

# Bionote Study: Vcheck Analyzers Correlation to Mini Vidas and Immulite 1000

## Abstract

In the following study conducted by MR Diagnostics, a strong association between the Immulite 1000 and the Bionote V200 analyzer, as well as the Mini Vidas Blue and Bionote V200 analyzer was found. The Bionote V200 analyzer had both high R1 and R2 values to each the Immulite 1000 and the Mini Vidas Blue comparison, yielding similar correlation and high association in a linear fashion.

## Procedures and Preparation

50 fresh frozen canine serum samples of varying progesterone concentrations were received and used for purposes of this study, performed by MR Diagnostic Services.

All serum samples arrived frozen in Greiner Bio One Vacuette 3.0mL additive-free vacutainers. No samples were used which exhibited heavy hemolysis, lipemia, or other serum clots. Samples were removed and thawed from freezer, and left no more than 1 hour in room temperature. Upon thawing, samples were mixed well by vortexer to ensure homogeneity. Prior to testing, all instrumentation was calibrated followed by successful quality controls.

Bionote testing was performed according to test kit insert sheet using Bionote brand fixed 50uL and 100uL pipettors. Racked, graduated tips were used to visually ensure proper volumes for each test. Serum was introduced to buffer tube, and then mixed via pipettor 5 times with minimal bubble introduction.

Instrument Serial Numbers:  
Immulite 1000 F1223  
Bionote V200 VADBITG2472  
Mini Vidas Blue 1210361

## Summary

### Immulite vs. Bionote

With a R2 of 0.88 and derivative correlation coefficient R value of 0.938, the Bionote strongly correlates in a linear fashion with the Immulite 1000 reference unit. At the slope-intercept calculated of  $Bionote = 0.648 + (1.217 \times Immulite)$ , the results are very representative of each other. IE, a value of 5.0 on the Immulite would result from the best-fit line at 6.73 ng/mL.

This enables an easier conversion for progesterone assays when comparing to some reference and veterinary lab results.

### Mini Vidas vs. Bionote

With an R2 value of 0.907, and a correlation coefficient of 0.952, the Bionote strongly correlates in a linear fashion with the Mini Vidas reference unit. A slope-intercept calculated of  $Bionote = 1.044 + (0.528 \times Mini\ Vidas)$  suggests that a conversion or interpretation will be required to compare values received from either analyzer.

IE, a value of 10.0 on the Bionote would equate to 16.96 ng/mL on the Mini Vidas.

### Rejected Outliers

Sample 24 was rejected (1.41, 11.05, 2.91) and excluded from the dataset (IMMULITE, BIONOTE, MINI VIDAS). As 51 samples were performed, the worst-performing was removed to maintain a dataset of 50.

Mini Vidas and Immulite values for this data point was comparable, however the Bionote result was well out of range. It is possible that this discrepancy was due to the presence of blood lipids, as indicated in the Bionote insert sheet, the interfering limitation is 250mg/dL triglycerides. No samples appeared to be severely hemolyzed or lipemic; however, some exhibited slight presence of either hemolysis or lipemia. Users will need to be recommended to process their samples in avoidance of these conditions to minimize.

## Single Run Intra Assay Precision

Three concentration points of Low, Medium, and High taken from actual canine serum samples in a zero-additive tube, frozen until processed. Mixed once, thawed via vortexer for 3 seconds. No samples overly hemolyzed or lipemic. Performed as instructed by kit insert sheet with provided pen pipettors and mixing of serum + buffer by pipette aspiration/dispense, repeated 5 times per.

## References

Bionote study led by Samuel Decker of MR Diagnostics