

## BALB/c-Nude

**Strain Name:** BALB/cNj-Foxn1nu/Gpt

**Strain Type:** Mutation

**Strain Number:** D000521

### Description

Foxn1, encoded by Foxn1 (Forkhead box N1, also called Hfh11 or Fkh19) gene, is a transcription factor expressed in thymic epithelium. Foxn1 plays an important role in a wide range of biological and pathological process, such as immune response, tumor formation, metabolic reaction and senescence. BALB/c-nu, also called nude mouse, is a strain carrying mutant Foxn1 gene (Foxn1nu ) and thus defective in thymic epithelium development and abnormal hair growth. Although appeared hairless, these nude mice are born with functional but faulty hair growth follicles. Hair growth cycles and patterns are evident but the faulty follicles fail to allow the hair to erupt. Homozygous nude mice lack functional T cells and are partially deficient in B cells, thus can be used as an immune deficient mouse model which allow xenograft of human cell lines and tissues.

### Application

1. Dermatologic study
2. Endocrine deficiency research
3. Immune and inflammation research
4. athymism research
5. Xenograft and Cancer research

## growth curve

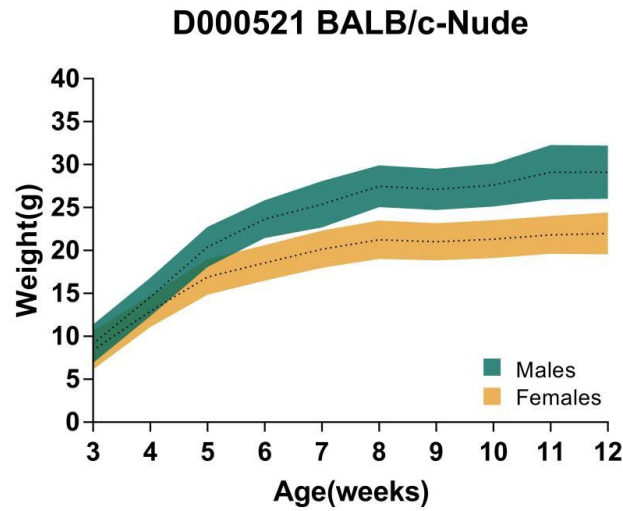


Fig1. Body weight growth curve of BALB/c Nude (Mean ± SD)

## Blood routine

Hematology					
Parameter	Units	16W(♂)		16W(♀)	
WBC	10 <sup>3</sup> cells/mm <sup>3</sup>	2.9	±0.51	1.98	±0.91
RBC	10 <sup>6</sup> cells/mm <sup>3</sup>	10.03	±0.56	9.83	±0.53
HB	g/L	154.55	±4.75	158.71	±5.95
HCT	%	55.3	±2.14	56.18	±2.67
MCV	fL	55.22	±2.55	57.18	±1.85
MCH	Pg	15.45	±0.93	16.17	±0.54
MCHC	g/L	279.91	±8.96	282.76	±6.78
RDW	%	16.68	±0.79	16.77	±1.04
PLT	10 <sup>3</sup> cells/mm <sup>3</sup>	868.55	±101.64	790.24	±168.98
MPV	fL	4.32	±0.22	4.24	±0.45
NE#	10 <sup>3</sup> cells/mm <sup>3</sup>	1.1	±0.23	0.49	±0.19
NE%	%	36.17	±6.23	25.6	±7.61
LY#	10 <sup>3</sup> cells/mm <sup>3</sup>	1.52	±0.35	1.19	±0.69
LY%	%	52.73	±7.41	58.65	±9.2
EO#	10 <sup>3</sup> cells/mm <sup>3</sup>	0.01	±0.01	0	±0.01

EO%	%	0.26	±0.24	0.28	±0.18
MO#	10 <sup>3</sup> cells/mm <sup>3</sup>	0.27	±0.06	0.3	±0.16
MO%	%	10.8	±3.86	15.4	±4.48
BA#	10 <sup>3</sup> cells/mm <sup>3</sup>	0	±0	0	±0
BA%	%	0.05	±0.06	0.07	±0.13

## Blood biochemistry

Biochemistry					
Parameter	Units	16W(♂)		16W(♀)	
ALT	IU/L	38.22	±18.39	34.39	±12.17
AST	IU/L	77.39	±41.29	88.57	±43.22
AKP	IU/L	90.57	±15.23	102.48	±24.95
TP	g/L	51.62	±3.02	52.09	±2.33
ALB	g/L	33.16	±2.34	36.84	±2.19
TBIL	µmol/L	1.14	±0.4	0.9	±0.21
GLU	mmol/L	9.49	±1.29	7.28	±1.55
BUN	mmol/L	7.47	±1.64	6.96	±1.48
CREA	µmol/L	13.51	±2.59	13.29	±1.76
Ca	mmol/L	2.6	±0.15	2.6	±0.09
P	mmol/L	2.34	±0.69	2.75	±0.54
Fe	µmol/L	42.57	±5.25	35.98	±8.05
CHOL	mmol/L	3.26	±0.27	2.8	±0.32
TG	mmol/L	1.01	±0.56	0.5	±0.16
HDL-C	mmol/L	2.48	±0.23	2.01	±0.2
LDL-C	mmol/L	/	/	/	/

## Flow cytometr

Flow cytometr					
Parameter	Units	spleen		blood	
		9W/ ♂	9W/ ♀	9W/ ♂	9W/ ♀
B cells	% of leukocytes	79.55	74.43	48.55	30.30
NK cells		7.75	11.12	7.23	19.13
T cells		0.35	0.54	0.38	0.84
immature B	% of B cells	51.23	45.30	41.28	23.37
mature B		28.38	29.30	7.58	7.17

## References

1. Craig S, Nowell MA, Nicholas Bredenkamp, Stephanie Tete lin, et al., Foxn1 Regulates Lineage Progression in Cortical and Medullary Thymic Epithelial Cells But Is Dispensable for Medullary Sublineage Divergence. *PLoS Genetics* 2011, 7(11): 1–16.
2. Lili Cheng, Jianfei Guo, Liguang Sun, et al., Postnatal Tissue-specific Disruption of Transcription Factor FoxN1 Triggers Acute Thymic Atrophy. *THE JOURNAL OF BIOLOGICAL CHEMISTRY* 2010, 285: 5836–5847.
3. Darnell DK, Zhang LS, Hannenhalli S, et al., Developmental expression of chicken FOXN1 and putative target genes during feather development. *The International Journal of Developmental Biology* 2014, 58(1): 57–64.
4. Žuklys S, Handel A, Zhanybekova S, et al., Foxn1 regulates key target genes essential for T cell development in postnatal thymicepithelial cells. *Nature Immunology* 2016, 17: 1206–1215.