Kras-LSL-G12D

Nomenclature	C57BL/6Smoc-*Kras*$^{em4(LSL-G12D)Smoc}$
Cat. NO.	NM-KI-190003
Strain State	Repository Live

Gene Summary

Gene Symbol Kras	**Synonyms**	Ki-ras; K-ras; Kras2; Kras-2
	NCBI ID	16653
	MGI ID	96680
	Ensembl ID	ENSMUSG00000030265
	Human Ortholog	KRAS

Model Description

exon2 of Kras were replaced by loxp-stop-loxp and exon2 containing G12D. When crossed with a Cre recombinase-expressing strain, this strain is useful in studies of cancer and development.
Research Application: cancer research
*Literature published using this strain should indicate: Kras-LSL-G12D mice (Cat. NO. NM-KI-190003) were purchased from Shanghai Model Organisms Center, Inc..

Validation Data

Pancreatic ductal adenocarcinoma

The KPC mouse is an established and clinically relevant model of pancreatic ductal adenocarcinoma (PDAC) which develops many key features observed in human PDAC including pancreatic intraepithelial neoplasia alongside a robust inflammatory reaction including exclusion of effector T cells. Metastases are observed in around 80% of KPC animals located primarily in the liver and lungs. Mutations in both KRAS and TP53 genes are found in around 80% and 70% of all human PDACs respectively.

Trp53-(R172H) (NM-KI-18028)、Kras-(LSL-G12D) (NM-KI-190003)were crossed with Pdx1-Cre-Tg to generate KPC mice.

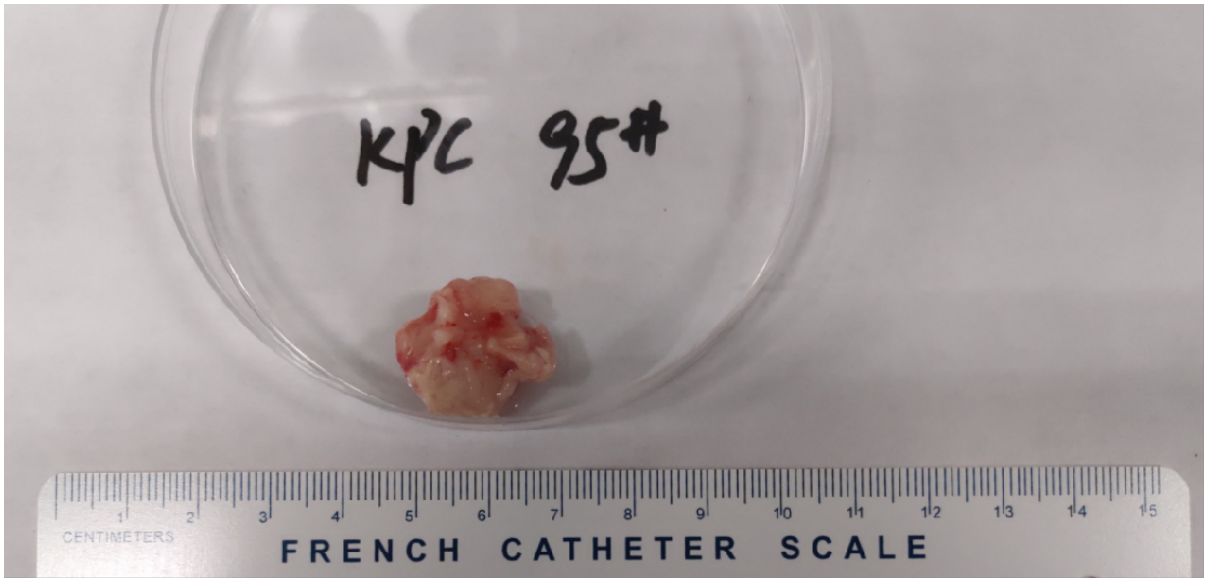
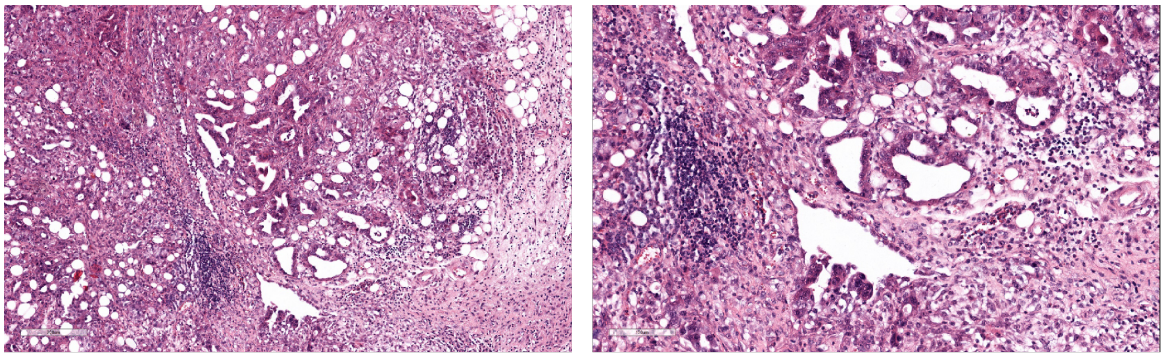


Fig1. The spontaneous pancreatic tumor of KPC mouse model with large volume, uneven surface and multiple nodular projections.



10× 20×

Fig2. H&E staining of pancreatic tumor from KPC mouse model.

The tumor cells from KPC mouse model demonstrated disorderly arranged pancreatic cells, irregular tissue structure, dilated pancreatic ducts, inflammatory cells infiltration and stromal fibrosis as was seen in pancreas adenocarcinoma.

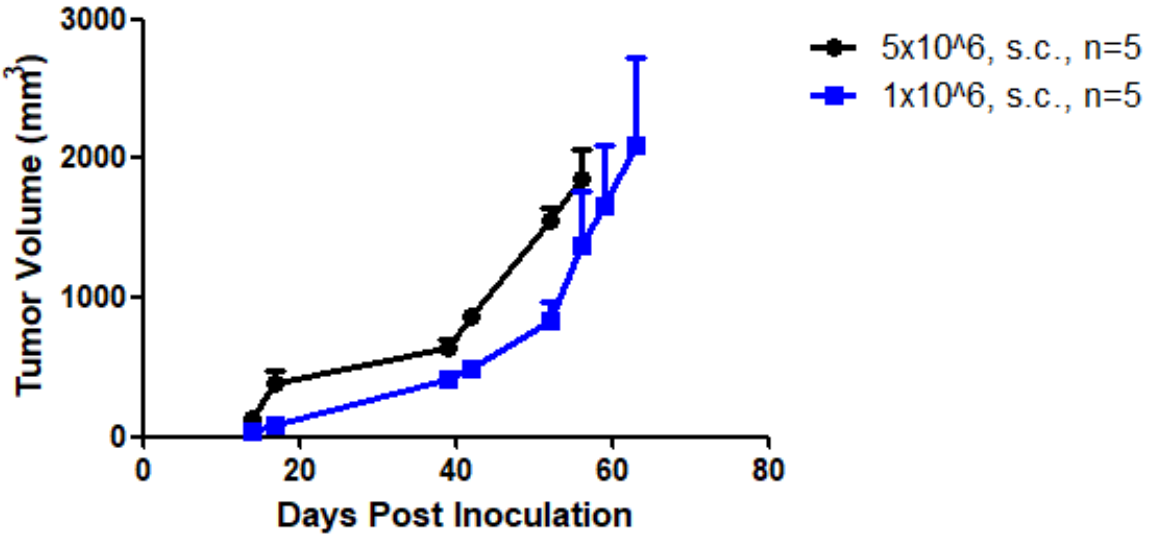


Fig3. Changes in pancreatic tumor volume of tumor-burdened mice.

Wild-type mice were inoculated with pancreatic tumor cells from KPC mice, and pancreatic tumors grew in size over time.

lung cancer model

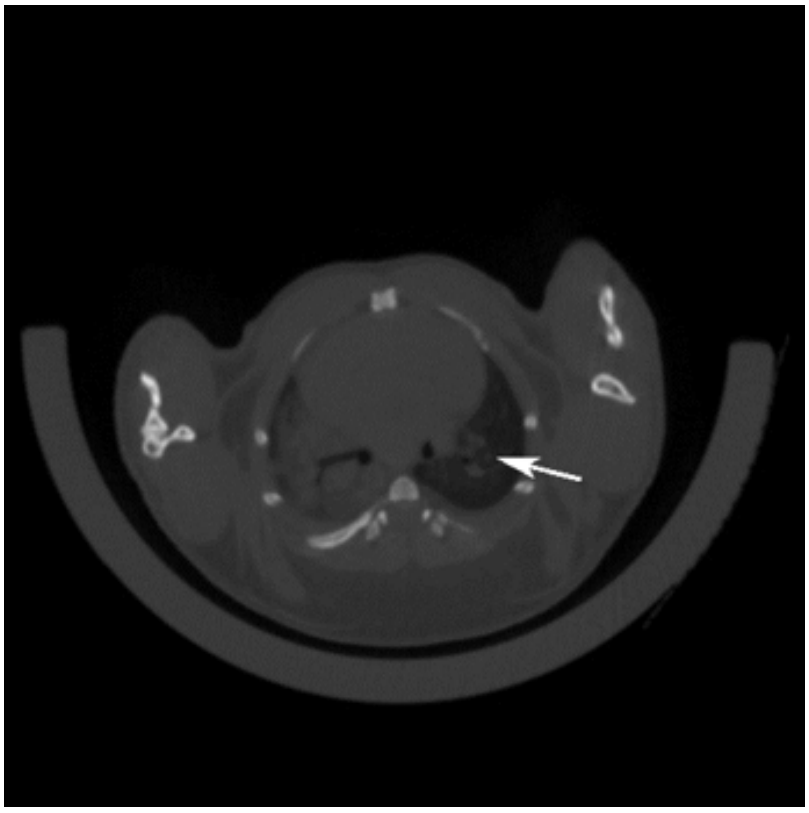


Fig1. Mice were anesthetized and administered AAV-Cre virus by intratracheal injection.

After 3 months, CT scan analysis of the lungs revealed significant tumor formation (arrow marks) in 42# mice.

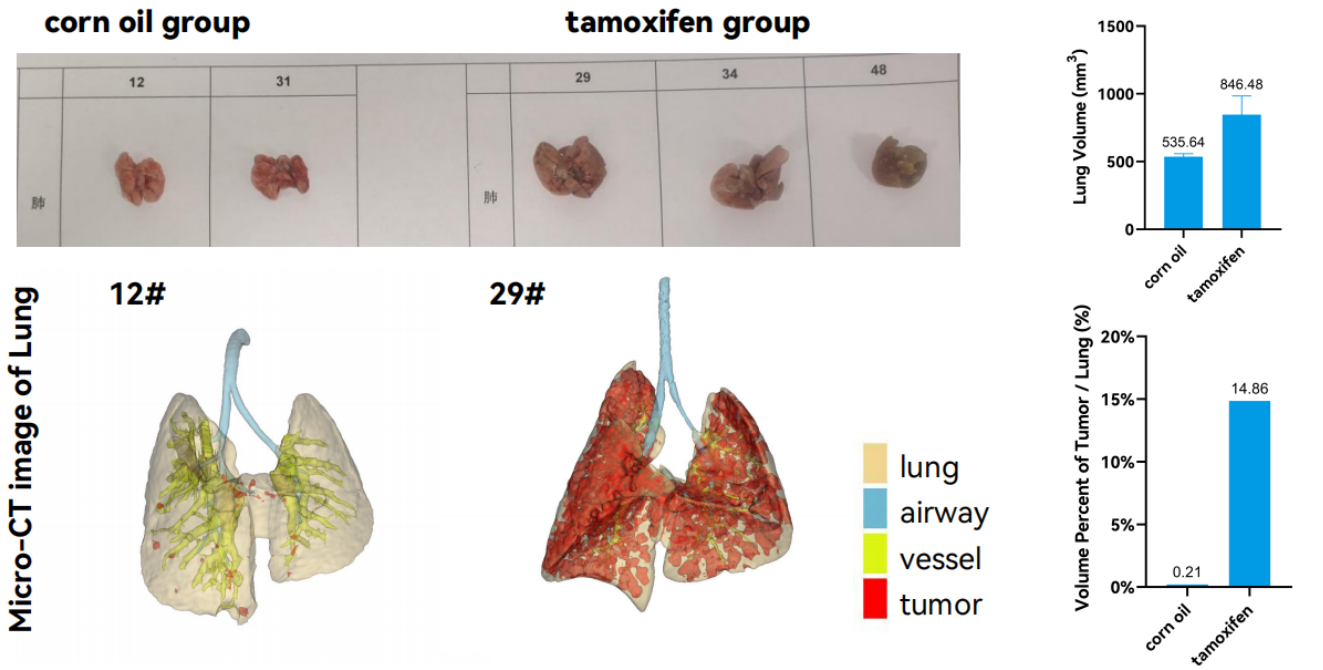


Fig2. CT scan analysis of Scgb1a1$^{CreERT2/+}$; Kras$^{G12D/+}$mice.

The mice were intraperitoneally injected with corn oil/tamoxifen 5 times, and their lungs were examined by CT 5 months later.

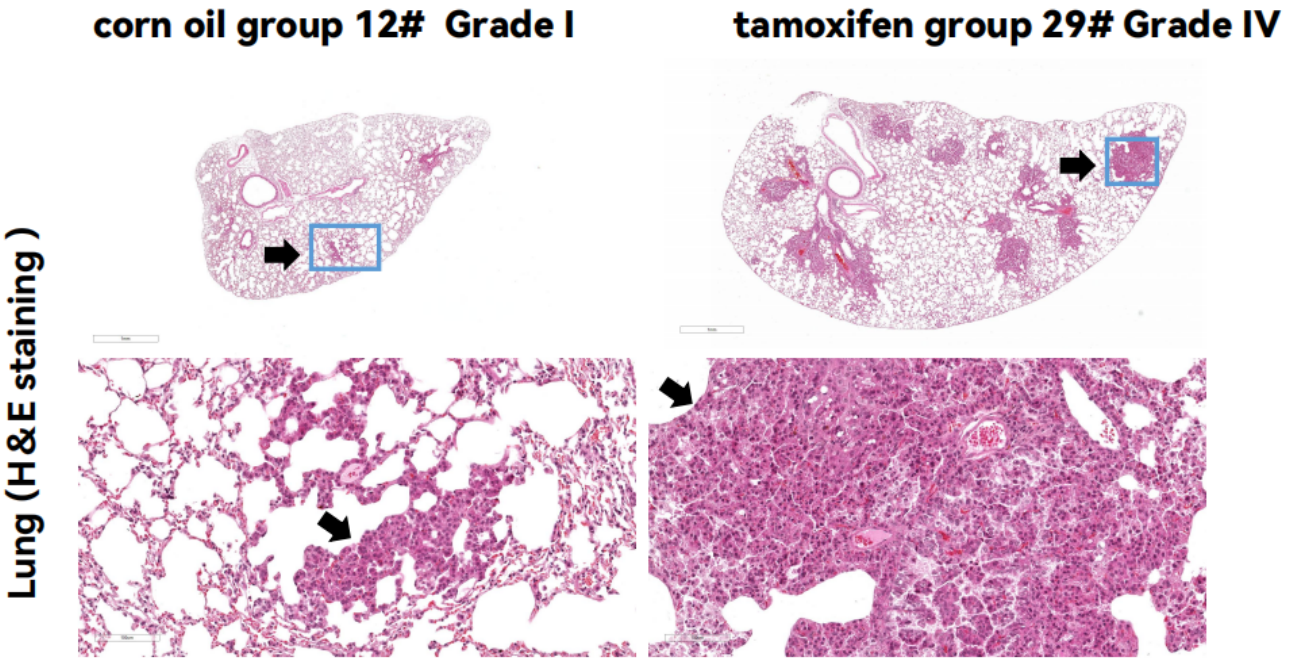


Fig3. H&E staining results of lung tissue of Scgb1a1$^{CreERT2/+}$; Kras$^{G12D/+}$mice.

The tumors are lung adenocarcinoma (Indicated by black arrow). Grade I and Grade IV : grading of animal tumor.

We have developed the mouse allograft lung cancer model (Fig. 4) from Kras$^{(LSL-G12D/+)}$ mice administered with AAV-Cre virus by intratracheal injection (Fig. 1). The mouse allograft lung cancer model grew robustly (Fig. 4) and it can provide improved operational simplicity needed for efficacy studies .

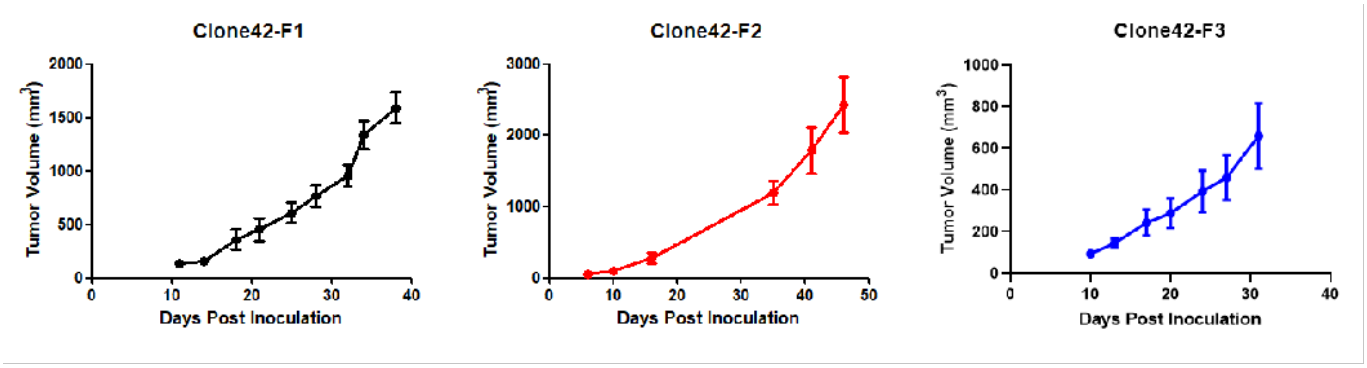


Fig4. The growth of tumors in C57BL/6 mice inoculated with lung cancer tumor from 42# mice.

Publications

The RNA binding protein RALY suppresses p53 activity and promotes lung tumorigenesis
References：Cell Reports

Chromatin Remodeling Induced by ARID1A Loss in Lung Cancer Promotes Glycolysis and Confers JQ1 Vulnerability
References：CANCER RESEARCH