

1 **Supplementary table 1.** Composition and nutrient level of the basal formula milk powder (87.5

2 % DM basis, %)

Ingredients	%
Whole-milk powder (24% CP)	58.00
Whey protein concentrate (34% CP)	25.00
Casein	5.70
Coconut oil	10.00
CaH ₂ PO ₄	0.10
Choline chloride (50%)	0.10
Vitamin premix*	0.10
Mineral premix†	0.50
L-Arg (98.5%)	0.06
DL-Met (98.5%)	0.06
L-Lys·HCl (78.5%)	
L-Thr (98%)	0.03
L-Trp (98%)	0.05
Total	100.00
Nutrient content	
Digestible energy (kJ/kg)	18390
CP (%)	25.30
Ca (%)	1.02
Total P (%)	0.81
Available P (%)	0.67
Digestible Lys (%)	1.93
Digestible Met (%)	0.63
Digestible Arg (%)	0.86

3 CP, crude protein.

4 *Vitamin premix provided per kg powder diet: vitamin A, 0.94 mg; vitamin D₃, 0.01 mg; vitamin
5 E, 20 mg; vitamin K₃, 1 mg; vitamin B₁₂, 0.04 mg; riboflavin, 5 mg; niacin, 20 mg; pantothenic
6 acid, 15 mg; folic acid, 1.5 mg; thiamin, 1.5 mg; pyridoxine, 2 mg; biotin, 0.1 mg.

7 †Mineral premix provided per kg powder diet: Zn, 90 mg; Mn, 4.0 mg; Fe, 90 mg; Cu, 6.0 mg; I,
8 0.2 mg; Se, 0.3 mg.

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10 **Supplementary table 2.** Primer sequences of target and reference genes

Gene	Genebank accession No.	Primer sequence	Amplification length (bp)	Annealing temperature (°C)
CAT	NM_214301.2	5'- ACTTCTGGAGCCTACGTCCT-3' 5'-ATCCGTTTCATGTGCCTGTGT-3'	93	60
iNOS	NM_001143690.1	5'-AGAGCCTCTGGACCTCAACA-3' 5'-CTCACAGCAGAGTTCACCA-3'	136	60
GP _x	NM_214201.1	5'-GCTCGGTGTATGCCTTCTCT-3' 5'-AGCGACGCTACGTTCTCAAT-3'	103	60
GR	AY368271.1	5'-CTACGTGAGCCGACTGAACA-3' 5'-TCAGGATGTGAGGAGCTGTG-3'	146	60
CuZn-SOD	GU944822.1	5'-GAGACCTGGGCAATGTGACT-3' 5'-CTGCCAAGTCATCTGGTTT-3'	139	60
Mn-SOD	NM_214127.2	5'-TGGAGGCCACATCAATCATA-3' 5'-AGCGGTCAACTTCTCCTTGA-3'	136	60
ESOD	NM_001078688.1	5'-ACGCTGCTCTGTGCTTACCT-3' 5'-TCAACTCCTGCCAGATCTCC-3'	142	60
Nrf2	XM_003133500.5	5'-GCCCTGGAAGCGTTAAAC-3' 5'-GGACTGTATCCCCAGAAGGTTGT-3'	67	60
Keap-1	NM_001114671.1	5'-ACGACGTGGAGACAGAAACGT-3' 5'-GCTTCGCCGATGCTTCA-3'	56	60
PGC-1 α	NM_213963	5'-CCCGAAACAGTAGCAGAGACAAG-3' 5'-CTGGGGTTCAGAGGAAGAGATAAAG-3'	111	60
TFAM	AY923074.1	5'-GGTCCATCACAGGTAAGCTGAA-3' 5'-ATAAGATCGTTTCGCCCAACTTC-3'	167	60
NRF-1	AK237171.1	5'-GCCAGTGAGATGAAGAGAAACG-3' 5'-CTACAGCAGGGACCAAAGTTCAC-3'	166	60
mt SSB	AK352341.1	5'-CTTTGAGGTAGTGCTGTGTCG-3' 5'-CTCACCCCTGACGATGAAGAC-3'	143	60
mt polr	XM_001927064.1	5'-CTTTGAGGTTTTCCAGCAGCAG-3' 5'-GCTCCAGTTTTGGTTGACAG-3'	119	60
SIRT-1	EU030283.2	5'-TGACTGTGAAGCTGTACGAGGAG-3' 5'-TGGCTCTATGAAACTGCTCTGG-3'	143	60
β -actin	DQ845171.1	5'-GGCGCCAGCAGCAT-3' 5'-CCGATCCACACGGAGTACTTG-3'	66	60
GAPDH	NM_001206359.1	5'-TCGGAGTGAACGGATTTGGC-3' 5'-TGCCGTGGGTGGAATCATAAC-3'	147	60

11 CAT, catalase; iNOS, nitric oxide synthase 2, inducible; GP_x, glutathione peroxidase; GR,
12 glutathione reductase; CuZn-SOD, copper/zinc superoxide dismutase, cytoplasmic; Mn-SOD,
13 manganese superoxide dismutase, mitochondrial; ESOD, extracellular superoxide dismutase;
14 Nrf2, nuclear erythroid 2-related factor 2; Keap1, Kelch-like ECH-associated protein 1; GAPDH,
15 glyceraldehyde-3-phosphate dehydrogenase; PGC-1 α , PPAR γ coactivator-1 α ; TFAM,
16 mitochondrial transcription factor A; NRF-1, nuclear respiratory factor-1; mt SSB, mitochondrial
17 single-strand DNA-binding protein; mt polr, mitochondrial polymerase r; SIRT-1, mammalian
18 silencing information regulator.

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20 **Supplementary table 3.** Primer and probe sequences used for determination of mtDNA content.

Gene	Genebank accession No.	Primer sequence	Amplification length (bp)	Annealing temperature (°C)
Mitochondrial D-loop	AF276923	5'-GATCGTACATAGCACATATCATGTC-3'	198	60
		5'-GGTCCTGAAGTAAGAACCAGATG-3'		
β-actin	DQ452569	5'- (FAM) CCAGTCAACATGCGTATCACCACCA(Eclipse) -3'	74	60
		5'-CCCCTCCTCTCTTGCCTCTC -3'		
		5'-AAAAGTCCTAGGAAAATGGCAGAAG -3'		
		5'- (FAM) TGCCACGCCCTTTCTCACTTGTTCT (Eclipse) -3'		

21

22