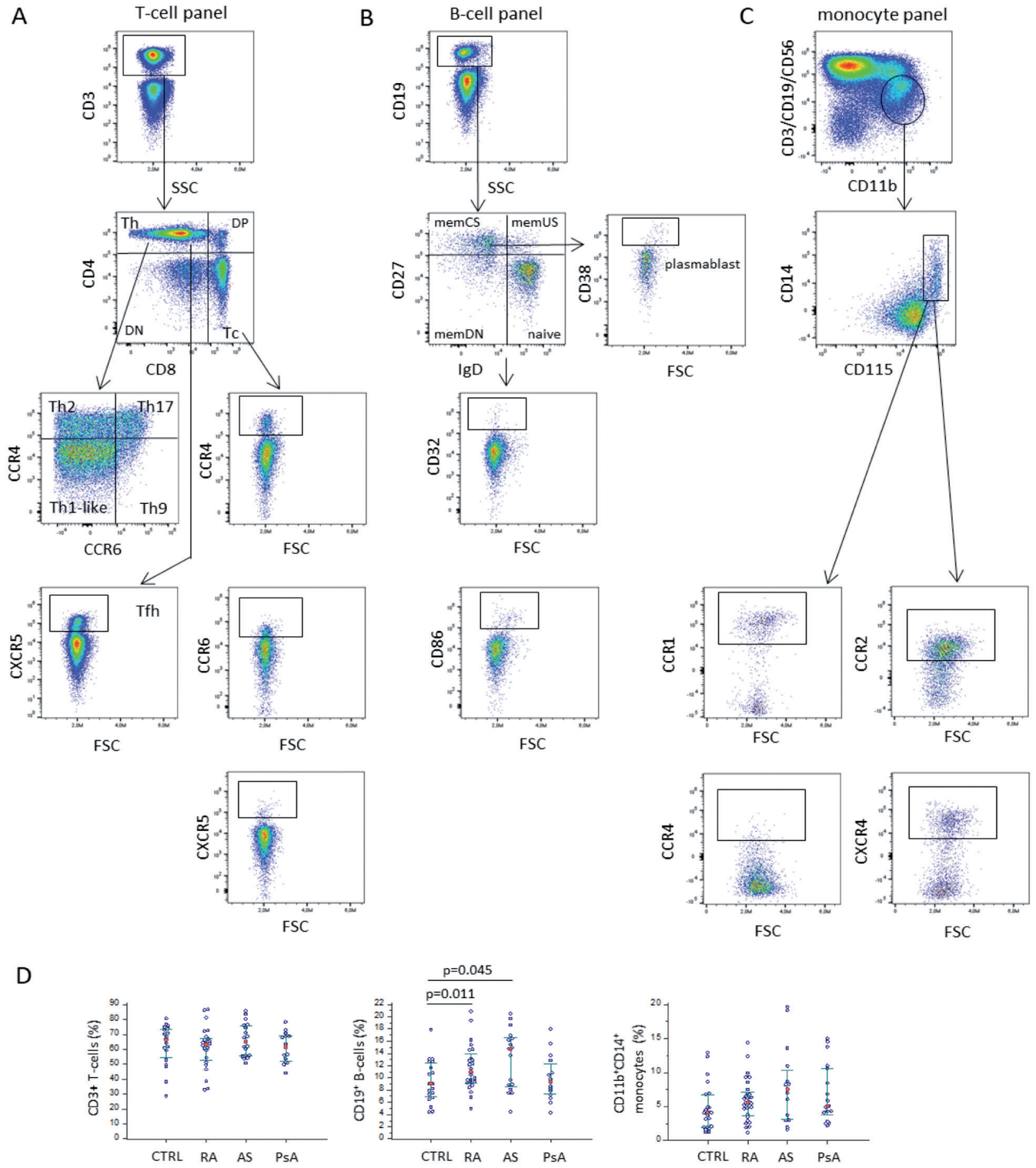
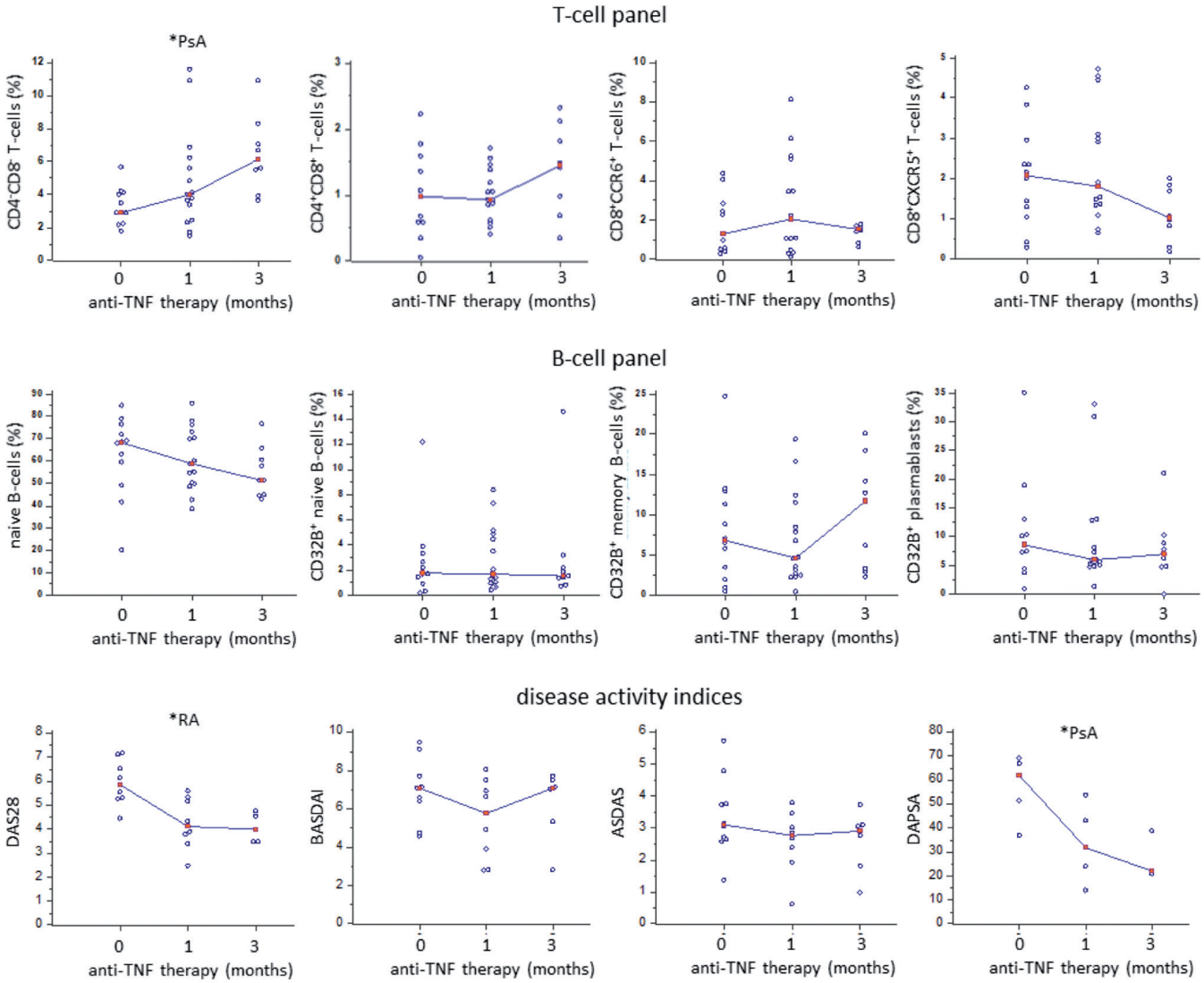
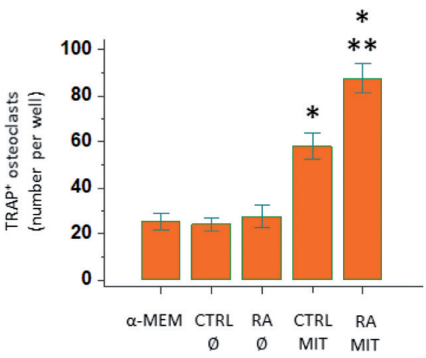


Suppl. Fig. 1. Flow cytometry gating strategy and frequency of general peripheral lymphocyte and monocyte subpopulations in arthritic patients.
A: Gating strategy for T-cells. $CD3^+$ T-cells were dissected into $CD4^+$ helper T-cell (Th), $CD8^+$ cytotoxic T-cells (Tc), $CD4^+CD8^+$ double-positive T-cells (DP) or $CD4^-CD8^-$ double-negative T-cells (DN). Helper T-cell populations were segregated into Th1-like, Th2, Th9, Th17 and Tfh. Cytotoxic T-cell populations were segregated into immature effector memory ($CCR4^+$), early effector memory ($CCR6^+$) and follicular ($CXCR5^+$) cytotoxic T-cell subpopulations.
B: Gating strategy for B-cells. $CD19^+$ B-cells were disected into naïve, class-switched (memCS), unswitched (memUS) and double-negative (memDN) memory B-cells; each population was further analysed for the expression of CD32B and CD86.
C: Gating strategy for monocytes. Lymphoid negative myeloid cells were dissected into myeloid ($CD11b^+$), monocyte ($CD14^+$) and osteoclastogenic monocyte ($CD115^+$) subsets, and further analysed for the expression of chemokine receptors CCR1, CCR2, CCR4, CXCR4.
D: Proportion of T-cells, B-cells and monocytes in peripheral blood of control (CTRL) subjects and rheumatoid arthritis (RA), ankylosing spondylitis (AS) and psoriatic arthritis (PsA) patients. Values are presented as medians (square), with boundaries (horizontal lines) representing interquartile range (IQR), and circles representing individual values. Disease-to-control comparisons were performed using non-parametric Mann-Whitney test, p-values <0.05 are shown.



Suppl. Fig. 2. Comparison of selected lymphocyte subpopulations in peripheral blood mononuclear cells and disease activity indices before, one and three months after start of anti-TNF therapy in rheumatoid arthritis, psoriatic arthritis and ankylosing spondylitis patients. Results are presented as individual values and medians (square) with connecting lines. Only selected subpopulations previously detected as significantly changed in blood are shown. DAS28 values are shown for RA and PsA patients, ASDAS and BASDAI for AS and PsA, while DAPSA only for PsA.
AS: ankylosing spondylitis; PsA: psoriatic arthritis; RA: rheumatoid arthritis; ASDAS: Ankylosing spondylitis disease activity score; BASDAI: Bath ankylosing spondylitis disease activity index; DAS28: Disease activity score including a 28-joint count (calculated with ESR); DAPSA: Disease activity index for psoriatic arthritis; * denotes significant difference for paired sample comparison of the respective disease. Comparisons were performed using Wilcoxon signed-rank test, *p*-values <0.05 were considered significant.



Suppl. Fig. 3. Treatment of osteoclastogenic culture by lymphocyte-conditioned supernatants. Peripheral osteoclast progenitors (OCPs) were defined within monocyte fraction as $CD3^-CD19^-CD56^-CD11b^+CD14^+$ subset and sorted using BD FacsARIA II instrument. Sorted OCPs were plated at a density of 4×10^4 cells per well in 96-well plate in α-MEM/10% FBS and osteoclastogenic growth factors, 30 ng/mL macrophage colony-stimulating factor (M-CSF) and 100 ng/mL rh receptor activator of nuclear factor-kappaB ligand (RANKL). Conditioned media were added in dilution of 1:3 from unstimulated (θ) or mitogenically (MIT) stimulated control (CTRL) or rheumatoid arthritis (RA) supernatants. At day 11–13 of culture, osteoclasts were determined as $TRAP^+$ cells with two or more nuclei per cell. Results are mean ± SD. Group-to-group comparisons were performed using ANOVA with Student-Newman-Keuls *post-hoc* test, *p*-values <0.05 were considered significant. * denotes significant change *vs*. unstimulated supernatant; ** denotes significant change *vs*. stimulated control supernatant.

Suppl. Table S1. Antibody-producing clones for the analysed immune cell markers.

Marker	Antibody-producing clone
CD3	OKT3
CD4	RPA-T4
CD8	RPA-T8
CD19	HIB19
CD27	O323
CD32B	FAB1330G
CD38	HIT2
CD86	BU63
CCR1	FAB145G
CCR2	FAB151P
CCR4	FAB1567P
CCR6	FAB590G
CXCR4	FAB170G
CXCR5	FAB190G
IgD	IA6-2

Suppl. Table S2. Comparison of T-cell subpopulations in peripheral blood and synovial fluid from rheumatoid arthritis and psoriatic arthritis patients.

Population	Diagnosis	Blood (%)	Synovial fluid (%)	*p*-value
double-positive T cells	RA	0.52 [0.4-0.9]	0.97 [0.6-2.2]	0.204
	PsA	1.0 [0.4-4.1]	1.72 [0.9-1.74]	0.611
double-negative T cells	RA	4.9 [3.1-6.5]	13.8 [6.1-20.2]	0.034
	PsA	2.3 [2.1-3.6]	2.9 [2.4-4.5]	0.363
Th1-like cells	RA	80.9 [77.6-86.5]	75.1 [67.0-81.8]	0.050
	PsA	77.8 [75.9-84.4]	76.1 [63.6-78.9]	0.295
CXCR5$^+$ cytotoxic T cells	RA	13.6 [10.5-15.6]	3.7 [1.7-10.6]	0.004
	PsA	1.3 [1.0-2.4]	2.2 [1.5-3.4]	0.296
CCR6$^+$ cytotoxic T cells	**RA**	**2.8 [1.1-4.2]**	**5.2 [3.9-6.8]**	**0.017**
	PsA	0.6 [0.4-1.1]	3.1 [2.5-3.9]	0.004

*Values are presented as median with interquartile range. Only subpopulations significantly changed in blood of at least one disease were compared and shown. Subpopulations which were significantly increased in synovial fluid in addition to the original finding in blood are bolded. Blood-to-synovial fluid comparison was performed using Mann-Whitney test. Synovial fluid for RA n=8, PsA n=3. PsA: psoriatic arthritis; RA: rheumatoid arthritis.

Suppl. Table S3. Comparison of B-cell subpopulations in peripheral blood and synovial fluid from rheumatoid arthritis and psoriatic arthritis patients.

Population	Diagnosis	Blood (%)	Synovial fluid (%)	*p*-value
naïve B-cells	RA	60.0 [55.1-73.4]	22.1 [17.6-31.6]	<0.001
	PsA	**67.8 [58.6-71.5]**	**13.5 [8.3-18.8]**	**0.019**
CD32B$^+$ naïve B-cells	**RA**	**1.1 [0.5-2.6]**	**91.7 [81.4-96.3]**	**<0.001**
	PsA	**2.0 [0.9-2.9]**	**67.1 [57.5-76.6]**	**0.017**
CD32B$^+$ memory B-cells	**RA**	**4.4 [2.1-7.4]**	**71.8 [35.9-86.1]**	**<0.002**
	PsA	**7.2 [3.3-11.2]**	**60.0 [44.0-75.9]**	**0.017**

*Values are presented as median with interquartile range. Only subpopulations significantly changed in blood of at least one disease were compared and shown. Subpopulations which were significantly increased in synovial fluid in addition to the original finding in blood are bolded. Blood-to-synovial fluid comparison was performed using Mann-Whitney test. Synovial fluid for RA n=8, PsA n=3. PsA: psoriatic arthritis; RA: rheumatoid arthritis.