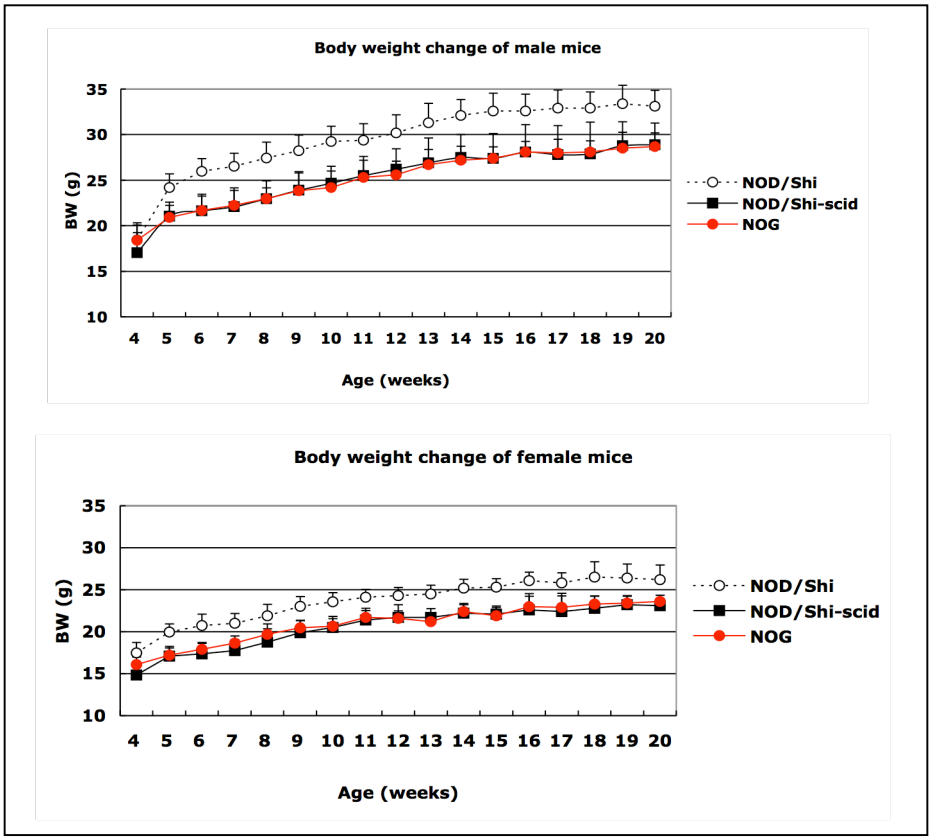
General characteristics of NOG mice

1. T and B cell deficient
2. NK cell deficient
3. Reduced macrophage and dendritic cell function
4. Complement activity deficient
5. No incidence of lymphoma
6. Sensitive for irradiation
7. Long life span
8. Sensitive against microbiological pathogens
9. High engraftment for xenotransplants

Basic characteristics

1. Body weight



The body weight of 10 males and 10 females of three strains of mice was measured every week until the age of 20 weeks .

2. Life span and tumors

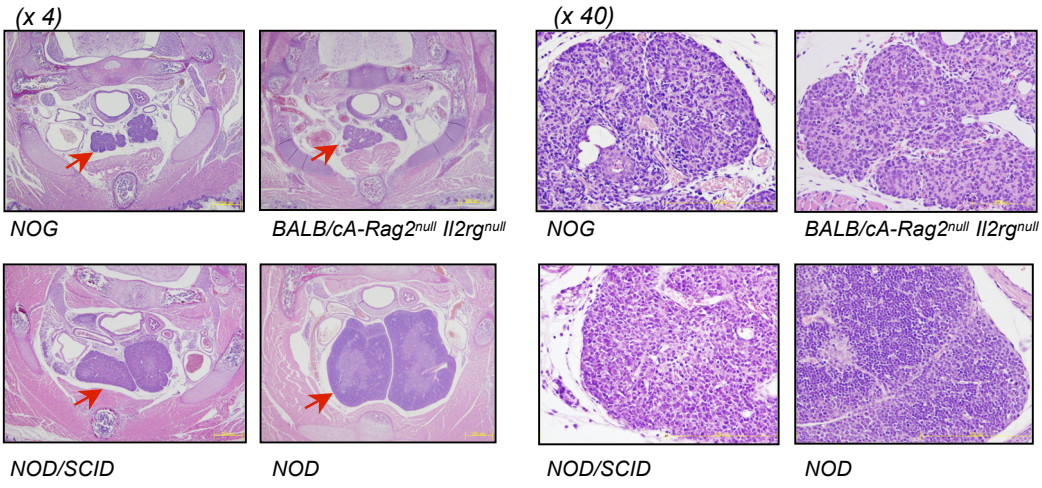
Lymphoma is often observed in NOD-*scid* mice, however does not occur in NOG mice. Therefore NOG mice have a long life span and survive at least one and half years in strict SPF conditions.

3. Organ weight and histology

Age (week)	Sex	No. of mice	BW (g)	Brain (mg)	Thyroid gland (mg)	Mandibular gland (mg)	Lung (mg)	Thymus (mg)
12	Male	10	24.5 ± 1.53	450 ± 32	1.4 ± 0.9	182 ± 23	141 ± 7	4.7 ± 4.3
	Female	10	21.3 ± 0.53	479 ± 27	1.2 ± 0.8	107 ± 11	148 ± 10	2.3 ± 1.2
20	Male	10	28.1 ± 1.15	478 ± 25	1.7 ± 0.7	213 ± 20	180 ± 18	2.5 ± 1.9
	Female	10	23.2 ± 1.2	504 ± 32	2.0 ± 0.9	111 ± 11	165 ± 11	2.2 ± 0.9

Age (week)	Sex	Heart (mg)	Liver (g)	Spleen (mg)	Kidney (mg)	Adrenal gland (mg)	Testis (mg)	Ovary (mg)
12	Male	108 ± 12	1.25 ± 0.12	20.7 ± 2.3	384 ± 25	5.8 ± 1.2	175 ± 11	
	Female	95 ± 8	0.99 ± 0.07	23.7 ± 4.0	279 ± 13	7.1 ± 0.5		15.2 ± 2.1
20	Male	115.9 ± 38	1.44 ± 0.17	28.3 ± 8.9	449 ± 24	6.9 ±1.3	192 ± 12	
	Female	111 ± 10	1.11 ± 0.12	28.4 ± 10	322 ± 29	8.4 ± 1.1		17.7 ± 2.7

Histology of thymus from newborn mice



4. Hematology

- a. Hematological values

12 weeks old

		AST	ALT	ALP	Ca	TG	UN	Crea	TP	T-Cho
		IU/L	IU/L	IU/L	mg/dL	mg/dL	mg/dL	mg/dL	g/dL	mg/dL
Male	N=8	49.38	25.00	133.25	7.49	37.13	25.24	0.32	3.98	61.13
		±12.24	±13.79	±15.6	±0.44	±11.90	±1.53	±0.02	±0.16	±6.13
Female	N= 10	67.30	23.90	212.30	7.28	30.40	22.21	0.30	3.65	45.50
		±12.37	±5.4	±18.14	±0.29	±17.04	±2.52	±0.04	±0.14	±5.19

		WBC	RBC	HGB	HCT	MCV	MCH	MCHC	PLT
		x10 / μ1	x10 / μ1	g/dl	%	fl	pg	%	x10 / μ1
Male	N=8	6.50	766.25	12.31	39.34	51.34	16.04	31.31	106.73
		±1.93	±28.62	±0.45	±1.73	±0.58	±0.16	±0.36	±5.92
Female	N= 10	11.80	773.00	12.72	39.12	50.73	16.47	32.47	83.85
		±3.79	±45.12	±0.59	±2.26	±0.39	±0.26	±0.50	±8.89

Blood was collected from the retro-orbital venous plexus of mice at age of 12 weeks under light anesthesia with Isoflurene. Differential analysis of blood cells was performed with an automatic blood cell counter (XT-2000i, Sysmex, Osaka).

5. Microbiological agents affecting NOG mice

NOG mice may have higher sensitivity against opportunistic pathogens than conditional immunodeficient mice (nude and SCID mice) because of their highly immunodeficiency. Therefore, NOG mice must be maintained in a facility under strict SPF condition.

NOG mice may also be easily affected by stress, therefore control of environmental factors on-site is required to ensure reproducibility of the results of animal experiments.

Therefore, we recommend to maintaining NOG mice in a specialized room apart from other stains of mice. It is best to change the room each year.

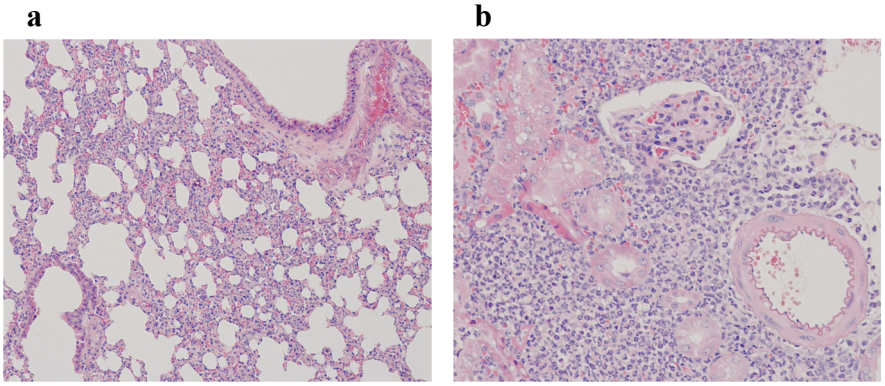


Figure 1. Histopathological diagnosis of bacteremia in NOG mice infected with *Pseudomonas aeruginosa*. Intestitial pnuemonia and suppurative nephritis were found in the lungs and kidneys of affected mice. A. Interstitial pmnuemonitis (H&E, x 200). B. Suppurative nephritis (H&E, x200). *P. aeruginosa* was isolated from blood and lesions in the mice.

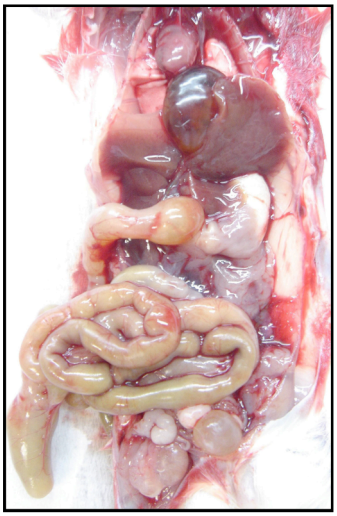


Figure 2. Results of necropsy of diarrheal NOG mice died with un-known causes. Severe diarrhea, bile congestion, duodenitis, and intestinal hypertrophy were observed in the mice.

from Nomura, T., Tamaoki, N., Takakura, A. & Suemizu, H. Basic concept of development and practical application of animal models for human diseases. *Curr Top Microbiol Immunol* **324**, 1-24 (2008).