**Supplementary Figure 1**

Figure S1: Deformation of HL60 cells. Cells were measured at flow rates of 0.12 μL/s, 0.16 μL/s, 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.

**Supplementary Figure 2**

Figure S2: Deformation of HL60 and MG-63 cells. Cells were mixed 1:1 and measured at flow rates of 0.12 μL/s, 0.16 μL/s, 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.
Supplementary Figure 3

**Figure S3: Deformation of SSCs.** Cells were measured at flow rates of 0.16 μL/s, 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.

Supplementary Figure 4

**Figure S4: Deformation of MSCs.** Cells were measured at flow rates of 0.16 μL/s, 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.
Supplementary Figure 5

Figure S5: Deformation of SSCs and HL60s. Cells were mixed and measured at flow rates of 0.16 μL/s, 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.

Supplementary Figure 6

Figure S6: Deformation of WBCs. Cells were measured at flow rates of 0.12 μL/s, 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.
Supplementary Figure 7

Figure S7: Deformation of WBCs and MG-63. Cells were measured at flow rates of 0.32 μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.

Supplementary Figure 8

Figure S8: Deformation of WBCs and SSCs. Cells were measured at flow rates of 0.16 μL/s, 0.32μL/s and in the reservoir for reference. Experiments were carried out in a 30 μm channel microfluidic chip and at a frame rate of 2,000 fps.