	4.80 (3.70-5.70)	4.82 (3.12-5.99)
Infants - Number	15 ^c	26
1 st day detected as HIV ⁺	114 (42-293)	
Birth weight, kg	3.0 (2.5-4.0)	3.0 (2.3-3.7)
Female (%)	6 (40.0)	10 (38.5)
SAE ≥ Grade 4 or death (%)	5 (33.3)	6 (23.1)

^aTM, transmitting mothers; NTM, non-transmitting mothers; HEI, HIV-exposed infected; HEU, HIV-exposed uninfected; PP, postpartum; SAE, serious adverse event; VL, viral load

^bMean values are shown with ranges given in parentheses

^cADCC could not be examined in 1 infant plasma because of insufficient sample (infant ID 99)

Table S2. Infant, maternal, BMS, and BM IgG ADCC_{AUC} and Neut_{AUC} with PCR method for maternal Env amplification. (Related to Figure 1)

ID	Outcome	PCR method	If SGA, # of amplicons combined	Infant ADCC _{AUC}	Maternal ADCC _{AUC}	BMS ADCC _{AUC}	BM IgG ADCC _{AUC}	Infant Neut _{AUC}	Maternal Neut _{AUC}
1152	NTM	SGA	5	0.17	0.25	0.06	0.12	0.28	0.24
1015	NTM	SGA	30	0.05	0.17	0.02	0.10	0.49	0.07
1782	NTM	SGA	29	0.02	0.07	0.02	0.15	0.32	0.18
1476	NTM	SGA	12	0.36	0.35	0.08	0.19	0.37	0.14
1021	NTM	SGA	1	0.07	0.31	0.00	0.05	ND	ND
1363	NTM	SGA	16	0.05	0.14	0.00	0.09	0.47	0.11
1666	NTM	SGA	2	0.28	0.51	0.12	0.17	0.43	0.04
1061	NTM	Bulk	--	0.19	0.14	0.03	0.08	0.13	0.00
1227	NTM	SGA	2	0.27	0.44	0.19	0.34	0.34	0.01
771	NTM	SGA	10	0.37	0.38	0.15	0.15	0.37	0.20
1715	NTM	SGA + Bulk	17	0.04	0.03	0.00	0.04	0.00	0.00
317	NTM	SGA	9	0.08	0.32	0.16	0.22	0.28	0.16
1444	NTM	SGA + Bulk	16	0.09	0.20	0.04	0.05	0.28	0.15
1379	NTM	SGA	30	0.06	0.31	0.00	0.06	0.29	0.14
1431	NTM	Bulk	--	0.32	0.36	0.16	0.14	0.27	0.27
2163	NTM	Bulk	--	0.04	0.15	0.00	0.04	0.25	0.19
60	NTM	SGA	10	0.11	0.17	0.00	0.17	0.14	0.24
1148	NTM	Bulk	--	0.10	0.18	0.00	0.02	0.25	0.15
399	NTM	SGA	16	0.08	0.15	0.02	0.08	0.00	0.15
1225	NTM	Bulk	--	0.02	0.32	0.03	0.08	ND	ND
355	NTM	Bulk	--	0.41	0.52	0.18	0.02	0.02	0.00
1037	NTM	Bulk	--	0.23	0.26	0.10	0.14	0.12	0.11
196	NTM	Bulk	--	0.04	0.11	0.01	0.07	0.20	0.15
1047	NTM	SGA	30	0.05	0.14	0.07	0.06	0.15	0.00
572	NTM	Bulk	--	0.28	0.35	0.07	0.10	0.27	0.13
1289	NTM	SGA	24	0.45	0.62	0.10	0.08	0.08	0.13
99	TM	SGA	12	ND	0.52	0.09	0.15	0.17	0.21
129	TM	SGA	18	0.06	0.17	0.00	0.16	0.31	0.23
146	TM	Bulk	--	0.22	0.14	0.04	0.03	0.33	0.27
170	TM	SGA	12	0.03	0.11	0.07	0.10	0.20	0.30
302	TM	SGA	3	0.07	0.20	0.06	0.22	0.15	0.10
774	TM	SGA	8	0.08	0.15	0.00	0.05	0.11	0.12
779	TM	SGA	21	0.00	0.02	0.00	0.04	0.00	0.20
804	TM	SGA + Bulk	14	0.02	0.03	0.00	0.08	0.04	0.07
878	TM	SGA	8	0.04	0.06	0.02	0.09	0.37	0.12
1295	TM	Bulk	--	0.21	0.22	0.01	0.11	0.21	0.33
1402	TM	Bulk	--	0.15	0.24	0.07	0.10	0.08	0.24
1459	TM	SGA	3	0.05	0.28	0.06	0.03	0.47	0.03
1785	TM	Bulk	--	0.07	0.13	0.07	0.25	0.09	0.02
1844	TM	SGA	2	0.06	0.23	0.03	0.09	0.00	0.00
1997	TM	SGA	3	0.25	0.50	0.13	0.28	0.34	0.28
2315	TM	Bulk	--	0.13	0.27	0.03	0.08	0.00	0.3

TM, transmission; NTM, no transmission; SGA, single genome amplification; BMS, breast milk supernatant; BM IgG, IgG isolated from breast milk; Neut, neutralization
 ND: not done due to insufficient sample.

Table S3. Serious Adverse Events (SAE) ≥ 4 or death in BAN Cohort. (Related to Figure 2)

Patient ID	If infected, days PP to infant first HIV+ DNA PCR	Days to SAE ≥ 4 or death	SAE type	SAE grade
99	55	331	Meningitis	4
146	83	354	Gastroenteritis	5
170	127	306	Gastroenteritis	5
804	129	169	Death	5
878	56	221	Death	5
1459	127	253	Pneumonia	5
317	--	351	Anemia	4
355	--	352	Anemia	4
1225	--	133	Anemia	4
1289	--	283	Death	5
1379	--	218	Pneumonia	4
1666	--	113	Death	5

*Patient ID 99 was not examined for infant ADCC due to insufficient sample

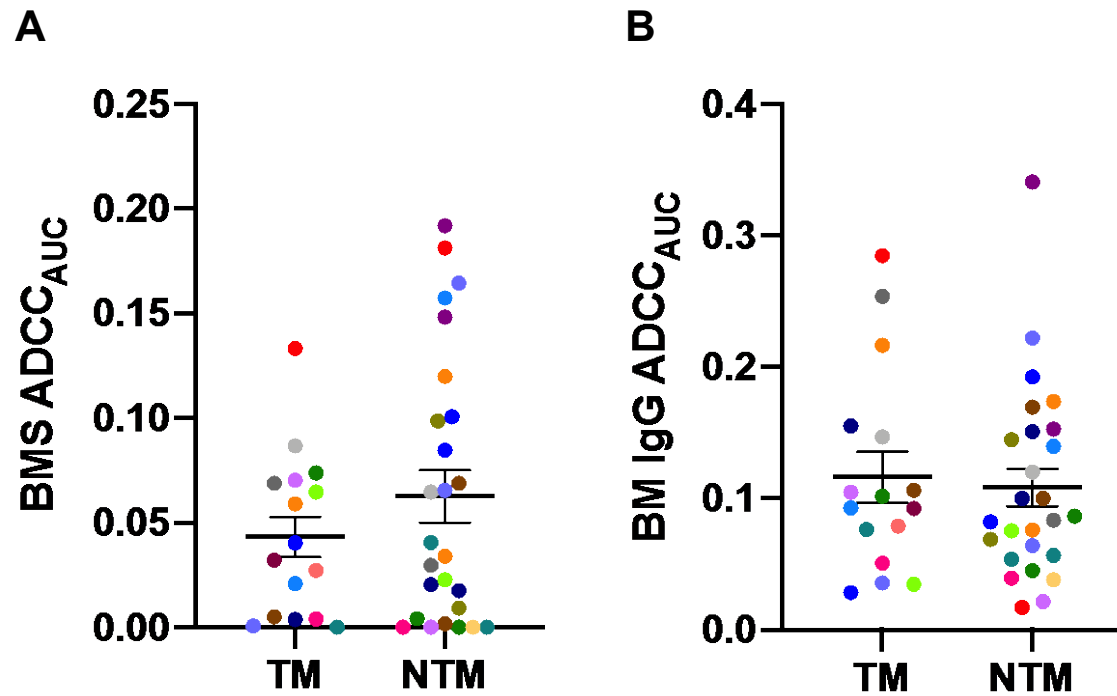


Figure S1. ADCC responses in breast milk supernatant (BMS) and IgG isolated from breast milk (BM IgG) against autologous strains. BMS (A) and BM IgG (B) from transmitting (TM) and non-transmitting (NTM) mothers ADCC_{AUC}. Colors signify matched pairs. Each dot represents a unique individual. Bars show mean and standard error. All points represent average from a minimum of 2 replicates. Related to Figure 1.

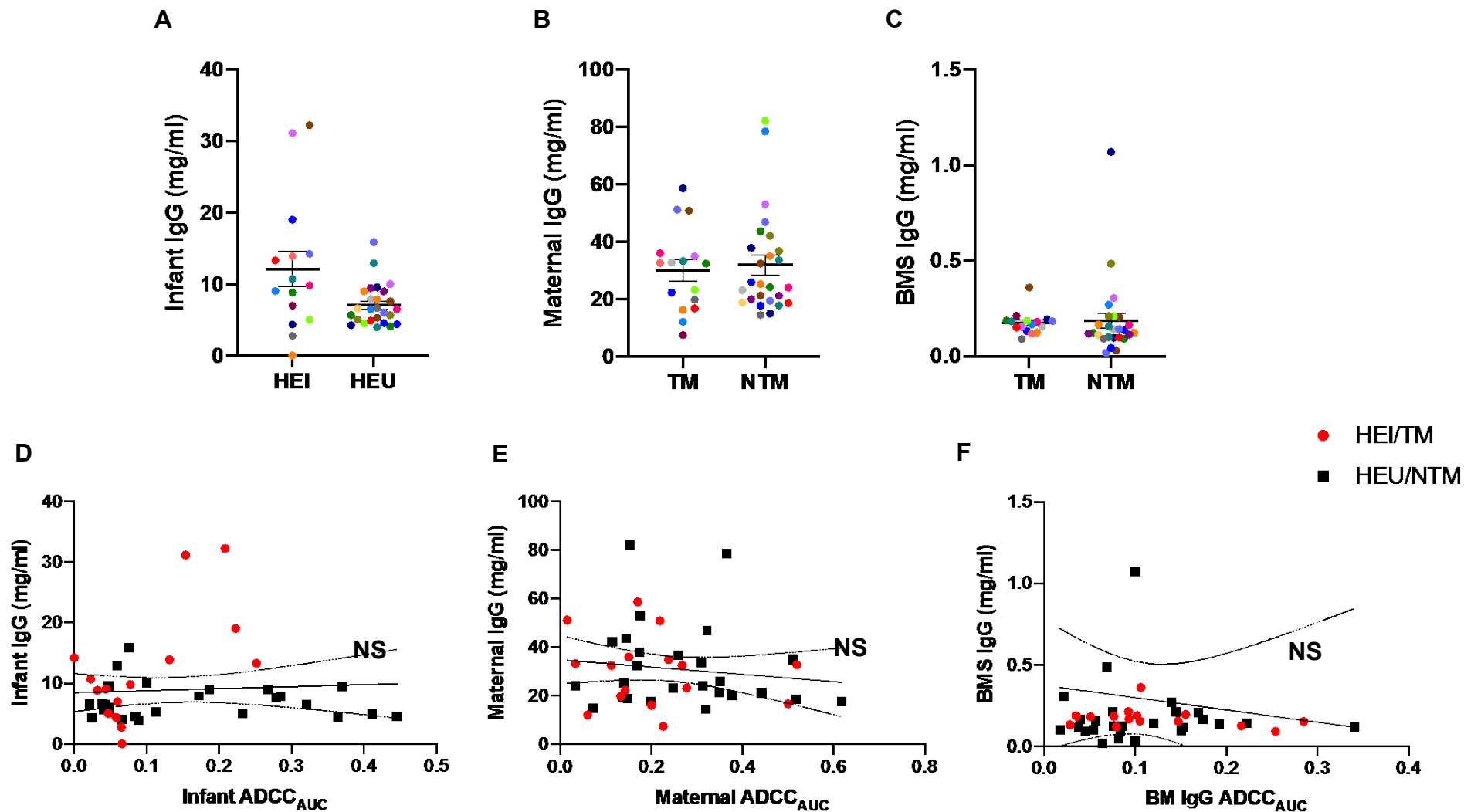


Figure S2. Immunoglobulin differences and relation to ADCC. Total IgG levels (A-C) and comparison to ADCC_{AUC} (D-F) in infants' plasma (A&D), mothers' plasma (B&E) and mothers' breast milk supernatant (C&F). The red and black dots indicate TMs/ HEI and NTMs/ HEU infants respectively, and colors in (A-C) signify matched pairs. Correlations were assessed using Spearman's statistic. Line indicates linear regression fit with 95% confidence interval. NS indicates not significant. Related to Figure 3.

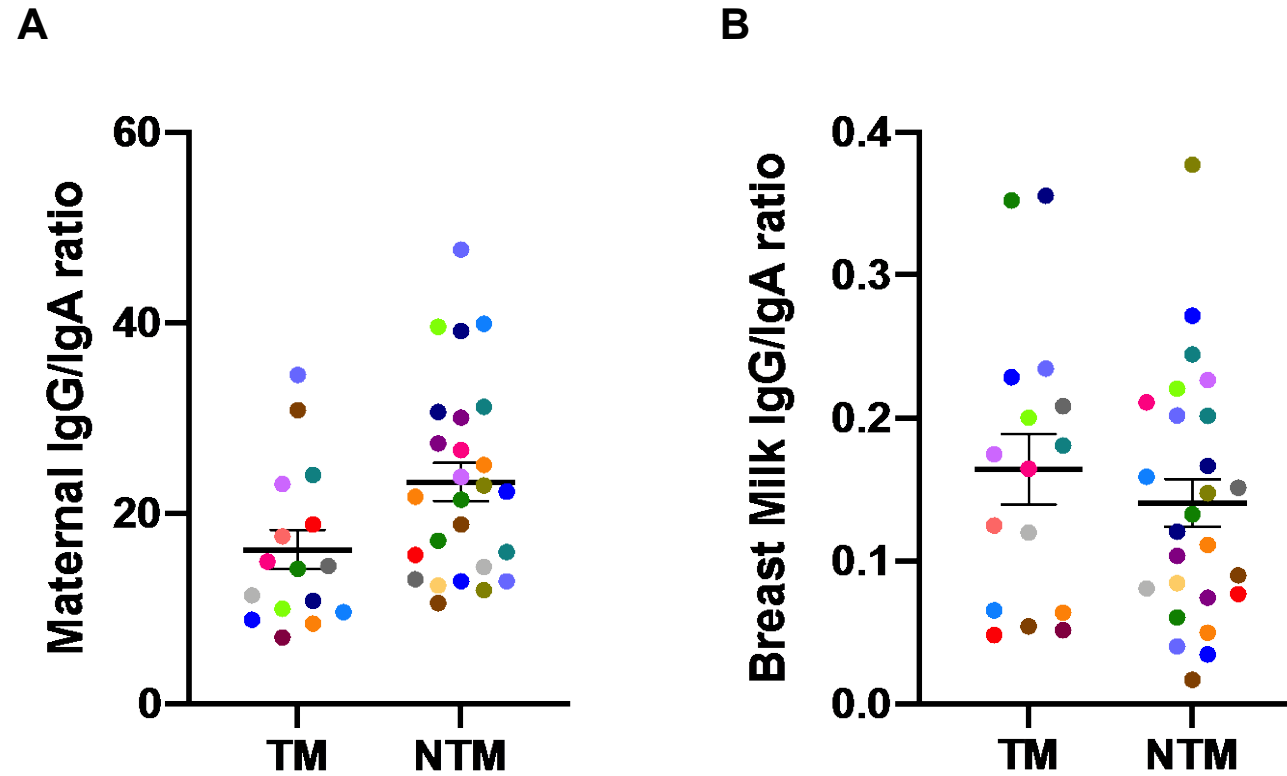


Figure S3. Immunoglobulin IgG/IgA ratios. IgG to IgA ratio in maternal plasma (A) and breast milk supernatant (B). Colors signify matched pairs. Each dot represents a unique individual. Bars show mean and standard error. Related to Figure 3.

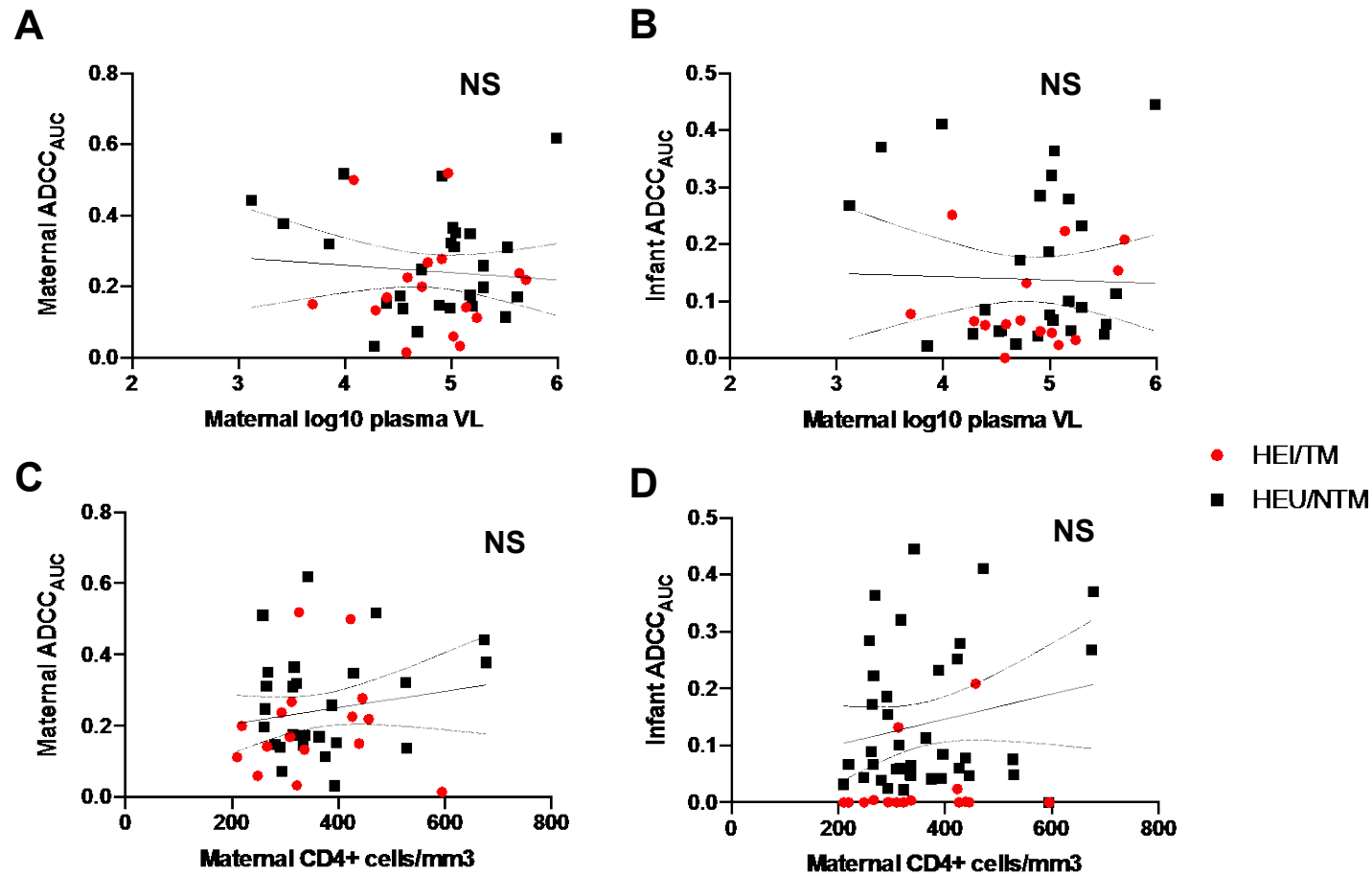


Figure S4. Maternal viral load and CD4⁺ T cell counts do not impact ADCC responses. Maternal ADCC_{AUC} (A&C) and infant ADCC_{AUC} (B&D) were compared to maternal log₁₀ plasma viral load (A&B) and CD4⁺ cells/mm³ (C&D). The red and black dots indicate TMs/ HEI and NTMs/ HEU infants respectively. Correlations were assessed using Spearman's statistic. Line indicates linear regression fit with 95% confidence interval. NS indicates not significant. Related to Figure 4.