

Total White Blood Cell (WBC) Count Protocol for use with the Moxi Z

Overview

This approach is a nucleated cell counting method. The technique works by diluting the whole blood, lysing all the cells (including the WBC's), and counting the remaining nuclei. It is designed to provide a rapid means for counting the total WBC counts in a sample. *Note: There is an inherent error in the counts due to contributions of nucleated red blood cells (RBC'S). Ordinarily, this contribution is not significant. However pathological conditions could contribute to higher-than normal nucleated RBC's in blood.*

Reagents and Cassettes

- Zap-oglobin II Lytic Reagent ((Beckman Coulter, [Part # 7546138](#)))
- PBS or the equivalent (with Type S Lot 1701 and greater cassettes, we no longer recommend the use of Orflo Diluent)
- Anti-coagulant (e.g. Heparin, EDTA, sodium citrate) coated collection tube
- Moxi Flow Type S cassettes ([Orflo Prod# MXC002](#))

Protocol

- Collect >40 μ L of whole blood into an anti-coagulant coated capillary tube.
- Add exactly 40 μ L of whole blood to 5mL of PBS
- Add 3 drops of Zap-oglobin II Lytic Reagent
- Mix the sample several times (10x) through inversion-mixing and allow the sample to sit for a minimum of 3 minutes.
- Turn on the Moxi Z
- Load a Type S cassette
- Prior to loading the sample, mix the sample through slow inversions to ensure proper mixing.
- Load 75 μ L (minimum) of sample into the cassette loading well and press the small black "small particle mode" box on the lower right of the screen (see example figure to the top-right, box is indicated by the red arrow) to start.
- Upon test completion, gate around WBC nuclei population (~4.5 – 10 μ m) or select the "CurveFit" button for auto-curve-fitting of the nuclei counts (see example image on the bottom right).
- The total, dilution-adjusted counts can be determined by multiplying the Moxi Z concentration by 128 (5.12 mL/.04 mL). *Note: This includes ~80 μ L of Zap-oglobin II reagent.*

