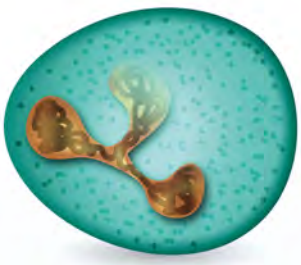
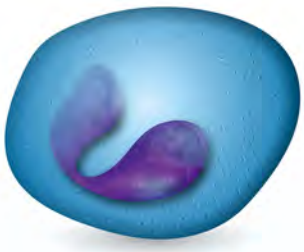
SHANGHAI
MODEL ORGANISMS

SMOC™ Mouse Models For Immunology Research



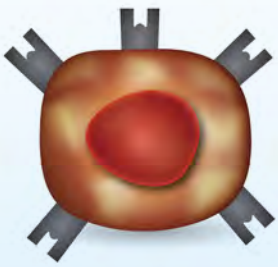
Neutrophil



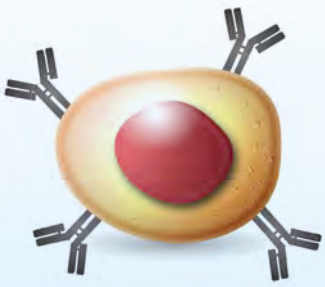
Eosinophil

Basophil

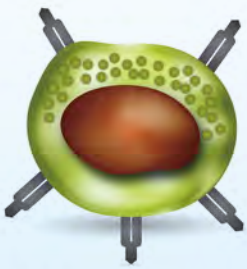
Monocyte



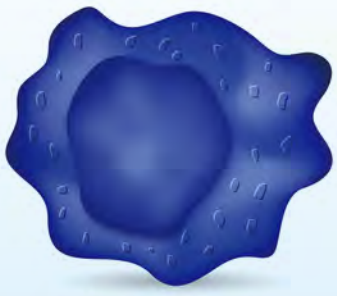
T Cell



B Cell



Natural killer



Macrophage

Mouse Models For Immune Cell Tracking

Reporter gene-based molecular imaging is a powerful means to detect the location and function of diverse cell populations *in vivo*. Generation of immune cells marked with imaging reporter genes permits tracking of immune responses to pathogens and cancer in experimental systems.

SMOC has established a list of mouse models in which distinct immune cell types were labeled by luciferase and EGFP, providing simpler, highly sensitive, robust means for immune cell infiltrate and *in vivo* drug efficacy studies.

Cd8a-Luc-EGFP mice

- Cd8a$^{luc\text{-}EGFP}$ mutant mice express knocked-in luciferase and EGFP genes from the Cd8a locus--without disrupting expression of the endogenous Cd8a gene. When cell populations are activated, identify Cd8a transcriptional activity both *in vivo* and *in vitro*.
- These mice may be useful for evaluate drug anti-tumor activity.

Strain Name	Cat. NO.
Cd8a-Luc-EGFP	NM-KI-18030

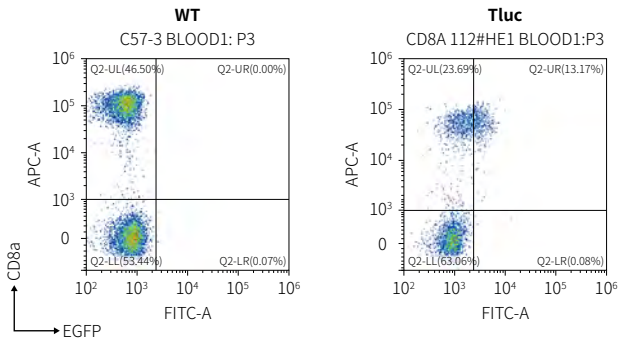


Figure 1. Expression of EGFP in PBMC-Derived CD8+ T cells of Cd8a-Luc-EGFP mice is detected by FACS.

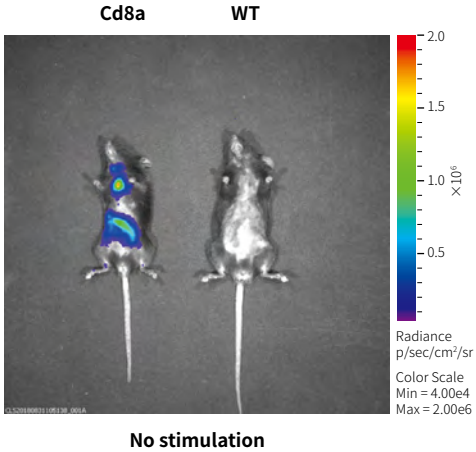


Figure 2. In the absence of any stimulation, the *in vivo* imaging system detected that Cd8a$^{luc\text{-}EGFP}$ mice showed significant fluorescence.

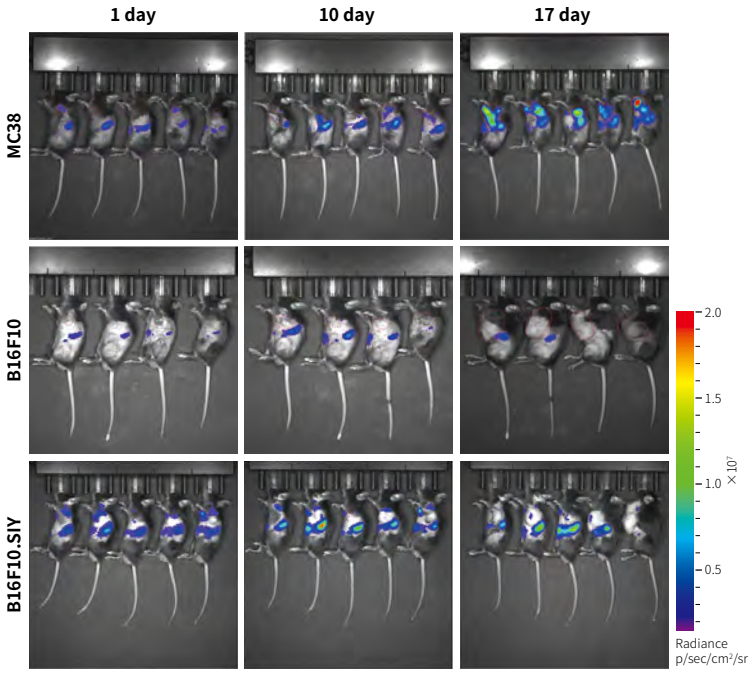


Figure 3. Bioluminescence imaging of CD8+ T cells in Cd8a-Luc-EGFP mice after inoculation tumor cells. Enhanced T cell recruitment and infiltration into the tumor mass was observed on Cd8a-Luc-EGFP mice following the implantation of MC38 colon cancer cells and antigenic SIY-expressing B16 melanoma cells (but not the regular B16 cells).

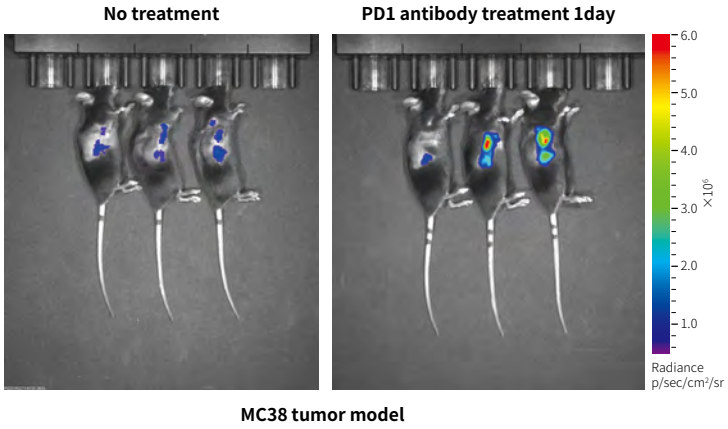


Figure 4. *In vivo* imaging validation of MC38 tumor-bearing Cd8a$^{luc\text{-}EGFP}$ mouse model. After 1 day of stimulation with PD1 antibody, the fluorescence was significantly enhanced.

More mouse models

Strain Name	Cat.No.	Target cells
Cd19-EGFP-Luc	NM-KI-200058	B cells
Cd8a-Luc-EGFP	NM-KI-18030	Cd8$^+$ T cells
Foxp3-Luc-tdTomato	NM-KI-18034	Regulatory T lymphocytes
Itgax-tdTomato-Luc	NM-KI-190116	Dendritic cells
Lyz2-mtagBFP-Luc	NM-KI-200029	Myeloid cell lineage (monocytes, mature macrophages and granulocytes)
Ncr1-mtagBFP-Luc	NM-KI-200030	Natural killer cells

Mouse Models For Immune Cell Ablation

The immune system is an organization of cells and molecules with specialized roles in the different immune responses. To decipher the functional contributions of specialized cell populations in the immune response, SMOC has established a list of DTREGFP mouse models in which distinct immune cell types can be ablated. These DTREGFP mice provide a diphtheria toxin inducible system that administration of diphtheria toxin results in depletion of specific cell populations. Cell ablation is a *in vivo* valuable complement to mutagenesis for experimentally defining specific cell functions in physiology and pathophysiology.

Cd8a-DTREGFP Mice

- Cd8a^{DTREGFP} mutant mice express knocked-in human diphtheria toxin receptor and EGFP genes from the Cd8a locus--without disrupting expression of the endogenous Cd8a gene.
- These mice may be useful for CD8^{+} T cells visualizing and ablation.

Strain Name	Cat. NO.
Cd8a-DTREGFP	NM-KI-190045

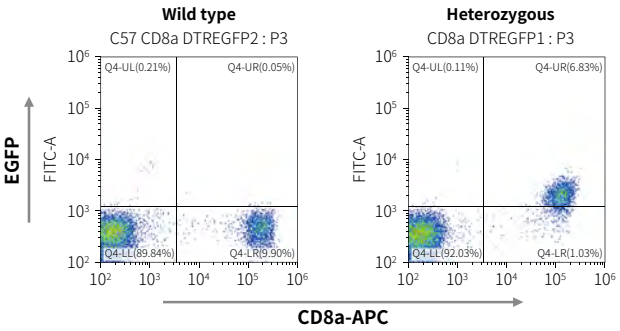
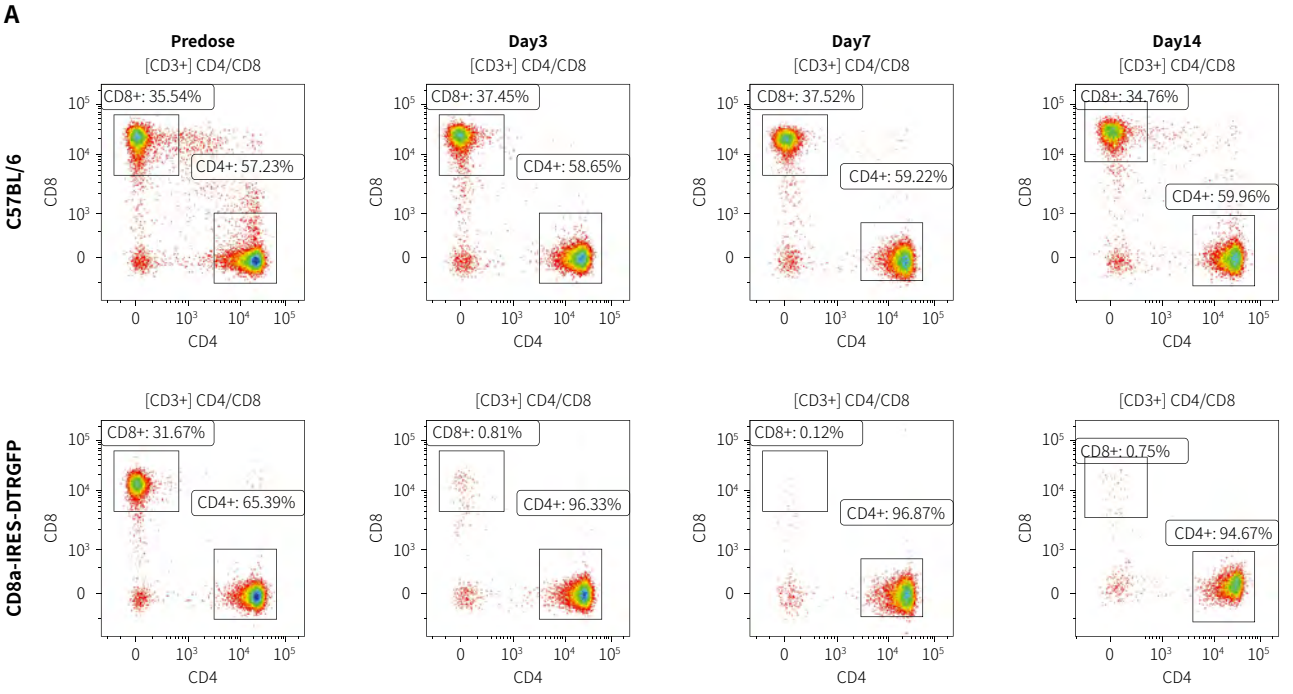


Figure 5. EGFP expression in PBMC of CD8a$^{DTREGFP/+}$ mice and C57BL/6 mice was detected by FACS. (In collaboration with CrownBio)



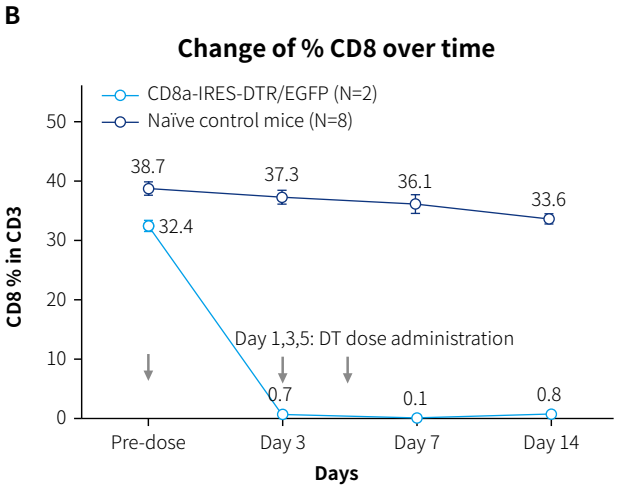


Figure 6. FACS analysis of the percent of $CD8^+$ T cell in peripheral blood of MC38 tumor-bearing $CD8a^{DTREGFP/+}$ mice and C57BL/6 mice (**A** and **B**). Nearly complete depletion was achieved only after 1 dose administration of DT and the depletion effect lasted to day 14. (In collaboration with CrownBio)

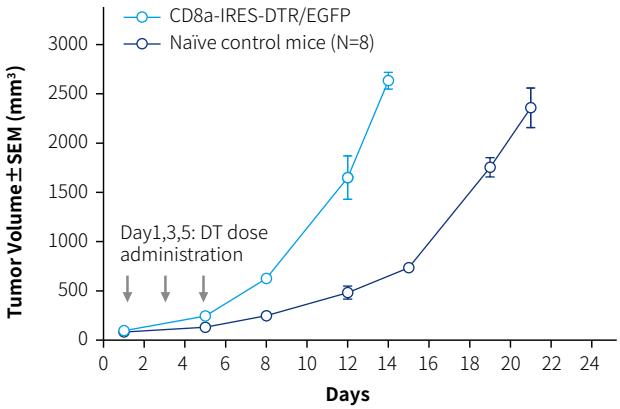


Figure 7. The growth of MC38 tumors in $CD8a^{DTREGFP/+}$ mice and C57BL/6 mice. $CD8a^{DTREGFP/+}$ mice and C57BL/6 mice were inoculated with MC38 colon cancer cells. After the tumors grew to 100 mm^3, the $CD8a^{DTREGFP/+}$ mice were injected with diphtheria toxin. (In collaboration with CrownBio)

Ncr1-DTREGFP Mice

- NCR1 is expressed specifically on natural killer (NK) cells and possibly on related innate lymphocytes. Ncr1^{DTREGFP} mutant mice express knocked-in human diphtheria toxin receptor and EGFP genes from the Ncr1 locus—without disrupting expression of the endogenous Ncr1 gene.
- These mice may be useful for natural killer cells visualizing and ablation.

Strain Name	Cat. NO.
Ncr1-DTREGFP	NM-KI-190044

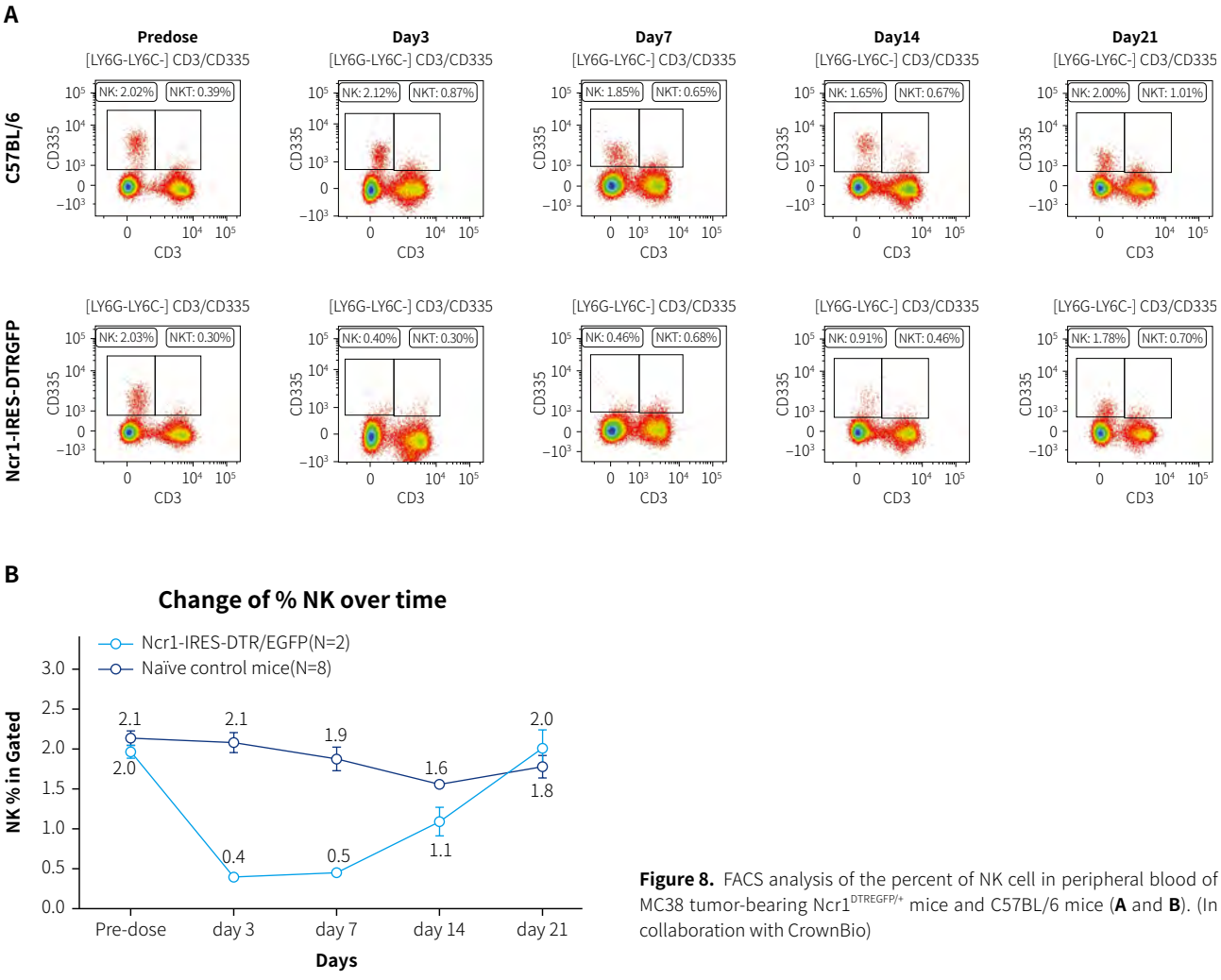


Figure 8. FACS analysis of the percent of NK cell in peripheral blood of MC38 tumor-bearing Ncr1$^{DTREGFP/+}$ mice and C57BL/6 mice (**A** and **B**). (In collaboration with CrownBio)

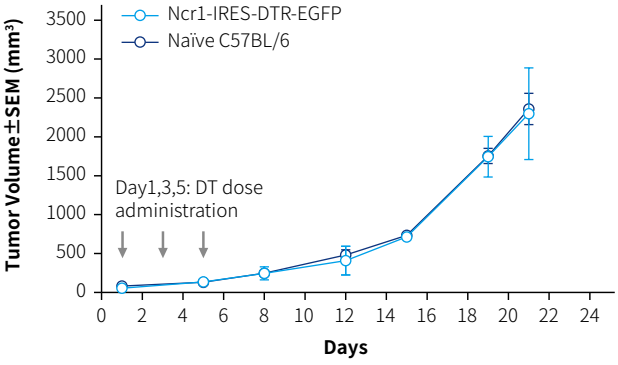


Figure 9. The growth of MC38 tumors in Ncr1$^{DTREGFP/+}$ mice and C57BL/6 mice. Ncr1$^{DTREGFP/+}$ mice and C57BL/6 mice were inoculated with MC38 colon cancer cells. After the tumors grew to 100 mm^3, Ncr1$^{DTREGFP/+}$ mice were injected with Diphtheria toxin. (In collaboration with CrownBio)

More mouse models

Strain Name	Cat.No.	Target cells
Cd19-DTREGFP	NM-KI-190042	B cells
Cd4-DTREGFP	NM-KI-190121	Cd4$^+$ T cells
Cd8a-DTREGFP	NM-KI-190045	Cd8$^+$ T cells
Clec4f-DTRGFP	NM-KI-200070	kupffer cells
Foxp3-DTREGFP	NM-KI-190046	Regulatory T lymphocytes
Itgam-DTREGFP	NM-KI-200066	Macrophages
Itgax-DTREGFP	NM-KI-190043	Dendritic cells
Lyz2-DTREGFP	NM-KI-190041	Myeloid cell lineage (monocytes, mature macrophages and granulocytes)
Ncr1-DTREGFP	NM-KI-190044	Natural killer cells

Everything you need for model organisms

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