Literature List – Veterinary

Customer Information

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Note: Whether references are given in British or American English depends on the original.

NEW New entries are highlighted by this icon.

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General

Natibi M *et al.* (2018)

ASVCP guidelines: Allowable total error hematology
VET Clin Pathol; 47: 9

Free online: https://www.onlinelibrary.wiley.com/doi/epdf/10.1111/vcp.12583

What we see as the essence: Recommendations discussing how to perform evaluation of haematological measurements. Definition of Total allowable error (TEa) for the most common analysed haematological parameters are defined.

Cats

Paltinieri S *et al.* (2018)

Diagnostic performances of manual and automated reticulocyte parameters in anaemic cats
Journal of Feline Medicine and Surgery; 20(2): 122

https://journals.sagepub.com/doi/full/10.1177/1098612X17699067?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed

What we see as the essence: Reticulocyte percentage (Ret%), reticulocyte number (Ret#) and reticulocyte production index(RPI) may be used to differentiate regenerative anaemia (RA) from non-regenerative anaemia (NRA) in cats.

Cook AM *et al.* (2016)

Quality requirements for veterinary hematology analyzers in small animals-a survey about veterinary experts' requirements and objective evaluation of analyzer performance based on a meta-analysis of method validation studies: bench top hematology analyzer
VET Clin Pathol; 45(3): 466

https://onlinelibrary.wiley.com/doi/abs/10.1111/vcp.12383

What we see as the essence: Total allowable error (TEa) is determined for haematological parameters for dogs and cats based on experts survey. Using published data the authors conclude that XT-2000iV, ADVIA 2120 and Cell-Dyn 3500 fulfilled experts requirements. Despite known difficulties of both methods, manual and analyser, in identifying monocytes the authors point out here that medical relevant monocytoses were detected.

Riond B *et al.* (2015)

Effective prevention of pseudothrombocytopenia in feline blood samples with the prostaglandin I2 analogue Iloprost
BMC Vet Res.; 11: 183

Free online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4545814/

What we see as the essence: The study showed an anti-aggregatory effect of Iloprost in feline blood. In all clinically healthy cats investigated, pseudothrombocytopenia was prevented by adding Iloprost to EDTA tubes prior to blood collection.

Granat F *et al*. (2014)

Feline reference intervals for the Sysmex XT-2000iV and the ProCyte DX haematology analysers in EDTA and CTAD blood specimens
J Feline Med Surg;16(6): 473

http://journals.sagepub.com/doi/abs/10.1177/1098612X13511811?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed

What we see as the essence: Reference intervals (RI) were established for cats using XT-2000iV and Procyte. This RI can be directly applied in veterinary laboratories using these analysers.
CTAD is a better option than EDTA for feline blood samples.

Bauer N *et al*. (2012)

Evaluation of the automated hematology analyzer Sysmex XT-2000iV ™ compared to the ADVIA ® 2120 for its use in dogs, cats, and horses. Part II: Accuracy of leukocyte differential and reticulocyte count, impact of anticoagulant and sample aging
J Vet Diagn Invest; 24(1): 74

Free online: http://journals.sagepub.com/doi/pdf/10.1177/1040638711436243

What we see as the essence: The overall performance of the Sysmex XT-2000iV was excellent and compared favourably with that of the ADVIA 2120 as well as manual count.

Weissenbacher S *et al*. (2011)

Evaluation of a novel haematology analyser for use with feline blood
Vet J; 187(3): 381

Free online: https://doi.org/10.5167/uzh-32764

What we see as the essence: The XT-2000iV is suitable for use with feline blood. Sysmex overcomes the problem of size-overlapping between RBC and PLT with the PLT-O which has a fairly good correlation to the manual count.

Dogs

NEW

Novacco M *et al.* (2015)

Analytic errors in Sysmex-generated hematology results in blood from a dog with chronic lymphocytic leukemia
Vet Clin Pathol; 44(3): 337

https://onlinelibrary.wiley.com/doi/abs/10.1111/vcp.12270

What we see as the essence: Dog case of chronic T cell lymphocytic leukaemia showing how extreme lymphocytosis interferes in the RET scattergram leading to false high RBC-O and RET.

Fuchs J *et al.* (2017)

Canine reticulocyte hemoglobin content (RET-H_e) in different types of iron-deficient erythropoiesis
Vet Clin Pathol; 46(3): 422

http://onlinelibrary.wiley.com/doi/10.1111/vcp.12499/abstract

What we see as the essence: Based on the study results the authors propose that RET-H_e can be considered as an early indicator of iron deficiency.

Cook AM *et al.* (2016)

Quality requirements for veterinary hematology analyzers in small animals-a survey about veterinary experts' requirements and objective evaluation of analyzer performance based on a meta-analysis of method validation studies: bench top hematology analyzer
VET Clin Pathol; 45(3): 466

https://onlinelibrary.wiley.com/doi/abs/10.1111/vcp.12383

What we see as the essence: Total allowable error (TEa) is determined for haematological parameters for dogs and cats based on expert's survey. Using published data the authors conclude that XT-2000iV, ADVIA 2120 and Cell-Dyn 3500 fulfilled experts' requirements. Despite known difficulties of both methods, manual and analyser, in identifying monocytes the authors point out here that medical relevant monocytoses were detected.

Piane L *et al*. (2016)

Spurious reticulocyte profiles in dogs with large form babesiosis: a retrospective study
Vet Clin Pathol; 45(4): 598

https://onlinelibrary.wiley.com/doi/pdf/10.1111/vcp.12396

What we see as the essence: Abnormal reticulocyte scattergrams may occur in dogs with babesiosis and alert clinical pathologist to consider diagnosis.

Lee JM *et al*. (2016)

Changes of hematological reference depends on storage period and temperature conditions
Lab Anim Res; 32(4): 24

Free online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5206231/

What we see as the essence: When measuring haematological samples of dogs and rats, it will be necessary to analyse fresh blood since PLT and WBC showed high variation with time and temperature. Good agreement and correlation between Advia 2120i and XN-V for CBC parameters and WBC subpopulations were found.

Bourges-Abella NH *et al*.(2014)

Changes in hematology measurements in healthy and diseased dog blood stored at room temperature for 24 and 48 hours using the XT-2000iV analyser
Vet Clin Pathol; 43(1): 24

Free online: http://onlinelibrary.wiley.com/doi/10.1111/vcp.12119

What we see as the essence: "Delayed analysis of canine blood stored at room temperature and measured by the XT-2000iV was accompanied by moderate variations in certain haematologic variables (MCV, HCT, MCHC, PLT, RET#, RET%, MONO#)."

Bauer N *et al*. (2012)

Evaluation of the automated hematology analyzer Sysmex XT-2000iV ™ compared to the ADVIA ® 2120 for its use in dogs, cats, and horses. Part II: Accuracy of leukocyte differential and reticulocyte count, impact of anticoagulant and sample aging
J Vet Diagn Invest; 24(1): 74

Free online: http://journals.sagepub.com/doi/pdf/10.1177/1040638711436243

What we see as the essence: The overall performance of the Sysmex XT-2000iV was excellent and compared favourably with that of the ADVIA 2120 as well as manual count.

Bourges-Abella NH *et al*. (2011)

Canine reference intervals for the Sysmex XT-2000iV hematology analyzer
Vet Clin Pathol;. 40(3): 303

https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1939-165X.2011.00333.x

What we see as the essence: Reference intervals for haematologic analytes and indices were determined under controlled conditions for a well characterised population of dogs following international recommendations. These reference interval can be adopted by laboratories using similar equipment and canine patient population.

Gelain ME *et al*. (2010)

Identification of neoplastic cells in blood using the Sysmex XT-2000iV: a preliminary step in the diagnosis of canine leukemia
Vet Clin Pathol; 39(2): 169

https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1939-165X.2010.00214.x

What we see as the essence: The creation of a 'leukaemic flag' consisting of increased WBC count, a high fluorescence area gate and a lysis resistant region provides an automated, reliable and rapid tool for preliminary investigation of dogs with suspected leukaemia. The flag is objective and has high specificity which can be further increased by scattergram evaluation.

Mathers RA *et al*. (2008)

Evaluation of the Sysmex XT-2000iV haematology analyser
Comp Clin Pathol; 17: 137

https://link.springer.com/article/10.1007/s00580-008-0734-2

What we see as the essence: The XT-2000iV analyser proved to be reliable with satisfactory performance for analysing rat, dog and mouse blood samples. The analyser was robust and dependable with no breakdowns or software problem encountered in this pharmaceutical lab setting.

Horses

Bauer N *et al*. (2012)

Evaluation of the automated hematology analyzer Sysmex XT-2000iV ™ compared to the ADVIA ® 2120 for its use in dogs, cats, and horses. Part II: Accuracy of leukocyte differential and reticulocyte count, impact of anticoagulant and sample aging
J Vet Diagn Invest; 24(1): 74

Free online: http://journals.sagepub.com/doi/pdf/10.1177/1040638711436243

What we see as the essence: The overall performance of the Sysmex XT-2000iV was excellent and compared favourably with that of the ADVIA 2120 as well as manual count.

Mice/Rats

NEW

Ennis KM *et al*. (2018)

Reticulocyte hemoglobin content as an early predictive biomarker of brain iron deficiency
Pediatr Res; 84(5): 765

Free online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6519747/

What we see as the essence: The study shows that RET-H_e is the only red cell parameter that identifies rat individuals at risk for brain iron deficiency in the pre-anaemic stage.

Lee JM *et al*. (2016)

Changes of hematological reference depends on storage period and temperature conditions
Lab Anim Res; 32(4): 24

Free online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5206231/

What we see as the essence: When measuring haematological samples of dogs and rats, it will be necessary to analyse fresh blood since PLT and WBC showed high variation with time and temperature. Good agreement and correlation between Advia 2120i and XN-V for CBC parameters and WBC subpopulations were found.

White JR *et al*. (2016)

Evaluation of hematologic variables in newborn C57/BL6 mice up to day 35
Vet Clin Pathol; 45(1): 87

Free online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4805471

What we see as the essence: Reference intervals (RI) were established for newborn mice of C57/BL6 strain, which is commonly used for research in disease models.

Moorhead KA *et al*. (2016)

Alterations due to dilution and anticoagulant effects in hematologic analysis of rodent blood samples on the Sysmex XT-2000iV
Vet Clin Pathol; 45(2): 215

Free online: http://onlinelibrary.wiley.com/doi/10.1111/vcp.12338

What we see as the essence: Several variables, most notably platelet count, differ based on the anticoagulant used thus the values from heparinized vs EDTA-anticoagulated samples should not be directly compared. Dilution has effect on MCV and MCHC.

Criswell KA *et al*. (2014)

Comparison of the Sysmex XT-2000iV and microscopic bone marrow differential counts in Wistar rats treated with cyclophosphamide, erythropoietin, or serial phlebotomy
Vet Clin Pathol; 46(3): 422

Free online: http://onlinelibrary.wiley.com/doi/10.1111/vcp.12149

What we see as the essence: The Sysmex XT-2000iV provides quantitative bone marrow differential counts in rats treated with cyclophosphamide, erythropoietin, or serial phlebotomy. Analyser results were comparable to microscopic differential counts.

Mathers RA *et al*. (2008)

Evaluation of the Sysmex XT-2000iV haematology analyser
Comp Clin Pathol; 17: 137

https://link.springer.com/article/10.1007/s00580-008-0734-2

What we see as the essence: The XT-2000iV analyser proved to be reliable with satisfactory performance for analysing rat, dog and mouse blood samples. The analyser was robust and dependable with no breakdowns or software problem encountered in this pharmaceutical lab setting.

Others

NEW

Lilliehöök I *et al*. (2011)

Errors in basophil enumeration with 3 veterinary hematology systems and observations on occurrence of basophils in dogs
Vet Clin Pathol; 40(4): 450

https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1939-165X.2011.00353.x

What we see as the essence: Canine basophils are not well detected in most haematology analysers. Disturbances in dot-plots may guide to check smears for basophils. Nevertheless a limitations of this study is the small sample size (17 samples).

Herman N *et al*. (2018)

Hematology reference intervals for adult cows in France using the Sysmex XT-2000iV analyzer
J Vet Diagn Invest; 30(5): 678

http://journals.sagepub.com/doi/abs/10.1177/1040638718790310?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed

What we see as the essence: Reference intervals (RI) were established for cattle using XT-2000iV. These RI can be used in veterinary laboratories after validation if the cattle population is different.

Burden FA *et al*. (2016)

Reference intervals for biochemical and haematological parameters in mature domestic donkeys (Equus asinus) in the UK
Equine Veterinary Education; 28(3): 134

Free online: https://onlinelibrary.wiley.com/doi/epdf/10.1111/eve.12512

What we see as the essence: The authors define reference intervals for haematological and biochemical parameters in mature domestic donkeys.