A4 Transgenic Mouse Models Core Facility

基因轉殖鼠核心設施

National Core Facility for Biopharmaceuticals

生 技 醫 藥 核 心 設 施 平 台

Introduction

Transgenic Mouse Models Core (TMMC) provide complete services from DNA to mice, using both nuclease-based and ES cell-based technologies for generating KO/KI and conditional KO mice, and completely customers-oriented. TMMC is competitive with reasonable service fees and great attitude. We help our users to get their mice the easiest and fastest way. The main objective of TMMC is to provide technologies to generate transgenic/knockout mice for the following purposes.

- Mimicking human diseases
- Drug development and evaluating drug efficacy
- Gene functions

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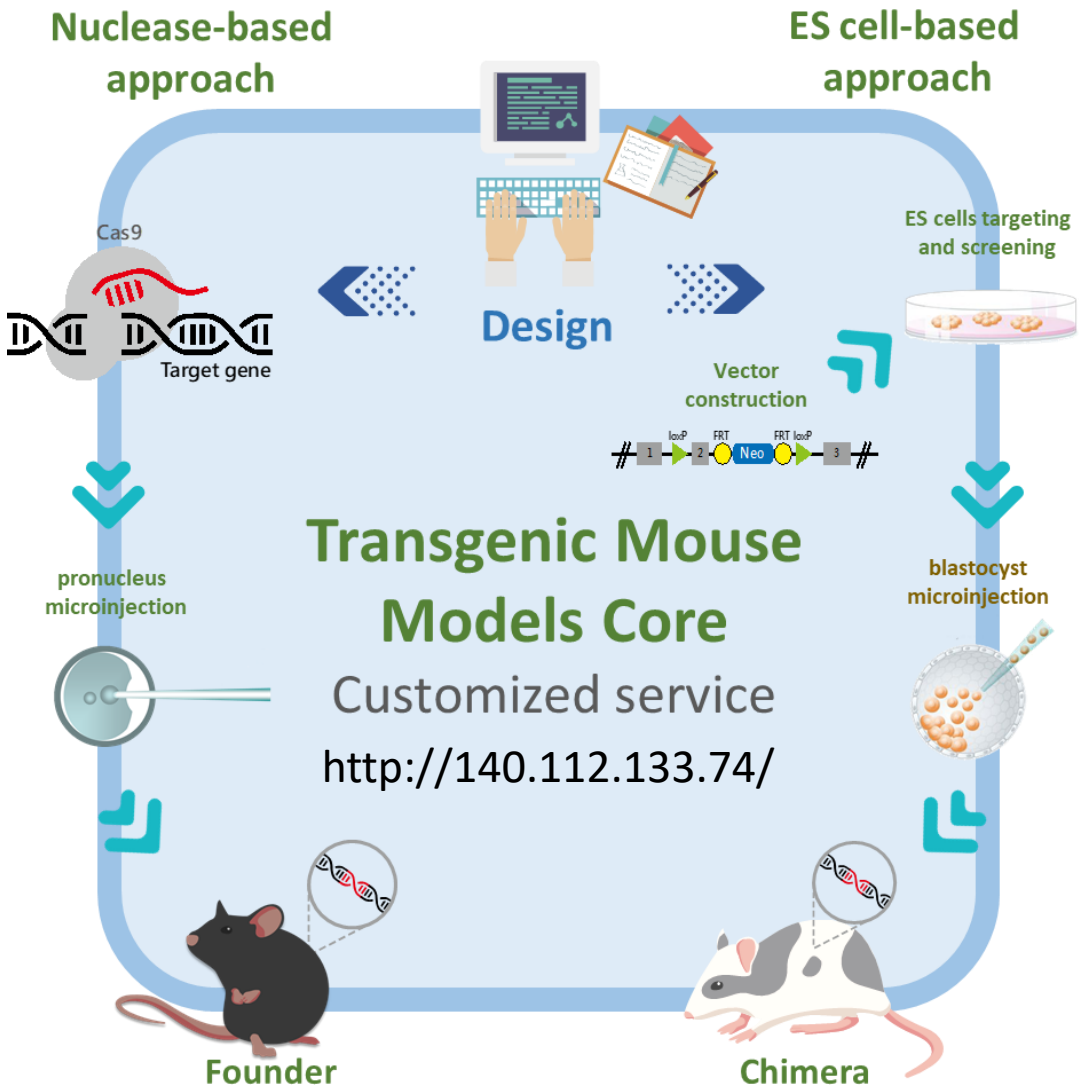
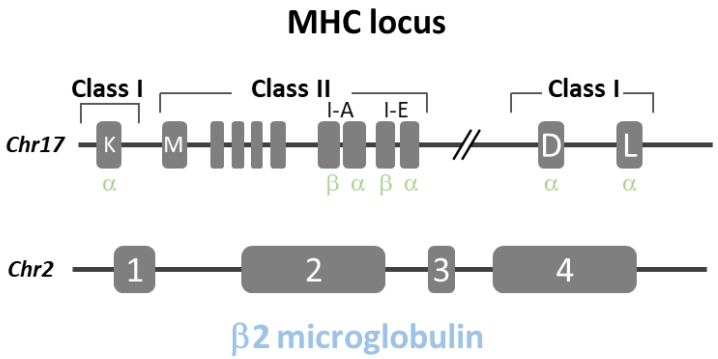


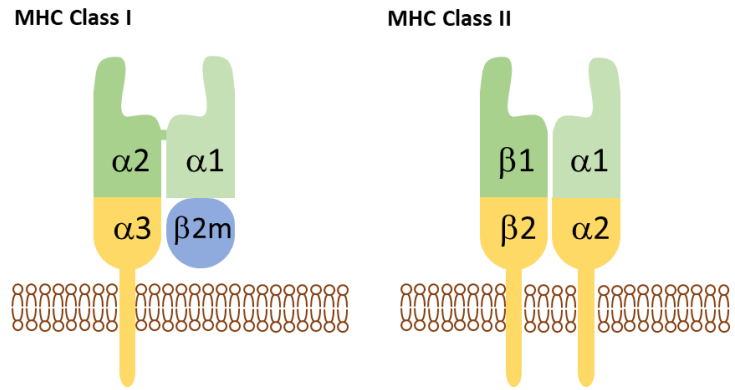
NSTC 國家科學及技術委員會 National Science and Technology Council
NCFB
NTUCM National Taiwan University College of Medicine
NTUCGPM National Taiwan University Centers of Genomic and Precision Medicine
TMMC National Core Facility Biopharmaceuticals

Next generation NSG-MHC KO mice for reconstitution of human adoptive immune cells with reduced GvHD

NSG-dKO *(B2m)^{null}(IA)^{null}*

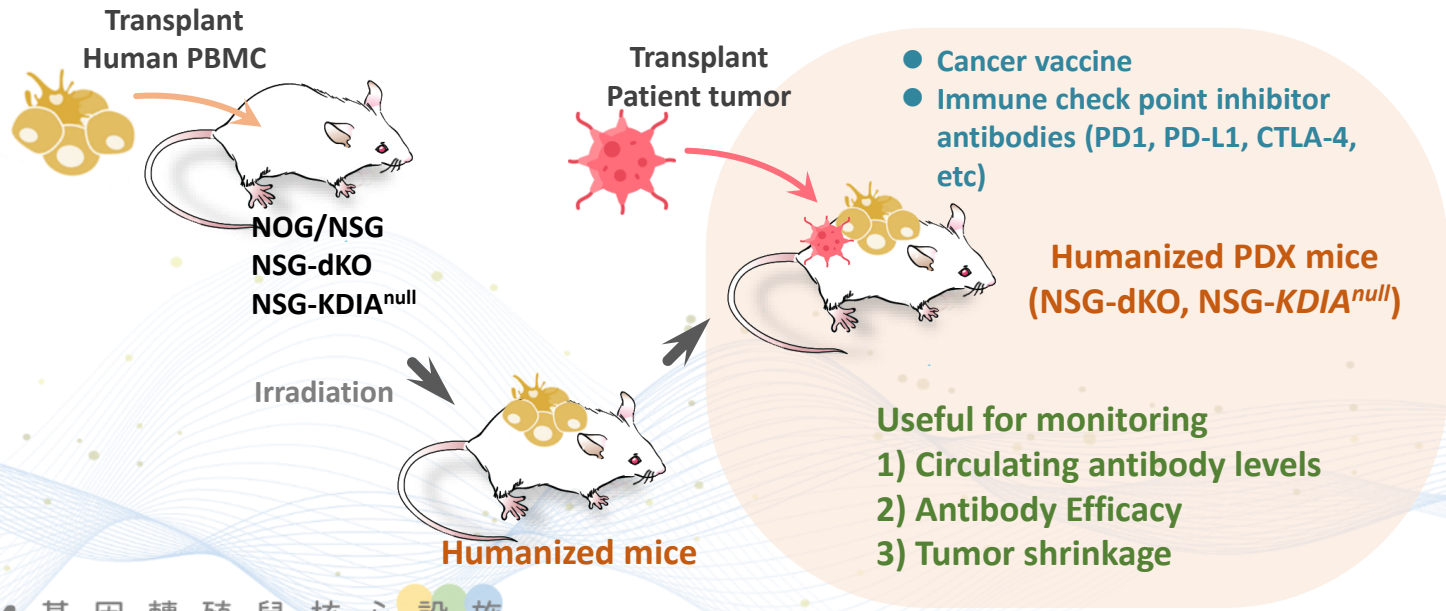
1. **NSG-dKO mutant mice**
   - NSG
   - Absence of MHC class I molecule (deleting beta-2 microglobulin)
   - Absence of MHC class II molecule (deleting H2Ab1)
2. **reducing graft versus host disease (GVHD)**
3. **Depleting infused human IgG**
4. **Useful for evaluating T cell-based (i.e. cancer vaccine) therapeutics**



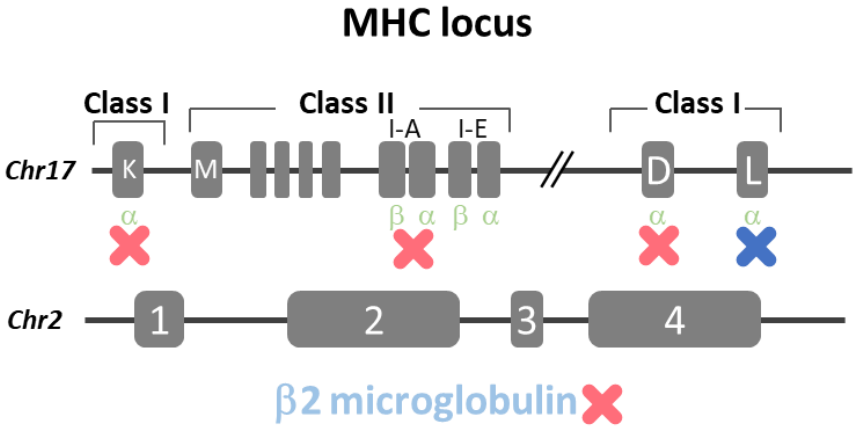


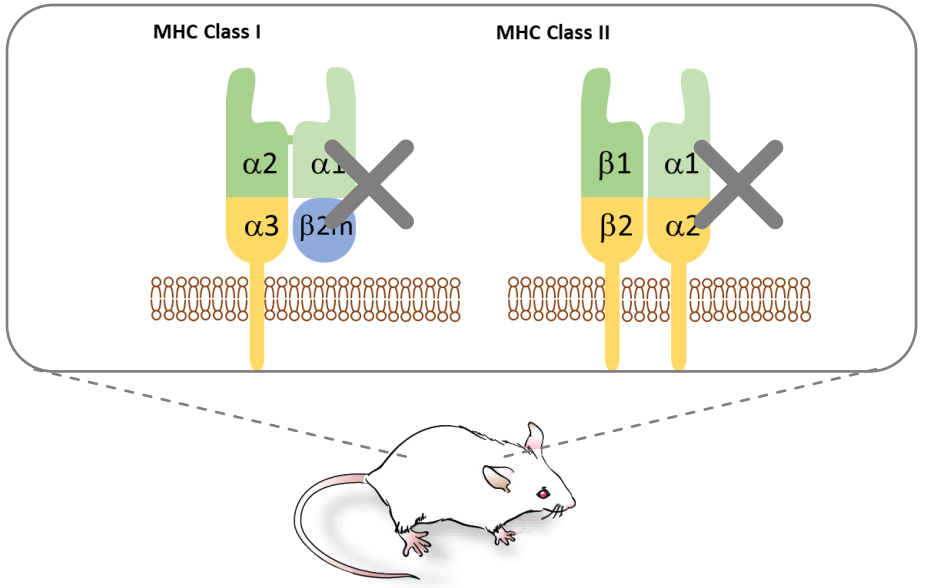
NSG-MHC I/II-TKO *(DK)^{null}(IA)^{null}*

1 **NSG-KDIA^{null} mutant mice**
   - NSG
   - Absence of MHC class I molecule (deleting H2-D1 &H2-K1)
   - Absence of MHC class II molecule (deleting H2Ab1)
2. **Reducing graft versus host disease (GVHD)**
3. **Useful for evaluating antibody-based immunotherapy**

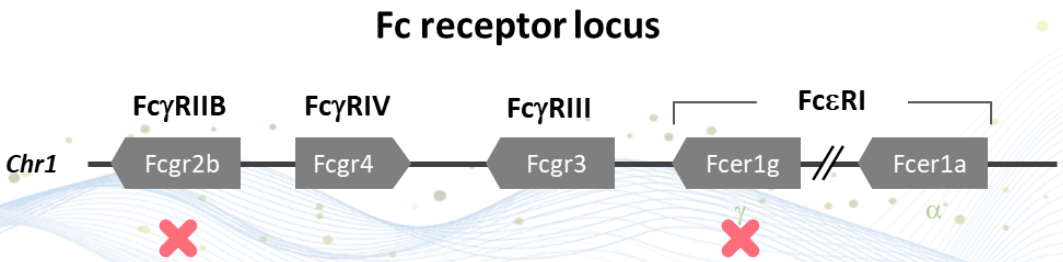


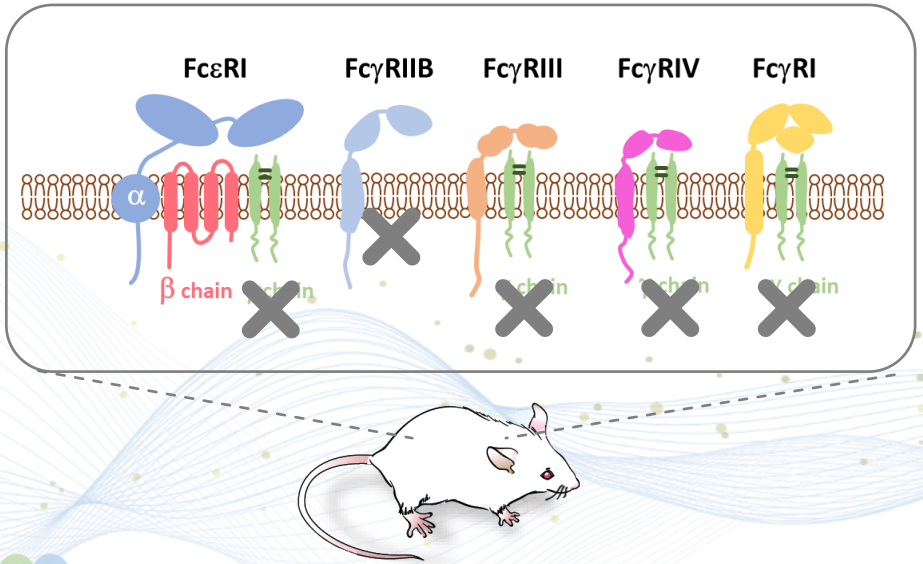
NSG-dKO: NSG-MHC I/II $(\beta 2m)^{null}(IA)^{null}$
NSG-$KDIA^{null}$: NSG-MHC I/II-TKO $(DK)^{null}(IA)^{null}$





Fc receptor - deficient NSG mice (NSG-$FcR^{-/-}$)





Summary of NSG and its engineered sublines available from A4 TMMC facility

	NSG	NSG-FcR$^{(-/-)}$	NSG-dKO	NSG-*KDIA*^{null}
B cell, T cell, NK cell	X	X	X	X
Dendritic cells, Macrophage (Mϕ)	Reduced activity (present in the mouse, although they are defective)			
MHC class I/II gene	O	O	X	X
Neutrophils, monocytes	most of the remaining mouse immune cells detectable in peripheral blood			
GvHD	Occurs in about 30 days		Survive more than 120 days without occurrence	

Applications：

PDX/Xenograft of tumor：	√	√	√	√
Xenotransplantation of PBMC：	√	√ (NK)	√	√
ADCC antibody (drug test)：	X	√	X	X