

Supplementary Video legends

Supplementary Video 1. CXCL12-induced intracellular calcium fluxes in leukocytes. Live cell imaging of free intracellular calcium by Fluo-4 fluorescence (green) after CXCL12 stimulation of CD45⁺ (red) leukocytes. The video corresponds to the Extended Data Fig. 1i.

Supplementary Video 2. High baseline free calcium and no CXCL12-induced rapid free calcium changes in erythroblasts. Live cell imaging of free intracellular calcium after CXCL12 stimulation by Fluo-4 fluorescence (green) in ACKR1⁺ (red) nucleated erythroid cells. The video corresponds to Extended Data Fig. 1i.

Supplementary Video 3. Erythroblast endocytosis of CXCL12 and CXCR4. A 3D confocal microscopy image of a freshly isolated viable erythroblast pre-stained with anti-CXCR4 (green) and anti-Ter119 (blue) followed by stimulation with CXCL12-AF647 (red). Image was taken 60 min after the addition of CXCL12. The video corresponds to Fig. 1f.

Supplementary Video 4. Nuclear localization of CXCR4 and phosphorylated CXCR4 in an erythroblast. A 3D confocal microscopy image of a freshly isolated viable erythroblast stimulated with CXCL12 and stained with anti-CXCR4 (green), anti-pS346 CXCR4 (red), anti-Ter119 (blue) and Hoechst (white). Scale bar, 5 μ m. The video corresponds to Fig. 2a.

Supplementary Video 5. CXCL12 triggers erythroblast elongation, CXCR4 redistribution, nuclear polarization and chromatin condensation. Live cell imaging of freshly isolated viable erythroblasts pre-labelled with anti-CXCR4 antibody (green), anti-Ter119 antibody (blue) and nuclear dye Hoechst (white) and stimulated with CXCL12-AF647 (red), added during live imaging. The video corresponds to Extended Data Fig. 4a.

Supplementary Video 6. CXCL12-triggered erythroblast elongation, nuclear polarization, chromatin condensation and rapid perinuclear Ca²⁺ transients. Live cell imaging of freshly isolated viable erythroblasts pre-labelled with Ca²⁺ sensitive dye Fluo-4 (green), anti-CD71 antibody (white) and nuclear dye Hoechst (blue) and stimulated with CXCL12-AF647 (red), added during live imaging. The video corresponds to Fig. 3a.