

Customized Volumes

Some of the assays in the Diagnostic Immunology Laboratory (DIL) are set up based on a required number of lymphocytes rather than a certain liquid volume of peripheral blood. A patient's **absolute lymphocyte count (ALC)** is representative of the number of lymphocytes in a certain volume of blood and is usually part of a complete blood count with differential (CBC/Diff). We can provide a customized volume needed for an assay based on a patient's ALC.

Use the chart below to find your patient's ALC and corresponding volume of blood needed. ALC's are generally expressed as a number with units of K/mcL (or thousands of cells per microliter of blood)

Keep in mind:

$$\begin{aligned} \text{cmm (cubic millimeters)} &= \text{mm}^3 = \text{uL (microliters)} = \text{mcL (microliters)} \\ \text{thousands/uL} &= \text{x10}^3/\text{cmm} = \text{x10E3/uL} = \text{K/cmm} = \text{K/uL} = \text{K/mcL} \end{aligned}$$

Draw the recommended volume for **EACH** of the following tests ordered:

- Antigen Stimulation
- CD107a
- CTL Function
- NK Function
- Mitogen Stimulation

ALC (K/mcL)	ALC (cells/mcL)	mL of Sodium Heparin blood needed
>1.00	>1000	5.0
1.00	1000	5.0
0.90	900	5.5
0.80	800	6.0
0.70	700	6.5
0.60	600	7.5
0.50	500	9.0
0.40	400	11.0
0.30	300	15.0
0.20	200	25.0
0.10	100	45.0
<0.10	<100	50.0

- For counts below 200 cells/mcL, consider waiting until count increases.
- For counts above 1000 cells/mcL, draw 5 mL for each test. We do not recommend drawing less than 5 mL.
- An example: A patient has an ALC of 0.56 K/mcL and the doctor orders an NK and Mitogen. The volume needed for each test is between 7.5 and 9 mL. Using the higher volume to decrease the chance of QNS, 9 mL x 2 = 18mL of blood collected in Sodium Heparin (for these two tests).