

Interpreting dot plots: ProCyte One

4 easy steps to interpret dot plots and take your CBC interpretation to the next level

Numerical results are only part of the story

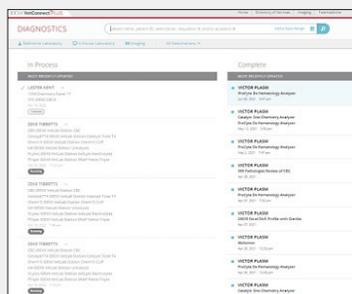
Dot plots provide a critical snapshot of cellular morphology and are intended to enhance the numerical results. Normal dot plots provide confidence in normal numeric CBC results. Abnormal dot plots provide insight into abnormal results; when combined with normal numerical results, abnormal dot plots may be the only indication of underlying illness. When you're reviewing your patient's dot plots, follow these 4 steps to determine if the dot plot results are normal or abnormal:

Step 1: Compare the dot plot provided with your results to a normal dot plot

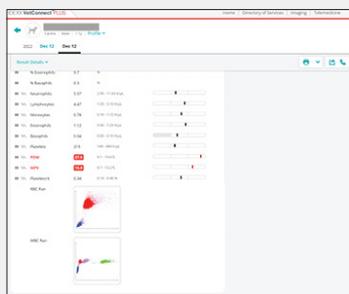
When reviewing dot plots, it's helpful to review them alongside a normal dot plot, available in VetConnect PLUS.

Tip: Want more normal examples than what's shown here? The interpretation guides, *Interpreting ProCyte One Dot Plots* and *Interpreting ProCyte One Equine Dot Plots*, that you received with your analyzer are great resources for both normal and abnormal examples of canine, feline, and equine dot plots.

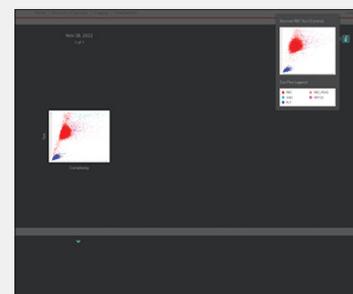
To compare your dot plot to a normal dot plot in VetConnect PLUS:



1. Open the patient record, and if multiple dates are displayed, select the date for the ProCyte One result.



2. Click the dot plot image (you may need to scroll).



3. Click the **i** in the top right to see a normal dot plot for comparison.

Step 2: Look for separations in the cell populations

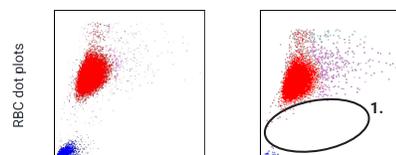
Crowded cell populations can be caused by sample quality issues (such as clumping or hemolysis) or morphologic changes in the cells.

Dot plots enable critical evaluation of the reported CBC, turning a laborious manual differential to a visual snapshot.

1. Good separation of red blood cell and platelet populations.
2. Mild crowding between monocyte and neutrophil populations (should inform interpretation of numerical results).

Normal canine dot plot

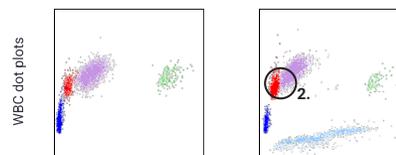
Skittle, 11-year-old, neutered male Yorkshire terrier



Red blood cell dot plot legend
■ Red blood cells ■ Platelets ■ White blood cells
■ Reticulocytes ■ RBC fragments

Normal canine dot plot

Skittle, 11-year-old, neutered male Yorkshire terrier



White blood cell dot plot legend
■ Neutrophils ■ Monocytes ■ Clumped platelets
■ Lymphocytes ■ Eosinophils ■ Basophils

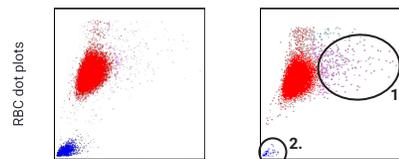
Step 3: Look for changes in the density of the cell populations

Are there changes in the quantity of reticulocytes and/or platelets?
Are the different WBC populations increased or decreased? Are there clumped platelets?

1. Increased density of reticulocytes (indicates reticulocytosis).
2. Decreased platelet density (may indicate thrombocytopenia).
3. Indication of the presence of clumped platelets. This may explain the apparent thrombocytopenia.
4. Increased density of monocytes (may indicate monocytosis).
5. Decreased density of lymphocytes (indicates lymphopenia and suggests inflammation or stress leukogram).

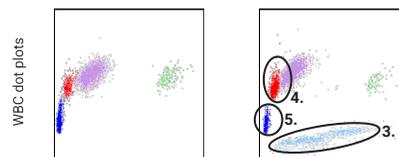
Normal canine dot plot

Skittle, 11-year-old, neutered male Yorkshire terrier



Normal canine dot plot

Skittle, 11-year-old, neutered male Yorkshire terrier



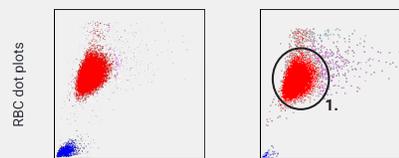
Step 4: Look for changes in the shape and location of the cells

Changes in the shape and location of cell populations may indicate changes in cell morphology that might not be evident in the numeric results. Don't overlook important clues provided in the dot plots!

1. No change in shape or location of RBC populations.
2. Neutrophil population shifted left (may indicate inflammation).

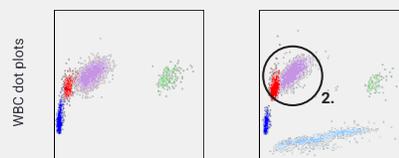
Normal canine dot plot

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Normal canine dot plot

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Dot plots assist in confirmation of the numerical values of the CBC and provide insight into, and the direct assessment of, blood morphology. In this case, Skittle was under treatment for immune-mediated thrombocytopenia (ITP). Dot plots from Skittles were critical to prompting a blood film review to understand the numerical CBC findings and clinical picture, which led to a quicker diagnosis and treatment.