**Supplementary figure 1. Representative TCR Vβ spectratyping profiles of T-cells from healthy donors and co-inhibitory receptor ligand expression on mature monocyte-derived DCs utilised during the *in vitro* antigen-stimulation of naïve and memory T-cells.** (A, B) TCR Vβ spectratyping profiles of T-cells from healthy donors (A) S2 and (B) S4 showing skewed CDR3 lengths distribution after *in vitro* priming of naïve T-cells to SMX-NO. The expression of (C) the PD-1-ligand PD-L1 (PD-L1-PE), (D) the CTLA4-ligands CD80 (CD80-FITC) and CD86 (CD86-FITC), and (E) the TIM-3-ligand galectin-9 (Gal-9-APC*) on LPS- and TNF-α-matured DCs (Grey histogram, unstained cells; blue histogram, CD14+ monocyte–derived mature DCs).

**Supplementary table 1. Flow cytometric analysis of TCR Vβ usage on naïve and SMX-NO specific memory T-cells.**

| TCR | Day 0 - % naive T-cells | | | | | Mean day0[1] (exluding.S1) | SD | mean -3SD | mean +3SD | Day 11- % SMX-NO spec. memory T-cells | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S2 | S3 | S4 | S5 | S6 | | | | | S2 | S3 | S4 | S5 | S6 |
| Vb 1 | 4.66 | 3.96 | 4.28 | 3.69 | 3.76 | 4.07 | 0.40 | 2.87 | 5.27 | 3.17 | 1.28 | 1.82 | 1.93 | 5.59 |
| Vb 2 | 7.12 | 8.49 | 6.65 | 7.29 | 5.34 | 6.98 | 1.14 | 3.56 | 10.40 | 18.12 | 0.88 | 0.62 | 1.30 | 9.89 |
| Vb 3 | 0.67 | 0.43 | 10.64 | 4.60 | 6.39 | 4.55 | 4.26 | -8.23 | 17.32 | 1.24 | 0.57 | 6.81 | 3.57 | 4.11 |
| Vb 4 | 0.21 | 0.07 | 0.09 | 0.53 | 0.03 | 0.19 | 0.20 | -0.42 | 0.80 | 2.85 | 3.27 | 3.37 | 5.24 | 3.92 |
| Vb 5.1 | 4.53 | 8.54 | 6.82 | 6.88 | 4.44 | 6.24 | 1.75 | 1.00 | 11.48 | 5.34 | 0.86 | 0.41 | 0.30 | 3.32 |
| Vb 5.2 | 0.77 | 0.80 | 0.33 | 0.61 | 0.91 | 0.68 | 0.23 | 0.01 | 1.36 | 0.73 | 10.65 | 7.88 | 12.22 | 1.00 |
| Vb 5.3 | 0.78 | 0.26 | 0.21 | 0.40 | 0.77 | 0.48 | 0.27 | -0.34 | 1.31 | 1.16 | 3.88 | 4.25 | 2.88 | 0.82 |
| Vb 7.1 | 2.91 | 1.95 | 1.04 | 2.59 | 1.62 | 2.02 | 0.75 | -0.22 | 4.27 | 5.36 | 0.70 | 0.73 | 1.12 | 1.64 |
| Vb 7.2 | 2.53 | 0.60 | 0.06 | 0.35 | 0.03 | 0.71 | 1.04 | -2.41 | 3.84 | 3.11 | 1.98 | 1.00 | 1.47 | 0.00 |
| Vb 8 | 3.55 | 1.76 | 2.34 | 1.92 | 3.52 | 2.62 | 0.86 | 0.03 | 5.21 | 3.72 | 5.00 | 3.89 | 3.30 | 3.74 |
| Vb 9 | 0.18 | 0.22 | 0.15 | 0.15 | 0.07 | 0.15 | 0.06 | -0.01 | 0.32 | 3.84 | 3.45 | 4.47 | 6.85 | 2.27 |
| Vb 11 | 0.75 | 0.87 | 0.77 | 0.73 | 0.58 | 0.74 | 0.10 | 0.43 | 1.05 | 1.18 | 4.69 | 5.66 | 2.92 | 0.65 |
| Vb 12 | 1.17 | 1.64 | 1.32 | 1.22 | 0.68 | 1.21 | 0.35 | 0.17 | 2.24 | 1.52 | 1.78 | 2.32 | 1.61 | 1.10 |
| Vb 13.1 | 3.27 | 4.27 | 2.84 | 3.27 | 3.57 | 3.44 | 0.53 | 1.85 | 5.03 | 4.62 | 3.35 | 2.81 | 3.66 | 5.03 |
| Vb 13.2 | 3.91 | 2.34 | 0.97 | 1.73 | 0.60 | 1.91 | 1.31 | -2.01 | 5.83 | 3.92 | 0.49 | 0.57 | 0.51 | 0.42 |
| Vb 13.6 | 1.57 | 1.62 | 1.29 | 1.79 | 1.61 | 1.58 | 0.18 | 1.03 | 2.12 | 1.45 | 6.02 | 2.75 | 2.93 | 2.59 |
| Vb 14 | 2.19 | 0.89 | 2.47 | 0.85 | 0.89 | 1.46 | 0.80 | -0.95 | 3.86 | 6.05 | 4.83 | 6.59 | 5.44 | 3.70 |
| Vb 16 | 0.55 | 0.86 | 0.75 | 0.82 | 1.09 | 0.81 | 0.20 | 0.23 | 1.40 | 0.38 | 1.37 | 0.69 | 1.15 | 0.62 |
| Vb 17 | 6.90 | 3.45 | 6.20 | 6.44 | 4.68 | 5.53 | 1.43 | 1.24 | 9.83 | 8.00 | 1.64 | 1.91 | 1.06 | 4.97 |
| Vb 18 | 0.52 | 0.11 | 0.17 | 0.12 | 0.39 | 0.26 | 0.18 | -0.29 | 0.81 | 0.49 | 10.40 | 7.89 | 8.05 | 1.02 |
| Vb 20 | 1.33 | 2.18 | 0.96 | 2.14 | 1.43 | 1.61 | 0.53 | 0.01 | 3.21 | 2.68 | 2.35 | 0.67 | 1.93 | 2.25 |
| Vb 21.3 | 1.63 | 2.54 | 2.67 | 2.46 | 1.82 | 2.22 | 0.47 | 0.82 | 3.62 | 1.72 | 1.55 | 1.69 | 1.93 | 1.70 |
| Vb 22 | 3.10 | 3.47 | 4.02 | 1.79 | 4.00 | 3.28 | 0.92 | 0.53 | 6.02 | 1.88 | 1.14 | 1.56 | 0.65 | 3.87 |
| Vb 23 | 0.79 | 0.67 | 0.29 | 0.57 | 1.30 | 0.72 | 0.37 | -0.39 | 1.84 | 0.54 | 5.65 | 0.37 | 4.21 | 0.85 |
| total Vb | 55.59 | 51.95 | 57.33 | 52.95 | 49.52 | | | | | 83.08 | 77.79 | 70.72 | 76.23 | 65.09 |

[1] Donor 1 excluded from mean calculation

**Supplementary Table 2. Summary of the antigen-specific proliferation of SMX-NO-primed naive T-cells ± PD-L1/CTLA4/TIM-3 blocking antibodies.**

| Block[1] used | Donor number | - block drug Response (CPM) | + block drug Response (CPM) | SI of comparative response with addition of block |
|---|---|---|---|---|
| PD-L1 | Donor 1 | weak (3549.0) | good (15214.0) | ↑ 4.3 (p=0.002) |
| | Donor 2 | weak (2543.3) | weak (12360.6) | ↑ 4.9 (p=0.038) |
| | Donor 3 | weak (13318.3) | very stong (63258.3) | ↑ 4.7 (p=0.012) |
| | Donor 4 | weak (7689.0) | good (29107.6) | ↑ 3.8 (p=0.020) |
| | Donor 5 | very stong (51009.6) | good (29463.6) | No increase |
| CTLA4 | Donor 6 | weak (5475.3) | weak (9750.3) | ↑ 1.8 (p=0.043) |
| | Donor 7 | good (19496.6) | strong (32843.3) | ↑ 1.7 (p=0.027) |
| | Donor 8 | good (15668.3) | strong (36262.0) | ↑ 2.3 (p=0.023) |
| | Donor 9 | weak (8050.0) | very strong (49669.3) | ↑ 6.2 (p=0.006) |
| | Donor 10 | very strong (50829.6) | very strong (68964.3) | ↑ 1.4 (p=0.017) |
| | Donor 5 | good (19659.0) | strong (36279.6) | ↑ 1.8 (p=0.010) |
| | Donor 11 | good (25933.6) | weak (14800.6) | No increase |
| | Donor 12 | weak (8802.6) | weak (7135.6) | No increase |
| | Donor 4 | strong (39129.3) | strong (38245.0) | No increase |
| TIM-3 | Donor 13 | very strong (50698.0) | very strong (54427.0) | No increase |
| | Donor 14 | strong (43080.3) | good (23292.0) | No increase |
| | Donor 5 | very strong (50357.3) | strong (44196.0) | No increase |

[1]Naïve T-cells from healthy donors were cultured with mature autologous DCs in the presence of SMX-NO (50 µM) for one 1 week, ± PD-L1 (5 µg/ml) /CTLA4 (10 µg/ml) /TIM-3 (7.5 µg/ml) blocking antibodies before restimulation with fresh DCs and SMX-NO (20-50 µM). Strength of proliferative response was measured by [$^3$H] thymidine incorporation and is shown as CPM above background; weak (< 15000), good (15000-30000), strong (30000-45000), very strong (> 45000). An enhanced response is shown by significant fold increase with block compared to without (*p ≤ 0.05).

**Supplementary Table 3. Summary of the antigen-specific proliferation of SMX-NO-exposed memory T-cells ± PD-L1/CTLA4/TIM-3 blocking antibodies.**

| Block used | Donor number | - block drug Response (CPM) | + block drug Response (CPM) | SI of comparative response with addition of block |
|---|---|---|---|---|
| PD-L1 | Donor 15 | weak (13750.6) | weak (8158.0) | No increase |
| | Donor 5 | strong (32780.0) | good (24932.3) | No increase |
| | Donor 16 | weak (10167) | weak (8338.6) | No increase |
| CTLA4 | Donor 5 | weak (14443.6) | good (22310.3) | ↑ 1.5 (p=0.022) |
| | Donor 9 | weak (7470.3) | weak (9981.6) | ↑ 1.3 (p=0.009) |
| | Donor 8 | weak (981.0) | weak (5666.6) | ↑ 6.6 (p=0.002) |
| | Donor 11 | weak (8032.6) | weak (6903.3) | No increase |
| | Donor 6 | weak (8500.3) | weak (5548.0) | No increase |
| | Donor 10 | very strong (47951.3) | good (29999.6) | No increase |
| TIM-3 | Donor 5 | strong (33874.0) | strong (34144.3) | No increase |
| | Donor 15 | weak (13750.6) | good (19919.3) | No increase |
| | Donor 13 | good (17515.3) | weak (13202.3) | No increase |

[1]Memory T-cells from healthy donors were cultured with mature autologous DCs in the presence of SMX-NO (50 µM) for one 1 week, ± PD-L1 (5 µg/ml) /CTLA4 (10 µg/ml) /TIM-3 (7.5 µg/ml) blocking antibodies before restimulation with fresh DCs and SMX-NO (20-50 µM). Strength of proliferative response was measured by [$^3$H] thymidine incorporation and is shown as CPM above background; weak (< 15000), good (15000-30000), strong (30000-45000), very strong (> 45000). An enhanced response is shown by significant fold increase with block compared to without (*p ≤ 0.05).