

MOUSE HEMATOLOGY (CBC)

IDEXX ProCyte Dx[®] Hematology Analyzer; IDEXX Laboratories Inc; Westbrook, ME

Mice: Strain, sex, age, immune status, disease conditions not specified

7 July 2016 to 21 August 2017 (N Forbes McBean); Exclusion criteria: Any Error Message

	RBC (M/ μ L)	HGB (g/dL)	HCT (%)	MCV (fL)	MCH (pg)	MCHC (g/dL)	RDW.SD (fL)	RET (K/ μ L)
Mean	8.13	13.63	43.78	56.18	17.55	31.22	33.1	8.13
Low	3.57	6.1	16.7	39	12.6	27	24.2	3.57
High	15.2	21.7	69.8	90.8	31	37.6	63.1	15.2
SD	2.13	2.01	6.93	10.74	3.57	1.51	5.09	2.13
n	1119	1119	1119	1119	1119	1119	1119	1119

	PLT (K/ μ L)	PDW (fL)	MPV (fL)	WBC (K/ μ L)	NEUT (K/ μ L)	LYMPH (K/ μ L)	MONO (K/ μ L)	EO (K/ μ L)	BASO (K/ μ L)
Mean	675.09	8.97	7.34	7.52	2.79	4.12	0.45	0.11	0.05
Low	59	5.7	5.2	1.06	0.03	0.12	0	0	0
High	2633	23.9	13.1	56.08	32.03	23.46	5.08	2.03	2.33
SD	369.3	2.29	1.65	4.81	3.25	2.87	0.59	0.14	0.18
n	1122	1122	1122	1122	1122	1122	1122	1122	1122

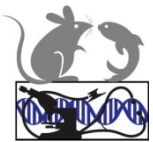
Concurrent relevant controls are critical to obtaining useful information from clinical pathology.

References, resources for mouse CBC (and clinical chemistry):

1. **Lies, Damn Lies, and Reference Intervals (or Hysterical Control Values for Clinical Pathology Data).** Hall, R. 1997. *Toxicol Pathol* 25: 647
2. **MPD Mouse Phenome database for mice by (J) strain, sex and age, with protocol detail** <https://phenome.jax.org/search/details/ssmeasures?searchterm=complete+blood+count+&ontavail=0>
3. Khokhlova, O. N., et al. (2017). "Using Tiletamine-Zolazepam-Xylazine Anesthesia Compared to CO₂-inhalation for Terminal Clinical Chemistry, Hematology, and Coagulation Analysis in Mice." *J Pharmacol Toxicol Methods* 84: 11-19. **BALB/c (Pushchino); vena cava; EDTA, Mythic 18, veterinary software; serum, SAPPHIRE 400; Citrate, coagulometer CL 4**
4. Poitout-Belissent, F., et al. (2016). "Reducing blood volume requirements for clinical pathology testing in toxicologic studies-points to consider." *Vet Clin Pathol* 45(4): 534-551.
5. Moorhead, K. A., 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): 215-224.
6. White, J. R., et al. (2016). "Evaluation of hematologic variables in newborn C57/BL6 mice up to day 35." *Vet Clin Pathol* 45(1): 87-95. **C57/BL6J [UI]; facial V, EDTA; 1:10 dilution; Sysmex XT-2000iV**
7. Otto, G. P., et al. (2016). "Clinical Chemistry Reference Intervals for C57BL/6J, C57BL/6N, and C3HeB/FeJ Mice (Mus musculus)." *J Am Assoc Lab Anim Sci* 55(4): 375-386. **AU400, Olympus/ AU480, Beckman-Coulter, GMC IMPC**
8. O'Connell, K. E., et al. (2015). "Practical murine hematopathology: a comparative review and implications for research." *Comp Med* 65(2): 96-113.

JH Phenotyping Core Mouse Hematology (+References, Resources)

https://johnshopkins.corefacilities.org/service_center/show_external/3768



9. Marx, J. O., et al. (2015). "The Effects of Acute Blood Loss for Diagnostic Bloodwork and Fluid Replacement in Clinically Ill Mice." *Comp Med* 65(3): 202-216. **C57BL/6J; isoflurane; retroorbital; anticoag [NOS], Vet ABC + manual; 'Vitos' [Vitros Dry] 250 Chemistry Analyzer**
10. Kampfmann et al. 2012 Differences in hematologic variables in rats of the same strain but different origin. *Vet Clin Pathol.* 41(2):228-34. **Wistar; Isoflurane, sublingual V; EDTA; Sysmex XT-2000iV**
11. Fernandez, I., et al. (2010). "Clinical biochemistry parameters in C57BL/6J mice after blood collection from the submandibular vein and retroorbital plexus." *JAALAS* 49(2): 202-206. **Selectra Junior Spinlab 10**
12. Mazzaccara, C., et al. (2008). "Age-Related Reference Intervals of the Main Biochemical and Hematological Parameters in C57BL/6J, 129SV/EV and C3H/HeJ Mouse Strains." *PLoS One* 3(11): e3772. **Isoflurane, retroorbital; EDTA; ABX Pentra 60C; pooled blood [serum], dry chemistry Vitros 250**
13. Boehm, O., et al. (2007). "Clinical chemistry reference database for Wistar rats and C57/BL6 mice." *Biological chemistry* 388(5): 547-554. **Wistar [NOS], Thiopental, aorta or cardiac; C57/BL6 [NOS], Pentobarbital, aorta or cardiac; Roche Cobas Mira S, Eppendorf EFOX 5053 Behring Nephelometer II**
14. Zhou, X. and G. K. Hansson (2004). "Effect of sex and age on serum biochemical reference ranges in C57BL/6J mice." *Comp Med* 54(2): 176-178. **[C57BL/6JBomTac]; CO2 cardiocentesis; Vitros dry chemistry.**
15. Doeing, et al. (2003). "Gender dimorphism in differential peripheral blood leukocyte counts in mice using cardiac, tail, foot, and saphenous vein puncture methods." *BioMed Central Clinical Pathology* 3(3): **C57BL/6 [CRL], methoxyflurane, heparin, manual, hemocytometer**
16. Forbes, N. and C. Brayton (2009). "P223 Practical Clinical Chemistry for Rodents: Dilution Effects." *JAALAS* 48(5): 630. **VET ACE**
17. Forbes et al. (2015). "P39. Comparative Performance of Two Bench-Top Hematology Instruments for Macaques and Mice." *JAALAS* 54(5): 568-668. **PROCYTE + HEMAVET**
18. Forbes, N. and C. Brayton (2008). "P186 Effects of Blood EDTA Saturation on Selected Mouse Hematology Variables." *JAALAS* 47(5): 167. **HEMAVET**
19. Forbes, N., et al. (2006). "P86 Mouse Clinical Pathology: Controlling Variables That Influence Hematology Data." *JAALAS* 45(4): 116. **HEMAVET**
20. Everds, N. (2006). Hematology of the Laboratory Mouse. . THE MOUSE IN BIOMEDICAL RESEARCH: Normative biology, husbandry, and models. J. Fox, S. W. Barthold, M. T. Davisson et al. Burlington, MA, US, Elsevier (Academic Press). III: 133-163. Ch 135.
21. Serfilippi, L. M., et al. (2003). "Serum Clinical Chemistry and Hematology Reference Values in Outbred Stocks of Albino Mice from Three Commonly Used Vendors and Two Inbred Strains of Albino Mice " *Contemp Topics LAS* 42(3): 46-52. **Crl:CFW(SW) BR, Tac:(SW)fBR, HsdWin:CFW1, Crl:CD-1(ICR) BR, Tac:Icr:Ha(ICR)fBR, Hsd:ICR (CD-1), Crl:CF-1, Hsd:NSA(CF-1), FVB/NCrIBR, C57BL/6J-Tyrc-2J/+; CO2 cardiocentesis; EDTA, Bayer Technicon H1; SST, Hitachi 704**
22. Kile, et al. (2003). "Sex and strain-related differences in the peripheral blood cell values of inbred mouse strains." *Mamm Genome* 14(1): 81-85. **Retro orbital, EDTA; ABBOT CELL DYN 3500R**

BOLD Font: Strain, collection site, anesthesia, anticoagulant, instrument

NOS = Not otherwise specified