

Table S1: Results of QC of hematology analysis using the Procyte Dx and the XT 2000iV analyzers

Variable (Unit)	ProCyte Dx				XT 2000iV				TEa %
	Expected value	Precision CV %	Bias %	TEobs %	Expected value	Precision CV %	Bias %	TEobs %	
RBCI (10 ¹² /L)	2.25	0.7	-2.5	3.9	2.36	0.6	0.0	1.2	3.1/6.2
	4.40	0.6	-3.0	4.2	4.40	0.5	-0.5	1.5	
					5.31	0.5	-0.4	1.4	
RBCO (10 ¹² /L)	2.29	2.0	0.5	4.5	2.40	1.3	-2.9	5.5	3.1/6.2
	4.31	0.8	0.3	1.9	4.30	0.8	-3.3	4.9	
					5.21	1.0	-3.1	5.1	
HGB (g/L)	56	0.9	-1.9	3.7	58	0.9	0.0	1.8	3.4/6.8
	126	1.0	-4.0	6.0	121	0.8	0.0	1.6	
					161	0.6	0.6	1.8	
Hct (L/L)	0.165	1.3	-3.4	6.0	0.180	0.7	-0.6	2.0	3.7/7.3
	0.370	0.0	-5.1	5.1	0.359	0.4	0.0	0.8	
					0.471	0.5	0.2	1.2	
MCV (fL)	73.5	1.1	-1.1	3.3	76.3	0.5	-0.3	1.3	
	84.1	1.0	-2.2	4.2	81.6	0.2	0.6	1.1	
					88.7	0.2	0.6	1.0	
MCH (pg)	24.9	0.8	0.6	2.2	24.6	1.0	0.4	2.4	
	28.6	0.9	-1.0	2.8	27.5	0.8	0.4	2.0	
					30.3	0.7	1.0	2.4	
MCHC (g/L)	339	1.3	1.7	4.3	322	1.1	0.6	2.8	
	341	1.5	10.1	4.1	337	0.9	-0.3	2.1	
					342	0.7	0.0	1.4	
RDWSD (fL)	46.9	1.0	-4.4	6.4	44.5	0.4	-4.0	4.8	
	42.6	1.0	5.2	7.2	45.9	0.5	-1.5	2.5	
					45	1.0	-0.7	2.7	
RDWCV (%)	18.5	0.8	-3.5	5.1	16.3	0.9	-3.1	4.9	
	15.1	0.8	7.6	9.2	15.8	0.7	-1.9	3.3	
					14.5	0.6	-0.0	1.2	
Reticulocytes (10 ⁹ /L)	120.5	2.8	8.8	14.4	180	4.6	-11.1	20.3	
	94.5	4.4	-4.2	13.0	105	3.9	-4.8	12.6	
					60.0	4.7	-16.7	26.1	
Reticulocytes (%)	5.36	2.8	11.6	17.2	7.65	4.6	-9.3	18.5	
	2.2	4.5	-1.4	10.4	2.39	4.1	-4.2	12.4	
					1.12	4.7	-17.9	27.3	
PLT-I (10 ⁹ /L)	61	4.8	-9.6	19.2	55	5.1	-3.6	13.8	
	241	1.9	-4.7	8.5	212	2.3	-2.8	7.4	
					496	1.6	-4.4	7.6	
PLT-O (10 ⁹ /l)	51	5.2	-6.0	16.4	49	5.3	10.2	20.8	
	205	2.5	-6.9	11.9	202	3.2	-0.5	6.9	
					507	2.5	-6.7	11.7	
PDW (fL)	8.9	6.7	5.1	18.5	7.6	4.7	2.6	12.0	
	9.4	2.9	0.9	6.7	8.5	3.1	2.4	8.6	
					8.6	1.7	0.0	3.4	
PCT (L/L)	0.5	10.9	-7.2	29.0	0.0005	9.1	0.0	18.2	
	2.2	2.7	-6.1	11.5	0.002	3.2	-5.0	11.4	
					0.0045	1.7	11.1	14.5	
MPV (fL)	8.1	2.0	2.6	6.6	8.6	2.7	4.7	10.1	
	9.0	1.2	-0.3	2.7	9.2	1.3	3.3	5.9	
					9.2	0.6	2.2	3.4	
PLCR (%)	8.4	7.6	26.9	42.1	10.8	10.0	17.6	37.6	
	11.9	4.9	6.4	16.2	13.5	4.9	11.1	20.9	
					13.1	3.2	8.4	14.8	
WBC (10 ⁹ /L)	3.17	1.9	-2.8	6.6	2.95	2.5	2.4	7.4	7.2/14.3
	7.41	1.3	-1.3	3.9	6.86	1.6	0.4	3.6	
					16.79	1.2	2.3	4.7	
Neutrophils (10 ⁹ /L)	1.38	3.1	-15.7	21.9	1.26	3.7	7.1	14.5	
	3.43	2.2	-13.9	18.3	3.27	2.4	1.2	6.0	
					9.06	1.7	2.4	5.8	
Lymphocytes (10 ⁹ /L)	1.38	4.5	-19.3	28.3	1.02	4.0	2.9	10.9	
	2.36	2.9	1.5	7.3	2.09	6.2	0.5	12.9	
					4.14	1.4	4.1	6.9	
Monocytes (10 ⁹ /L)	0.48	8.9	-24.0	41.8	0.39	8.7	-12.8	30.2	
	0.90	5.6	-4.0	15.2	0.81	7.2	-7.4	21.8	
					1.75	4.5	-4.0	13.0	
Eosinophils	0.27	4.8	-39.1	48.7	0.28	7.1	3.6	17.8	

(10 ⁹ /L)	0.72	8.2	-4.0	20.4	0.69	7.3	5.8	20.4
					1.84	8.6	3.3	20.5
LFR					73.8	3.7	-0.3	7.7
(%)					74.4	3.9	-3.8	11.6
					83.5	3.9	-4.3	12.1
MFR					21.4	9.9	1.8	21.6
(%)					20.9	10.3	12.2	32.8
					14.3	12.2	16.6	41.0
HFR					4.9	21.7	-5.5	48.9
(%)					4.9	15.1	2.4	32.6
					3.6	41.3	-3.9	86.5
IRF					26.2	10.2	0.8	21.2
(%)					25.6	9.8	11.2	30.8
					17.3	15.5	16.3	47.3

TEobs: total error observed; TEa: total allowable error according to Harr and colleagues,²⁰

Table S2: Results of QC of biochemical analysis using the Vetscan VS2 analyzer

Variable	Expected value		Precision CV		TEobs	TEa
			%	Bias %		
Sodium	164	mmol/L	1.3	2.1	4.7	5
Potassium	6.2	mmol/L	2.0	12.3	16.3	5
Calcium	2.74	mmol/L	1.4	5.0	7.8	10
Phosphate	2.13	mmol/L	2.3	9.5	14.0	5
Glucose	14.2	mmol/L	1.3	-3.2	5.8	20
Urea	15.7	mmol/L	2.2	2.3	6.6	12
Creatinine	310	μmol/L	3.9	-1.0	8.8	20
Bilirubin	82.1	μmol/L	1.8	-0.8	4.5	30
Proteins	66	g/L	2.6	1.4	6.7	10
Albumin	50	g/L	-1.4	9.6	12.4	15
Globulins	16	g/L	9.1	-2.2	20.5	nd
ALP	227	U/L	5.0	3.6	13.6	25/20*
ALT	88	U/L	3.2	-4.0	10.5	25
Amylase	222	U/L	1.4	-3.0	5.7	25

TEobs: total error observed; TEa: total allowable error according to Harr and colleagues,²⁰

* desirable

Table S3. Reference intervals for RBC, reticulocyte, total WBC and PLT counts in NSG male and female mice measured with IDEXX ProCyt Dx and Sysmex XT-2000iV analyzers.

Variable (unit)	Analyzer	LLRI (90%CI)	ULRI (90%CI)
RBC-I (10 ¹² /L)	P/S	7.03 (7.02–7.82)	9.08 (8.88–9.09)
RBC-O (10 ¹² /L)	P	7.12 (7.10–7.93)	9.20 (9.05–9.41)
	S	6.79 (6.77–7.52)	8.66 (8.36–8.67)
HGB (g/L)	P/S	121.1 (121.0–129.0)	149.7 (144.4–149.5)
Hct (L/L)	P	0.393 (0.393–0.419)	0.497 (0.478–0.497)
	S	0.378 (0.378–0.393)	0.459 (0.450–0.459)
MCV (fL)	P	51.6 (51.6–52.5)	56.5 (55.8–56.5)
	S	49.2 (49.2–49.6)	54.1 (52.5–54.1)
MCH (pg)	P	15.9 (15.9–16.1)	17.2 (16.8–17.2)
	S	16.0 (16.0–16.1)	17.3 (16.9–17.3)
MCHC (g/L)	P	290 (290–299)	315 (312–315)
	S	306 (306–313)	334 (333–334)
RDW-SD (fL)	P	28.4 (28.4–29.2)	34.6 (32.2–34.6)
	S	27.8 (27.8–28.5)	33.7 (31.0–33.8)
RDW-CV (%)	P	20.6 (20.6–20.8)	22.4 (22.4–22.4)
	S	18.2 (18.2–18.5)	20.0 (19.5–20.0)
RBC-HGB (pg)	P	17.7 (17.7–17.8)	18.9 (18.6–18.9)
	S	16.7 (16.7–16.9)	18.0 (17.6–18.0)
RET (10 ⁹ /L)	P/S	339 (313–373)	649 (597–706)
RET (%)	P/S	4.30 (4.03–4.65)	7.89 (7.16–8.74)
IRF(%)	P	54.0 (54.0–56.1)	70.1 (66.5–70.1)S
	S	37.9 (37.9–41.4)	55.7 (49.7–55.8)
LRF(%)	P	30.0 (29.9–33.8)	46.0 (44.6–46.0)
	S	17.3 (17.3–18.2)	22.9 (22.4–22.9)
MRF(%)	P	12.3 (12.3–14.6)	20.0 (19.5–20.0)
	S	24.8 (24.8–29.6)	43.6 (41.6–43.6)
HRF(%)	P	34.1 (34.0–38.8)	55.4 (52.7–55.5)
	S	44.3 (44.2–50.4)	62.1 (59.0–62.1)

Ret-HGB(pg)	P	18.3 (18.3–18.4)	20.2 (19.5–20.2)
	S	19.4 (19.4–19.5)	21.6 (20.9–21.6)
WBC (10 ⁹ /L)	P/S	0.50 (0.42–0.62)	2.57 (2.12–3.11)
PLT-I (10 ⁹ /L)	P	782 (741–825)	1166 (1121–1210)
	S	1252 (1247–1477)	1989 (1940–1990)
PLT-O (10 ⁹ /L)	P	926 (871–983)	1439 (1378–1497)
	S	1093 (1090–1224)	1845 (1777–1845)
MPV (fL)	P	5.8 (5.8–5.9)	6.5 (6.4–6.6)
	S	6.3 (6.3–6.4)	7.0 (6.8–7.0)
PCT (mL/L)	P	4.8 (4.5–5.0)	7.1 (6.8–7.4)
	S	8.4 (8.4–9.9)	13.3 (12.8–13.3)
PDW (fL)	P/S	6.4 (6.4–6.5)	7.1 (7.0–7.2)

P: ProCyte Dx analyzer; S: Sysmex XT-2000iV analyzer; LLRI: lower limit of the reference interval; ULRI: upper limit of the reference interval; CI: confidence interval

Table S4. Reference intervals for WBC DIFF counts in NSG male and female mice measured with a IDEXX ProCyte Dx analyzer (P) and by a microscopic count (M).

Variable (unit)	Method	LLRI (90%CI)	ULRI (90%CI)
Neutrophils (10 ⁹ /L)	P/M	0.38 (0.33–0.46)	2.16 (1.68–2.67)
Lymphocytes (10 ⁹ /L)	P	0.10 (0.05–0.14)	0.50 (0.45–0.59)
	M	0.00 (0.00–0.00)	0.08 (0.06–0.10)
Monocytes (10 ⁹ /L)	P	0.00 (0.00–0.01)	0.06 (0.05–0.08)
	M	0.01 (0.00–0.05)	0.38 (0.33–0.42)
Eosinophils (10 ⁹ /L)	P/M	0.00 (0.00–0.00)	0.04 (0.04–0.05)

LLRI: lower limit of the reference interval; ULRI: upper limit of the reference interval; CI: confidence interval

Table S5. Reference intervals for biochemical analytes measured by the VetScan VS2 analyzer in NSG male and female mice.

Variable (unit)	LLRI (90%CI)	ULRI (90%CI)
Sodium (mmol/L)	140.3 (139.9–142.2)	149.7 (148.3–150.6)
Potassium (mmol/L)	3.7 (3.5–4.0)	6.0 (5.7–6.2)
Calcium (mmol/L)	2.23 (2.18–2.28)	2.72 (2.65–2.80)
Phosphate (mmol/L)	1.6 (1.5–1.7)	2.6 (2.5–2.7)
Glucose (mmol/L)	10.7 (9.9–11.6)	18.5 (17.6–19.4)
Urea (mmol/L)	6.0 (5.5–6.4)	10.1 (9.7–10.6)
Creatinine (μmol/L)	<10 -	38 (33–43)
Bilirubin (μmol/L)	—	—
Proteins (g/L)	44.2 (43.5–45.0)	53.5 (51.8–55.6)
Albumin (g/L)	30.1 (29.2–31.0)	38.4 (37.4–39.4)
Globulins (g/L)	8.0 (6.2–9.9)	18.0 (17.4–18.9)
ALT (U/L)	19.6 (18.2–21.0)	32.3 (30.8–33.8)
ALP (U/L)	42.9 (34.5–51.8)	123.3 (114.0–132.3)
Amylase (U/L)	661 (598–727)	1260 (1190–1327)

LLRI: lower limit of the reference interval; ULRI: upper limit of the reference interval; CI: confidence interval

Table S6. Reference intervals for cell percentages, ratio and indexes for bone marrow aspiration in NSG male (*n* = 20) and female (*n* = 20) mice.

Cell type	LLRI (90%CI)	ULRI (90%CI)
Myeloblast	0.2 (0.2–0.6)	2.6 (1.6–2.6)
Promyelocyte	1.4 (1.4–1.6)	5.6 (4.6–5.6)
Myelocyte	3.6 (3.6–4.4)	10.7 (8.2–10.8)
Metamyelocyte	5.2 (5.2–5.4)	11.8 (11.6–11.8)
Band neutrophil	12.8 (12.8–14.6)	26.7 (21.6–26.8)
Segmented neutrophil	17.3 (17.2–21.0)	37.4 (35.8–37.4)
Eosinophil	0.0 (0.0–0.02)	2.2 (1.6–2.2)
Rubriblast	0.2 (0.2–0.2)	1.4 (1.2–1.4)
Prorubricyte	0.4 (0.4–1.0)	4.0 (3.4–4.0)
Rubricyte	6.4 (6.4–8.8)	18.4 (16.6–18.4)
Metarubricyte	9.5 (9.4–13.8)	29.2 (26.4–29.2)
Lymphocyte	0.0 (0.0–0.0)	1.2 (0.4–1.2)
Macrophage	0.0 (0.0–0.0)	1.2 (0.8–1.2)
M:E ratio	1.13 (1.12–1.19)	4.63 (2.91–4.66)
MMI	0.13 (0.13–0.14)	0.31 (0.25–0.31)
EMI	0.03 (0.03–0.05)	0.14 (0.13–0.14)

LLRI: lower limit of the reference interval; ULRI: upper limit of the reference interval; CI: confidence interval; SD: standard deviation; M:E: Ratio Myeloid:Erythroid; MMI: Myeloid Maturation Index; EMI: Erythroid Maturation Index.

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Table S7. Reference Intervals for megakaryocytes and adipocytes counts in diaphysis and metaphysis of femoral bone marrow of NSG male ($n = 20$) and female ($n = 20$) mice.

Cell type	Femoral location	LLRI (90%CI)	ULRI (90%CI)
Megakaryocytes	D	33 (32–62)	157 (132–157)
	M	11 (2–19)	94 (94–103)
Adipocytes	D	0 (0–0)	27 (21–27)
	M	0 (0–12)	207 (178–235)

LLRI: lower limit of the reference interval; ULRI: upper limit of the reference interval; CI: confidence interval; D: diaphysis; M: metaphysis.