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SUPPLEMENTAL DATA

ESAT-6-specific antibody features and Fcγ receptor expression during pulmonary tuberculosis treatment: Implications for therapeutic monitoring

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Full article is available at the following link: ESAT-6-specific antibody features and Fcγ receptor expression during pulmonary tuberculosis treatment: Implications for therapeutic monitoring

Table S1. Friedman test across T0/T2/T6 with BH FDR correction

Variable	*n*	Friedman χ^2	*p* (raw)	median T0	median T2	median T6	q (p-FDR)	Sig FDR
IgG1	21	0.667	0.7165	0.114	0.115	0.097	0.7165	NO
IgG2	21	1.238	0.5385	0.268	0.283	0.230	0.5769	NO
IgG3	21	4.571	0.1017	0.517	0.575	0.530	0.1387	NO
IgG4	**21**	**14.857**	**5.94e-04**	**0.107**	**0.079**	**0.060**	**0.0015**	**YES**
Total IgG	**21**	**20.095**	**4.33e-05**	**0.221**	**0.211**	**0.169**	**2.16e-04**	**YES**
ADCP	**21**	**10.286**	**0.0058**	**2.744**	**3.012**	**4.061**	**0.0097**	**YES**
ADCC	**21**	**7.714**	**0.0211**	**2.188**	**2.843**	**3.369**	**0.0317**	**YES**
$CD14^+$ $CD16^+$	**21**	**29.81**	**3.36e-07**	**1867**	**430**	**674**	**2.52e-06**	**YES**
$CD14^+$ $CD32^+$	**21**	**12.313**	**0.0021**	**4263**	**3078**	**2915**	**0.0045**	**YES**
$CD14^+$ $CD64^+$	**21**	**16.381**	**2.77e-04**	**7322**	**5214**	**3983**	**8.32e-04**	**YES**
$CD66b^+$ $CD16^+$	21	2	0.3679	50585	66331	57169	0.4245	NO
$CD66b^+$ $CD32^+$	**21**	**10.289**	**0.0058**	**889**	**1615**	**1301**	**0.0097**	**YES**
$CD66b^+$ $CD64^+$	**21**	**34.667**	**2.97e-08**	**1194**	**1004**	**901**	**4.45e-07**	**YES**
$CD56^+$ $CD16^+$	**21**	**18**	**1.23e-04**	**19793**	**17277**	**15171**	**4.63e-04**	**YES**
$CD56^+$ $CD32^+$	21	3.639	0.1621	336	358	332	0.2027	NO

Variables with *q* (p-FDR) < 0.05 (highlighted) were retained for further interpretation. Friedman Test: A non-parametric paired comparison was conducted across three related timepoints. q (p-FDR): BH false discovery rate correction was applied across all variables. Sig FDR: "Yes" indicates a q (p-FDR) value of less than 0.05 (highlighted rows). **Abbreviations**: ADCC, antibody-dependent cellular cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; BH, Benjamini–Hochberg; CD, cluster of differentiation; FDR, false discovery rate; IgG, immunoglobulin G; T0, baseline before treatment initiation; T2, two months after treatment initiation; T6, six months after treatment initiation.

Table S2. Repeated-measures correlations (rmcorr) — IgG subclasses, ADCP, ADCC, SST and treatment time

Variable X	Variable Y	rmcorr r	95% CI	p (raw)	q (p-FDR)	Sig (q<0.05)
IgG4	**Total IgG**	**0.733**	**[0.56, 0.85]**	**2.24e-08**	**8.08e-07**	**Yes**
SST	**Treatment time**	**-0.652**	**[-0.80, -0.44]**	**2.13e-06**	**3.83e-05**	**Yes**
Total IgG	**Treatment time**	**-0.536**	**[-0.72, -0.28]**	**2.10e-04**	**0.0015**	**Yes**
IgG4	**Treatment time**	**-0.551**	**[-0.73, -0.30]**	**1.28e-04**	**0.0015**	**Yes**
ADCP	**Treatment time**	**0.538**	**[0.28, 0.72]**	**2.01e-04**	**0.0015**	**Yes**
ADCC	**Treatment time**	**0.511**	**[0.25, 0.70]**	**4.61e-04**	**0.0024**	**Yes**
IgG1	**IgG2**	**0.514**	**[0.25, 0.71]**	**4.19e-04**	**0.0024**	**Yes**
IgG2	**Total IgG**	**0.394**	**[0.11, 0.62]**	**0.009**	**0.0406**	**Yes**
ADCP	ADCC	0.376	[0.09, 0.61]	0.0129	0.0516	No
IgG1	Total IgG	0.298	[-0.00, 0.55]	0.0521	0.1877	No
IgG3	SST	-0.279	[-0.53, 0.02]	0.0705	0.1917	No
IgG1	SST	-0.282	[-0.54, 0.02]	0.0668	0.1917	No
IgG4	SST	0.275	[-0.03, 0.53]	0.0746	0.1917	No
ADCP	SST	-0.275	[-0.53, 0.03]	0.0738	0.1917	No
ADCC	SST	-0.25	[-0.51, 0.05]	0.1054	0.253	No
Total IgG	SST	0.244	[-0.06, 0.51]	0.1151	0.2589	No
IgG4	ADCC	-0.23	[-0.50, 0.08]	0.1374	0.2909	No
Total IgG	ADCC	-0.222	[-0.49, 0.08]	0.1519	0.3038	No
IgG2	IgG4	0.214	[-0.09, 0.48]	0.1688	0.3199	No
IgG2	IgG3	-0.184	[-0.46, 0.12]	0.2378	0.4119	No
IgG3	Total IgG	0.183	[-0.12, 0.46]	0.2403	0.4119	No
IgG1	IgG4	0.168	[-0.14, 0.45]	0.2813	0.4604	No
IgG1	IgG3	0.155	[-0.15, 0.44]	0.3211	0.4887	No
IgG3	ADCP	0.153	[-0.15, 0.43]	0.3258	0.4887	No
IgG1	ADCP	0.147	[-0.16, 0.43]	0.348	0.5012	No
IgG2	SST	0.128	[-0.18, 0.41]	0.4143	0.5736	No
IgG1	ADCC	0.12	[-0.19, 0.41]	0.4444	0.5926	No
IgG4	ADCP	-0.114	[-0.40, 0.19]	0.4663	0.5996	No
IgG2	Treatment time	-0.098	[-0.39, 0.21]	0.53	0.6579	No
IgG2	ADCP	0.08	[-0.23, 0.37]	0.6102	0.7323	No
IgG3	Treatment time	0.069	[-0.24, 0.36]	0.6589	0.7652	No

IgG1	Treatment time	0.044	[-0.26, 0.34]	0.7774	0.8615	No
IgG2	ADCC	0.042	[-0.26, 0.34]	0.7897	0.8615	No
IgG3	ADCC	0.024	[-0.28, 0.32]	0.8772	0.9288	No
IgG3	IgG4	0.019	[-0.28, 0.32]	0.9053	0.9311	No
Total IgG	ADCP	0.014	[-0.29, 0.31]	0.9313	0.9313	No

n = 21 patients across 3 timepoints. BH-FDR correction was applied to 36 pairwise tests. Highlighted rows indicate a q value < 0.05. **Abbreviations:** ADCC, antibody-dependent cellular cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; BH, Benjamini–Hochberg; CI, confidence interval; FDR, false discovery rate; IgG, immunoglobulin G; rmcorr, repeated-measures correlation; SST, sputum smear test.

Table S3. Repeated-measures correlations (rmcorr) — FcγR co-expression on monocytes ($CD14^+CD16^+/CD32^+/CD64^+$), granulocytes ($CD66b^+CD16^+/CD32^+/CD64^+$), and NK cells ($CD56^+CD16^+/CD32^+$) relative to SST and treatment time

Variable X	Variable Y	rmcorr r	95% CI	*p* (raw)	q (p-FDR)	Sig (q<0.05)
$CD14^+$ $CD64^+$	$CD66b^+$ $CD64^+$	0.703	[0.51, 0.83]	1.51e-07	6.78e-06	Yes
SST	Treatment time	-0.652	[-0.80, -0.44]	2.13e-06	4.79e-05	Yes
$CD66b^+$ $CD64^+$	SST	0.632	[0.41, 0.78]	5.60e-06	8.40e-05	Yes
$CD14^+$ $CD64^+$	Treatment time	-0.609	[-0.77, -0.38]	1.48e-05	1.67e-04	Yes
$CD14^+$ $CD16^+$	$CD14^+$ $CD32^+$	0.575	[0.33, 0.75]	5.43e-05	4.07e-04	Yes
$CD14^+$ $CD16^+$	SST	0.58	[0.34, 0.75]	4.58e-05	4.07e-04	Yes
$CD14^+$ $CD32^+$	Treatment time	-0.571	[-0.74, -0.33]	6.48e-05	4.17e-04	Yes
$CD66b^+$ $CD64^+$	Treatment time	-0.532	[-0.72, -0.28]	2.38e-04	0.0013	Yes
$CD14^+$ $CD32^+$	$CD14^+$ $CD64^+$	0.502	[0.24, 0.70]	6.01e-04	0.0027	Yes
$CD14^+$ $CD64^+$	SST	0.503	[0.24, 0.70]	5.89e-04	0.0027	Yes

CD14$^+$ CD16$^+$	**Treatment time**	**-0.467**	**[-0.67, -0.19]**	**0.0016**	**0.0066**	**Yes**
CD14$^+$ CD32$^+$	**SST**	**0.446**	**[0.17, 0.66]**	**0.0027**	**0.0101**	**Yes**
CD14$^+$ CD32$^+$	**CD56$^+$ CD16$^+$**	**0.438**	**[0.16, 0.65]**	**0.0033**	**0.0113**	**Yes**
CD56$^+$ CD16$^+$	**Treatment time**	**-0.423**	**[-0.64, -0.14]**	**0.0047**	**0.0152**	**Yes**
CD14$^+$ CD16$^+$	**CD14$^+$ CD64$^+$**	**0.403**	**[0.12, 0.63]**	**0.0074**	**0.0217**	**Yes**
CD66b$^+$ CD32$^+$	**SST**	**-0.401**	**[-0.63, -0.11]**	**0.0077**	**0.0217**	**Yes**
CD14$^+$ CD16$^+$	**CD56$^+$ CD32$^+$**	**-0.365**	**[-0.60, -0.07]**	**0.016**	**0.0401**	**Yes**
CD14$^+$ CD64$^+$	**CD66b$^+$ CD32$^+$**	**-0.365**	**[-0.60, -0.07]**	**0.016**	**0.0401**	**Yes**
CD66b$^+$ CD64$^+$	**CD56$^+$ CD16$^+$**	**0.356**	**[0.06, 0.59]**	**0.0192**	**0.0454**	**Yes**
CD14$^+$ CD64$^+$	CD56$^+$ CD16$^+$	0.346	[0.05, 0.59]	0.0232	0.0522	No
CD56$^+$ CD16$^+$	SST	0.318	[0.02, 0.56]	0.0376	0.0807	No
CD14$^+$ CD32$^+$	CD66b$^+$ CD64$^+$	0.305	[0.01, 0.55]	0.0468	0.0957	No
CD66b$^+$ CD16$^+$	SST	-0.262	[-0.52, 0.04]	0.0892	0.172	No
CD14$^+$ CD16$^+$	CD66b$^+$ CD64$^+$	0.26	[-0.04, 0.52]	0.0917	0.172	No
CD66b$^+$ CD16$^+$	CD66b$^+$ CD32$^+$	0.243	[-0.06, 0.51]	0.1159	0.2086	No
CD66b$^+$ CD16$^+$	CD56$^+$ CD32$^+$	-0.24	[-0.50, 0.06]	0.1205	0.2086	No
CD56$^+$ CD32$^+$	SST	-0.237	[-0.50, 0.07]	0.1254	0.209	No
CD66b$^+$ CD32$^+$	CD56$^+$ CD16$^+$	0.225	[-0.08, 0.49]	0.1465	0.2354	No
CD14$^+$ CD16$^+$	CD66b$^+$ CD32$^+$	-0.213	[-0.48, 0.09]	0.1704	0.2644	No
CD66b$^+$ CD32$^+$	CD66b$^+$ CD64$^+$	-0.202	[-0.47, 0.10]	0.194	0.291	No
CD66b$^+$ CD16$^+$	Treatment time	0.176	[-0.13, 0.45]	0.2592	0.3762	No
CD14$^+$ CD32$^+$	CD66b$^+$ CD16$^+$	-0.159	[-0.44, 0.15]	0.3093	0.4315	No

$CD66b^+$ $CD16^+$	$CD56^+$ $CD16^+$	0.156	[-0.15, 0.44]	0.3164	0.4315	No
$CD66b^+$ $CD32^+$	Treatment time	0.153	[-0.15, 0.43]	0.3273	0.4332	No
$CD14^+$ $CD16^+$	$CD66b^+$ $CD16^+$	-0.144	[-0.43, 0.16]	0.3574	0.4595	No
$CD14^+$ $CD32^+$	$CD56^+$ $CD32^+$	-0.14	[-0.42, 0.17]	0.3719	0.4649	No
$CD14^+$ $CD16^+$	$CD56^+$ $CD16^+$	0.109	[-0.20, 0.40]	0.4846	0.5894	No
$CD56^+$ $CD32^+$	Treatment time	0.098	[-0.21, 0.39]	0.5309	0.6287	No
$CD66b^+$ $CD64^+$	$CD56^+$ $CD32^+$	-0.083	[-0.37, 0.22]	0.5976	0.6895	No
$CD56^+$ $CD16^+$	$CD56^+$ $CD32^+$	0.065	[-0.24, 0.36]	0.6798	0.7648	No
$CD14^+$ $CD32^+$	$CD66b^+$ $CD32^+$	-0.035	[-0.33, 0.27]	0.8238	0.9041	No
$CD66b^+$ $CD16^+$	$CD66b^+$ $CD64^+$	-0.027	[-0.32, 0.28]	0.8651	0.9268	No
$CD66b^+$ $CD32^+$	$CD56^+$ $CD32^+$	-0.021	[-0.32, 0.28]	0.8961	0.9377	No
$CD14^+$ $CD64^+$	$CD66b^+$ $CD16^+$	-0.013	[-0.31, 0.29]	0.9344	0.9556	No
$CD14^+$ $CD64^+$	$CD56^+$ $CD32^+$	-0.001	[-0.30, 0.30]	0.9942	0.9942	No

BH-FDR across 45 pairwise tests. FcγR expression is reported as MFI. q (p-FDR): BH correction applied within each comparison. **Abbreviations:** BH, Benjamini–Hochberg; CD, cluster of differentiation; CI, confidence interval; FcγR, Fc gamma receptor; FDR, false discovery rate; MFI, median fluorescence intensity; NK, natural killer; rmcorr, repeated-measures correlation; SST, sputum smear test.

Table S4. Within-subject DCP — the proportion of patients exhibiting an indicated direction of change between timepoints — with 95% Wilson CI and paired Wilcoxon *p* value

Biomarker	Comparison	*n* paired	DCP	95% CI lower	95% CI upper	Direction	*p* (Wilcoxon paired)
IgG4	T0 vs. T2	21	0.667	0.454	0.828	T0 > T2	0.1571
IgG4	T0 vs. T6	21	0.81	0.6	0.923	T0 > T6	5.25e-05
Total IgG	T0 vs. T2	21	0.81	0.6	0.923	T0 > T2	0.1193
Total IgG	T0 vs. T6	21	0.857	0.654	0.95	T0 > T6	5.25e-05
ADCP	T0 vs. T2	21	0.524	0.324	0.717	T2 > T0	0.7079
ADCP	T0 vs. T6	21	0.762	0.549	0.894	T6 > T0	0.001
ADCC	T0 vs. T2	21	0.667	0.454	0.828	T2 > T0	0.2572
ADCC	T0 vs. T6	21	0.762	0.549	0.894	T6 > T0	7.21e-04
$CD14^+$ $CD16^+$	T0 vs. T2	21	1	0.845	1	T0 > T2	9.54e-07
$CD14^+$ $CD16^+$	T0 vs. T6	21	0.905	0.711	0.973	T0 > T6	3.54e-04
$CD14^+$ $CD32^+$	T0 vs. T2	21	0.857	0.654	0.95	T0 > T2	4.10e-05
$CD14^+$ $CD32^+$	T0 vs. T6	21	0.762	0.549	0.894	T0 > T6	1.97e-04
$CD14^+$ $CD64^+$	T0 vs. T2	21	0.81	0.6	0.923	T0 > T2	0.001
$CD14^+$ $CD64^+$	T0 vs. T6	21	0.857	0.654	0.95	T0 > T6	6.68e-05
$CD66b^+$ $CD16^+$	T0 vs. T2	21	0.571	0.365	0.755	T2 > T0	0.2572
$CD66b^+$ $CD16^+$	T0 vs. T6	21	0.667	0.454	0.828	T6 > T0	0.2373
$CD66b^+$ $CD32^+$	T0 vs. T2	21	0.81	0.6	0.923	T2 > T0	0.0175
$CD66b^+$ $CD32^+$	T0 vs. T6	21	0.714	0.5	0.862	T6 > T0	0.1032
$CD66b^+$ $CD64^+$	T0 vs. T2	21	0.857	0.654	0.95	T0 > T2	1.05e-04
$CD66b^+$ $CD64^+$	T0 vs. T6	21	1	0.845	1	T0 > T6	9.54e-07
$CD56^+$ $CD16^+$	T0 vs. T2	21	0.619	0.409	0.792	T0 > T2	0.1678
$CD56^+$ $CD16^+$	T0 vs. T6	21	0.952	0.773	0.992	T0 > T6	4.26e-04
$CD56^+$	T0 vs. T2	21	0.714	0.5	0.862	T2 > T0	0.0456

$CD32^+$							
$CD56^+$ $CD32^+$	T0 vs. T6	21	0.5	0.303	0.697	T0 > T6	0.2789

Highlighted rows: $p < 0.05$. DCP (Within-Subject Directional-Change Proportion): The proportion of patients whose biomarker changed in the indicated direction. 95% CI: Computed as the Wilson score interval for a binomial proportion. **Abbreviations:** ADCC, antibody-dependent cellular cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; CD, cluster of differentiation; CI, confidence interval; DCP, directional-change proportion; IgG, immunoglobulin G; T0, baseline before treatment initiation; T2, two months after treatment initiation; T6, six months after treatment initiation.

Table S5. Pairwise Wilcoxon signed-rank tests with rank-biserial effect sizes (r) and BH-FDR correction

Variable	Comparison	n pairs	median diff	p (raw)	*r* (rank-biserial)	n decreased	% decreased	q (p-FDR)	Sig FDR
IgG1	T0 vs. T2	21	0.006	0.3944	0.048	10	47.6	0.4551	NO
IgG1	T0 vs. T6	21	0.006	0.6578	0.048	10	47.6	0.6578	NO
IgG1	T2 vs. T6	21	-0.013	0.3554	-0.238	13	61.9	0.4443	NO
IgG2	T0 vs. T2	21	0.001	0.5854	0.048	10	47.6	0.6272	NO
IgG2	T0 vs. T6	21	-0.016	0.1907	-0.429	15	71.4	0.26	NO
IgG2	T2 vs. T6	21	0.017	0.8117	0.143	9	42.9	0.8697	NO
IgG3	T0 vs. T2	21	0.044	0.0646	0.333	7	33.3	0.1385	NO
IgG3	T0 vs. T6	21	0.035	0.3554	0.048	10	47.6	0.3808	NO
IgG3	T2 vs. T6	21	-0.030	0.147	-0.429	15	71.4	0.2204	NO
IgG4	T0 vs. T2	21	-0.014	0.1571	-0.333	14	66.7	0.2517	NO
IgG4	**T0 vs. T6**	**21**	**-0.046**	**5.25e-05**	**-0.619**	**17**	**81**	**2.50e-04**	**YES**
IgG4	**T2 vs. T6**	**21**	**-0.022**	**9.01e-04**	**-0.714**	**18**	**85.7**	**0.0045**	**YES**
Total IgG	T0 vs. T2	21	-0.020	0.1193	-0.619	17	81	0.2238	NO
Total IgG	**T0 vs. T6**	**21**	**-0.058**	**5.25e-05**	**-0.714**	**18**	**85.7**	**2.50e-04**	**YES**
Total IgG	**T2 vs. T6**	**21**	**-0.054**	**4.77e-04**	**-0.714**	**18**	**85.7**	**0.0045**	**YES**
ADCP	T0 vs. T2	21	0.172	0.7079	0.048	10	47.6	0.7079	NO
ADCP	**T0 vs. T6**	**21**	**0.840**	**0.001**	**0.524**	**5**	**23.8**	**0.0017**	**YES**
ADCP	**T2 vs. T6**	**21**	**0.724**	**0.0019**	**0.619**	**4**	**19**	**0.007**	**YES**
ADCC	T0 vs. T2	21	0.344	0.2572	0.333	7	33.3	0.3216	NO
ADCC	**T0 vs. T6**	**21**	**1.333**	**7.21e-04**	**0.524**	**5**	**23.8**	**0.0014**	**YES**

ADCC	T2 vs. T6	21	0.610	0.0351	0.333	7	33.3	0.0876	NO
$CD14^+$ $CD16^+$	**T0 vs. T2**	**21**	**-757**	**9.54e-07**	**-1**	**21**	**100**	**1.43e-05**	**YES**
$CD14^+$ $CD16^+$	**T0 vs. T6**	**21**	**-1032**	**3.54e-04**	**-0.81**	**19**	**90.5**	**8.85e-04**	**YES**
$CD14^+$ $CD16^+$	T2 vs. T6	21	91	0.0734	0.524	5	23.8	0.1377	NO
$CD14^+$ $CD32^+$	**T0 vs. T2**	**21**	**-1067**	**4.10e-05**	**-0.714**	**18**	**85.7**	**3.08e-04**	**YES**
$CD14^+$ $CD32^+$	**T0 vs. T6**	**21**	**-1348**	**1.97e-04**	**-0.524**	**16**	**76.2**	**5.92e-04**	**YES**
$CD14^+$ $CD32^+$	T2 vs. T6	21	0	0.5016	0	10	47.6	0.5788	NO
$CD14^+$ $CD64^+$	**T0 vs. T2**	**21**	**-2108**	**0.001**	**-0.619**	**17**	**81**	**0.0038**	**YES**
$CD14^+$ $CD64^+$	**T0 vs. T6**	**21**	**-2785**	**6.68e-05**	**-0.714**	**18**	**85.7**	**2.50e-04**	**YES**
$CD14^+$ $CD64^+$	**T2 vs. T6**	**21**	**-1194**	**0.0127**	**-0.429**	**15**	**71.4**	**0.0381**	**YES**
$CD66b^+$ $CD16^+$	T0 vs. T2	21	8091	0.2572	0.143	9	42.9	0.3216	NO
$CD66b^+$ $CD16^+$	T0 vs. T6	21	2262	0.2373	0.333	7	33.3	0.2966	NO
$CD66b^+$ $CD16^+$	T2 vs. T6	21	-9332	0.9187	-0.238	13	61.9	0.9187	NO
$CD66b^+$ $CD32^+$	T0 vs. T2	21	467	0.0175	0.619	4	19	0.0526	NO
$CD66b^+$ $CD32^+$	T0 vs. T6	21	348	0.1032	0.429	6	28.6	0.1548	NO
$CD66b^+$ $CD32^+$	T2 vs. T6	21	-192	0.1354	-0.3	13	61.9	0.2204	NO
$CD66b^+$ $CD64^+$	**T0 vs. T2**	**21**	**-313**	**1.05e-04**	**-0.714**	**18**	**85.7**	**5.25e-04**	**YES**
$CD66b^+$ $CD64^+$	**T0 vs. T6**	**21**	**-335**	**9.54e-07**	**-1**	**21**	**100**	**1.43e-05**	**YES**
$CD66b^+$ $CD64^+$	**T2 vs. T6**	**21**	**-95**	**7.01e-04**	**-0.905**	**20**	**95.2**	**0.0045**	**YES**
$CD56^+$ $CD16^+$	T0 vs. T2	21	-831	0.1678	-0.238	13	61.9	0.2517	NO
$CD56^+$ $CD16^+$	**T0 vs. T6**	**21**	**-2626**	**4.26e-04**	**-0.905**	**20**	**95.2**	**9.13e-04**	**YES**
$CD56^+$ $CD16^+$	T2 vs. T6	21	-1514	0.0421	-0.524	16	76.2	0.0902	NO
$CD56^+$	T0 vs. T2	21	24	0.0456	0.429	6	28.6	0.1141	NO

$CD32^+$									
$CD56^+$ $CD32^+$	T0 vs. T6	21	0	0.2789	0	10	47.6	0.3218	NO
$CD56^+$ $CD32^+$	T2 vs. T6	21	-57	0.348	-0.238	13	61.9	0.4443	NO

Highlighted rows: q (p-FDR) < 0.05. A paired Wilcoxon signed-rank test was used for each pairwise timepoint comparison. "n_decreased" and "% decreased" indicate the number and percentage of patients whose values decreased between timepoints. r (rank-biserial): paired effect size. Absolute values of r greater than 0.5 are typically considered a large effect.

q (p-FDR): BH correction applied within each comparison. **Abbreviations:** ADCC, antibody-dependent cellular cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; BH, Benjamini–Hochberg; CD, cluster of differentiation; FDR, false discovery rate; IgG, immunoglobulin G; T0, baseline before treatment initiation; T2, two months after treatment initiation; T6, six months after treatment initiation.

Table S6. Nemenyi post-hoc test — sensitivity analysis complementing the primary Wilcoxon+BH-FDR pipeline reported in Table S2

Biomarker	*n* paired	Friedman *p*	Nemenyi *p* (T0–T2)	Nemenyi *p* (T0–T6)	Nemenyi p (T2–T6)	Direction T0→T6	Sig T0–T2	Sig T0–T6	Sig T2–T6
$CD66b^+$ $CD64^+$	21	2.97e-08	0.0361	1.36e-08	0.002	decrease	Yes	Yes	Yes
$CD14^+$ $CD16^+$	21	3.36e-07	1.99e-07	0.002	0.1107	decrease	Yes	Yes	No
Total IgG	21	4.33e-05	0.1107	2.28e-05	0.0361	decrease	No	Yes	Yes
$CD56^+$ $CD16^+$	21	1.23e-04	0.3468	9.18e-05	0.0151	decrease	No	Yes	Yes
$CD14^+$ $CD64^+$	21	2.77e-04	0.0361	2.00e-04	0.2708	decrease	Yes	Yes	No
IgG4	21	5.94e-04	0.6239	6.00e-04	0.0151	decrease	No	Yes	Yes
$CD14^+$ $CD32^+$	21	0.0021	0.0044	0.012	0.9489	decrease	Yes	Yes	No
$CD66b^+$ $CD32^+$	21	0.0058	0.0044	0.1306	0.4328	increase	Yes	No	No
ADCP	21	0.0058	1.000	0.0151	0.0151	increase	No	Yes	Yes
ADCC	21	0.0211	0.3468	0.0151	0.3468	increase	No	Yes	No
IgG3	21	0.1017	0.153	1.000	0.153	increase	No	No	No
$CD56^+$	21	0.1621	0.1782	0.9489	0.3074	decrease	No	No	No

$CD32^+$									
$CD66b^+$ $CD16^+$	21	0.3679	0.3468	0.6239	0.8886	increase	No	No	No
IgG2	21	0.5385	0.7205	0.5264	0.9489	decrease	No	No	No
IgG1	21	0.7165	0.8107	0.987	0.7205	decrease	No	No	No

Nemenyi post-hoc is the standard non-parametric pairwise test following a significant Friedman result. This was included as a sensitivity analysis; primary inferences were drawn using Wilcoxon with BH FDR (Table S2). **Abbreviations:** ADCC, antibody-dependent cellular cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; BH, Benjamini–Hochberg; CD, cluster of differentiation; FDR, false discovery rate; IgG, immunoglobulin G; T0, baseline before treatment initiation; T2, two months after treatment initiation; T6, six months after treatment initiation.

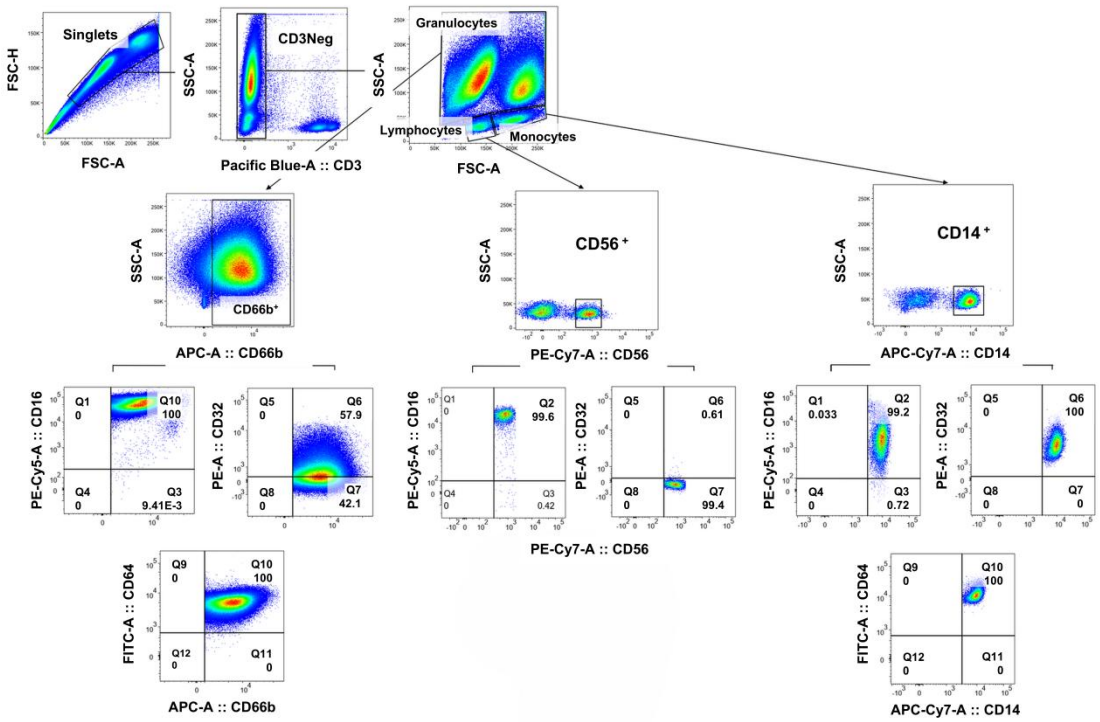


Figure S1. Gating strategy for flow cytometric assessment of FcγR expression. Singlets were first identified using FSC-H versus FSC-A, followed by exclusion of $CD3^+$ cells. Granulocyte, monocyte, and lymphocyte populations were distinguished according to FSC-A and SSC-A characteristics. $CD66b^+$ granulocytes, $CD14^+$ monocytes, and $CD56^+$ NK cells were subsequently gated within the corresponding populations. CD16 and CD32 expression was assessed on all three cell subsets, whereas CD64 expression was assessed on $CD66b^+$ granulocytes and $CD14^+$ monocytes only because NK cells do not constitutively express CD64. FcγR expression was quantified as MFI. Gating boundaries were defined using FMO controls. **Abbreviations:** CD, cluster of differentiation; FcγR, Fc gamma receptor; FMO, fluorescence minus one; FSC-A, forward scatter area; FSC-H, forward scatter height; MFI, median fluorescence intensity; NK, natural killer; SSC-A, side scatter area.

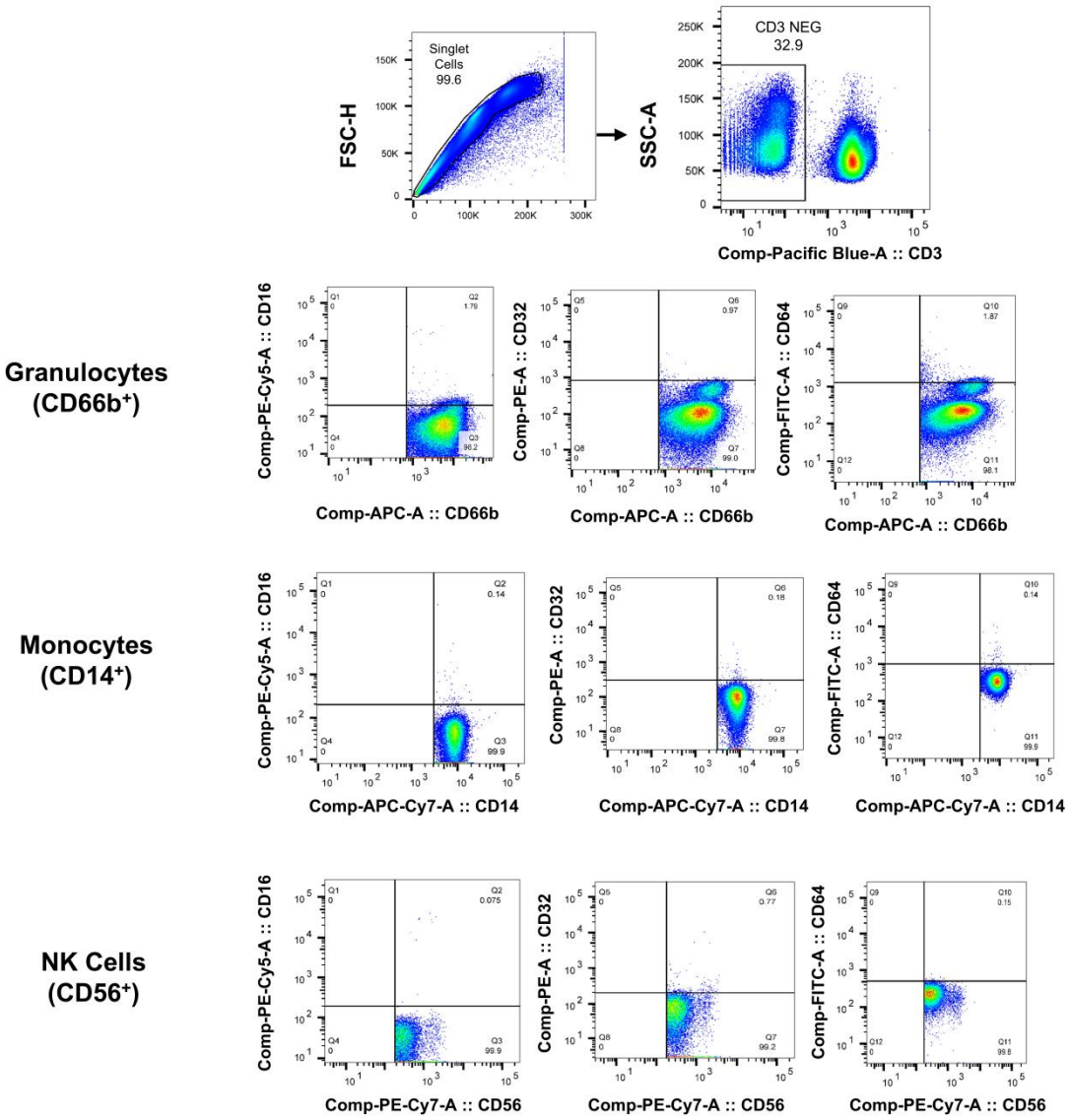


Figure S2. Fluorescence-minus-one controls for FcγR gating in peripheral immune-cell subsets. Representative flow cytometry plots from peripheral blood collected from a patient with pulmonary TB at baseline before treatment initiation (T0). Singlets were first identified using FSC-H versus FSC-A, followed by exclusion of $CD3^+$ cells using SSC-A versus CD3. The subsequent rows show FMO controls for CD16, CD32, and CD64 within $CD66b^+$ granulocytes, $CD14^+$ monocytes, and $CD56^+$ NK cells. FMO controls were used to define receptor-positive gating boundaries while accounting for fluorescence spillover from the remaining fluorochromes; spectral compensation was established separately using single-stained controls. Numbers within the quadrants indicate the percentage of events in each gate. CD64 expression on NK cells was not included in the downstream analysis. **Abbreviations**: CD, cluster

of differentiation; FcγR, Fc gamma receptor; FMO, fluorescence minus one; FSC-A, forward scatter area; FSC-H, forward scatter height; NK, natural killer; SSC-A, side scatter area; T0, baseline before treatment initiation; TB, tuberculosis.

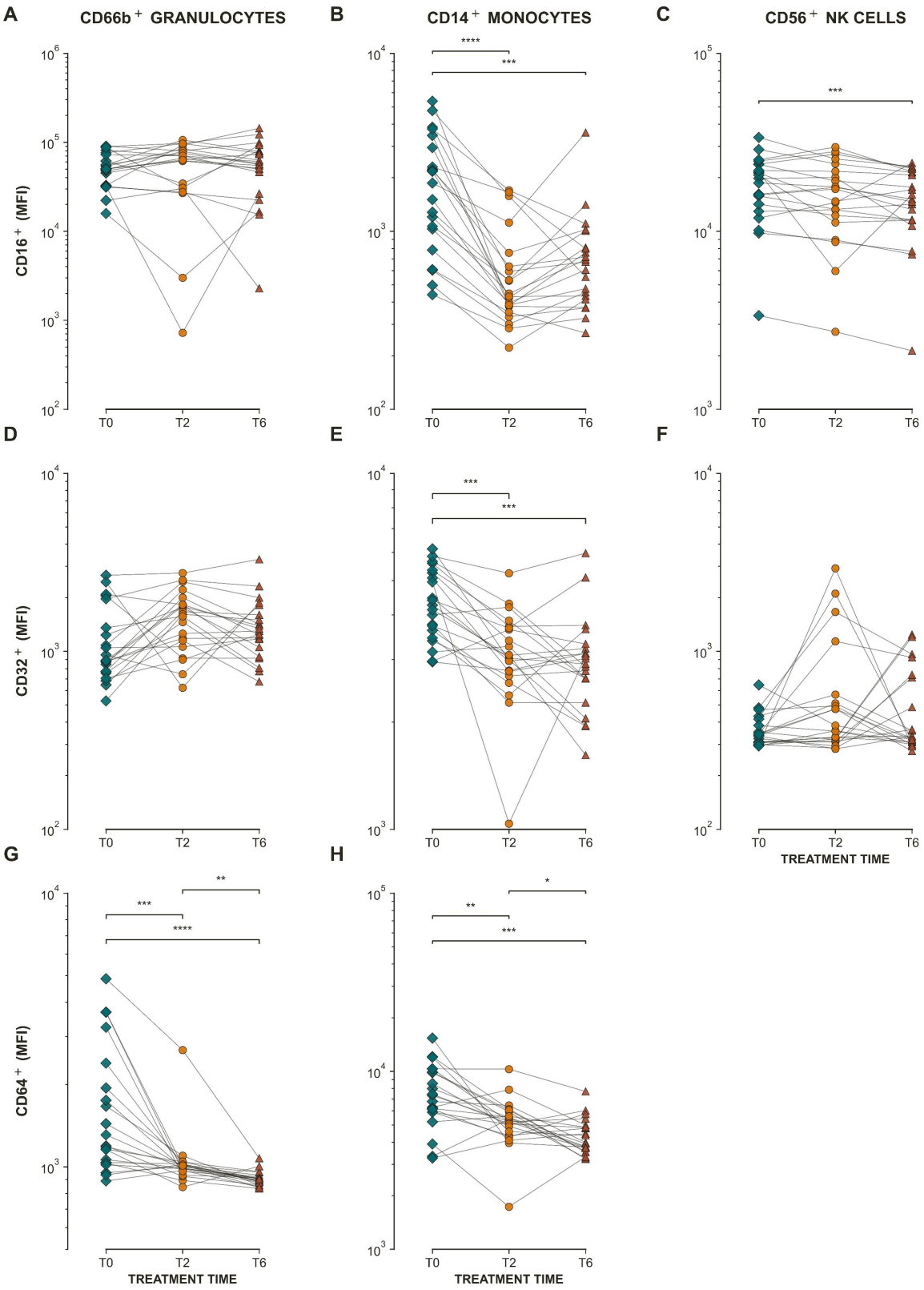


Figure S3. Individual longitudinal changes in FcγR expression across circulating immune-cell subsets during tuberculosis treatment. (A–C) CD16 expression on $CD66b^+$ granulocytes, $CD14^+$ monocytes, and $CD56^+$ NK cells, respectively. **(D–F)** CD32 expression on $CD66b^+$ granulocytes, $CD14^+$ monocytes, and $CD56^+$ NK cells, respectively. **(G, H)** CD64 expression on $CD66b^+$ granulocytes and $CD14^+$ monocytes, respectively. FcγR expression was assessed at baseline before treatment initiation (T0), two months after treatment initiation (T2), and treatment completion at six months (T6) and is expressed as MFI. Symbols represent individual participants, and connecting lines indicate within-patient longitudinal trajectories across the three time points (n = 21). Primary pairwise comparisons were performed using Wilcoxon signed-rank tests with BH–FDR adjustment; the Friedman test with Nemenyi post hoc comparisons was used as a sensitivity analysis. Flow-cytometry gating boundaries were defined using FMO controls. *$q < 0.05$; **$q < 0.01$; ***$q < 0.001$; ****$q < 0.0001$. **Abbreviations:** BH–FDR, Benjamini–Hochberg false discovery rate; CD, cluster of differentiation; FcγR, Fc gamma receptor; FMO, fluorescence minus one; MFI, median fluorescence intensity; NK, natural killer; T0, baseline before treatment initiation; T2, two months after treatment initiation; T6, six months after treatment initiation.

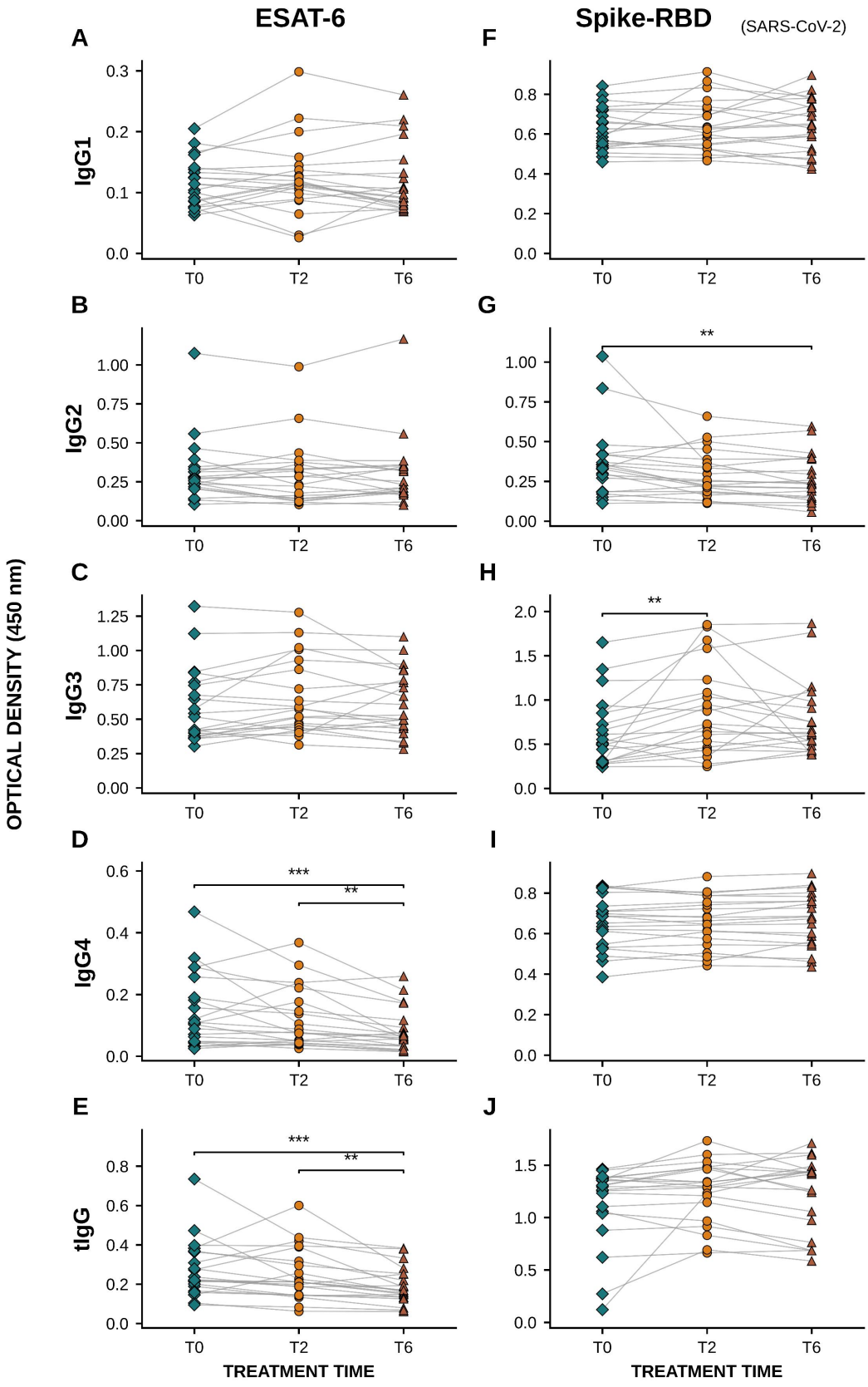


Figure S4. Longitudinal profiles of ESAT-6-specific and SARS-CoV-2 Spike-RBD-specific IgG responses during tuberculosis treatment. (A–E) Longitudinal

levels of ESAT-6-specific IgG1, IgG2, IgG3, IgG4, and total IgG, respectively, measured at baseline before treatment initiation (T0), two months after treatment initiation (T2), and treatment completion at six months (T6). **(F–J)** Corresponding longitudinal levels of SARS-CoV-2 Spike-RBD-specific IgG1, IgG2, IgG3, IgG4, and total IgG, respectively, assessed as an unrelated antigen control. Antibody levels are expressed as optical density measured at 450 nm. Symbols represent individual participants at each time point, and connecting lines indicate within-patient longitudinal trajectories (n = 21). Primary pairwise comparisons were performed using Wilcoxon signed-rank tests with BH–FDR adjustment; the Friedman test with Nemenyi post hoc comparisons was used as a sensitivity analysis. *q < 0.05; **q < 0.01; ***q < 0.001; ****q < 0.0001. **Abbreviations:** BH–FDR, Benjamini–Hochberg false discovery rate; ESAT-6, early secretory antigenic target-6; IgG, immunoglobulin G; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; Spike-RBD, spike receptor-binding domain; T0, baseline before treatment initiation; T2, two months after treatment initiation; T6, six months after treatment initiation; TB, tuberculosis; tIgG, total immunoglobulin G.

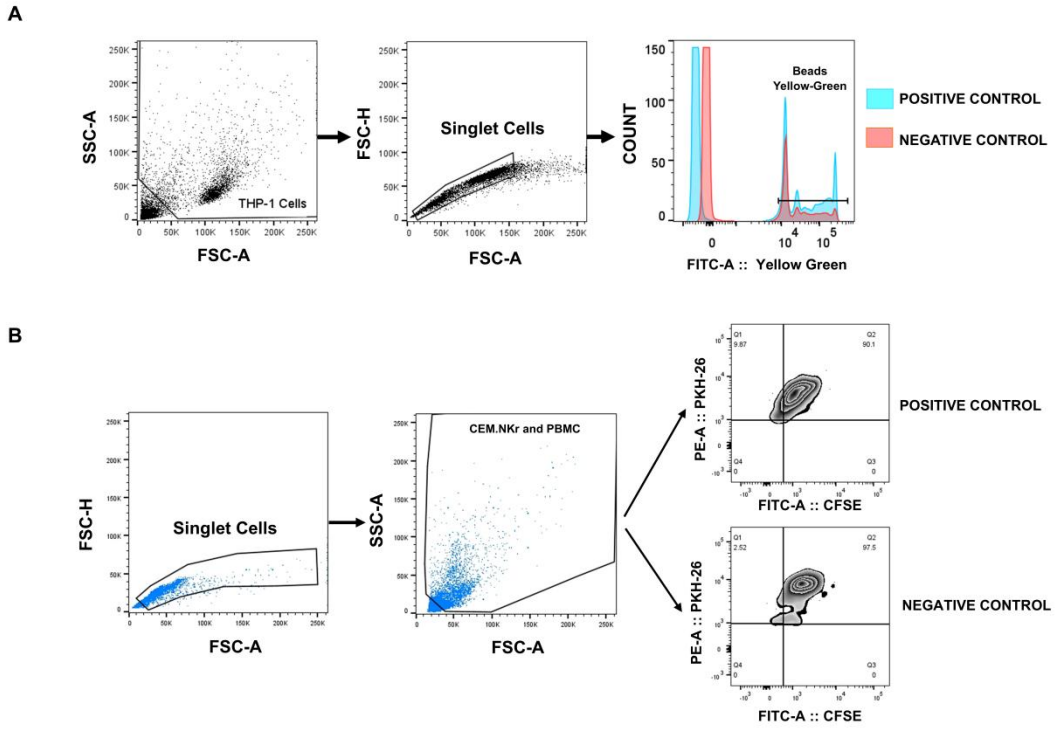


Figure S5. Gating strategies for ESAT-6-specific antibody-dependent cellular phagocytosis and cytotoxicity assays. (A) Gating strategy for the ADCP assay. THP-1 cells were identified according to FSC-A and SSC-A characteristics, followed by singlet gating using FSC-H versus FSC-A. Uptake of ESAT-6-coated yellow-green fluorescent beads was quantified in the FITC channel, with BSA-coated beads serving as the negative control. Representative positive- and negative-control histograms illustrate discrimination of bead-positive cells. **(B)** Gating strategy for the ADCC assay. Singlets were first identified using FSC-H versus FSC-A, followed by gating of CEM.NKr target cells within the CEM.NKr–PBMC co-culture. Target cells were double-labeled with PKH-26 and CFSE. Following co-culture with effector PBMCs in the presence of ESAT-6-specific antibodies, cytotoxicity was quantified as the proportion of $PKH\text{-}26^{+}CFSE^{-}$ cells within the $PKH\text{-}26^{+}$ target-cell population, with loss of CFSE indicating target-cell lysis. Representative positive- and negative-control plots are shown; BSA-treated target cells served as the negative control. **Abbreviations:** ADCC, antibody-dependent cellular cytotoxicity; ADCP, antibody-dependent cellular phagocytosis; BSA, bovine serum albumin; CFSE, carboxyfluorescein succinimidyl ester; ESAT-6, early secretory antigenic target-6; FITC, fluorescein isothiocyanate; FSC-A, forward scatter area; FSC-H, forward

scatter height; PBMC, peripheral blood mononuclear cell; PKH-26, PKH26 red fluorescent cell linker dye; SSC-A, side scatter area.