



Handling Fresh or Frozen Clumpy Samples with DNase I

Samples may sometimes appear "clumpy" when they have been exposed to repeated freeze/thaw cycles or enzymatic tissue dissociation, or when they have undergone mechanical procedures such as drawing of fresh bone marrow aspirates. These cell clumps occur because environmental stresses can accelerate the rate of cell death within the sample, resulting in the release of "sticky" DNA molecules from the dying cells that can clump neighboring cells together. Unfortunately, cell clumps may impact downstream applications and should be minimized prior to cell isolation or further analysis.

Adding the endonuclease deoxyribonuclease I (DNase I) into the sample can minimize the presence of free-floating DNA fragments and cell clumps. To do so, incubate the clumpy cell suspension for 15 minutes at 18-25 ° C in the following mixture: PBS with 2% FBS (or 0.5% BSA), containing 4.25mM Mg⁺⁺ and 200 Kunitz units DNase I per mL.

For downstream applications that are sensitive to DNase, wash cells once in the appropriate assay buffer (without DNase) before continuing.