KPC

Nomenclature	C57BL/6Smoc-*Trp53*$^{em4(R172H)}$*Kras*$^{em4(LSL-G12D)}$Tg(Pdx1-cre)Smoc
Cat. NO.	NM-KI-210096
Strain State	Repository Live

Gene Summary

Gene Symbol Trp53	**Synonyms**	bbl; bfy; bhy; p44; p53; Tp53
	NCBI ID	22059
	MGI ID	98834
	Ensembl ID	ENSMUSG00000059552
	Human Ortholog	TRP53
Gene Symbol Kras	**Synonyms**	Ki-ras; K-ras; Kras2; Kras-2
	NCBI ID	16653
	MGI ID	96680
	Ensembl ID	ENSMUSG00000030265
	Human Ortholog	KRAS
Gene Symbol pdx1	**Synonyms**	Ipf1， IDX-1， IPF-1， Mody4， STF-1， pdx-1
	NCBI ID	18609
	MGI ID	102851
	Ensembl ID	ENSMUSG00000029644

Model Description

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. The KPC mouse contains a dominant negative point mutation in the transformation related protein 53 gene (TP53R172H),

and a conditional activation point mutation in the KRAS gene (KRASG12D). A lox-stop-lox termination sequence is encoded upstream of KRAS mutated genes to prevent expression in the absence of Cre recombinase. The pancreas-specific Pdx-1 promoter enables expression of Cre recombinase in acini, islet and duct cells of the pancreas. Cre-mediated recombination excises the lox-stop-lox termination sequences and enables expression of KRASG12D in pancreatic tissue.

Research Application: Spontaneous pancreatic tumor

*Literature published using this strain should indicate: KPC mice (Cat. NO. NM-KI-210096) were purchased from Shanghai Model Organisms Center, Inc..

Disease Connection

Pancreatic Carcinoma	**Phenotype(s)**	
	Reference(s)	Pancreatology . 2020 Jan;20(1):79-88. doi: 10.1016/j.pan.2019.11.006. Epub 2019 Nov 18.

Validation Data

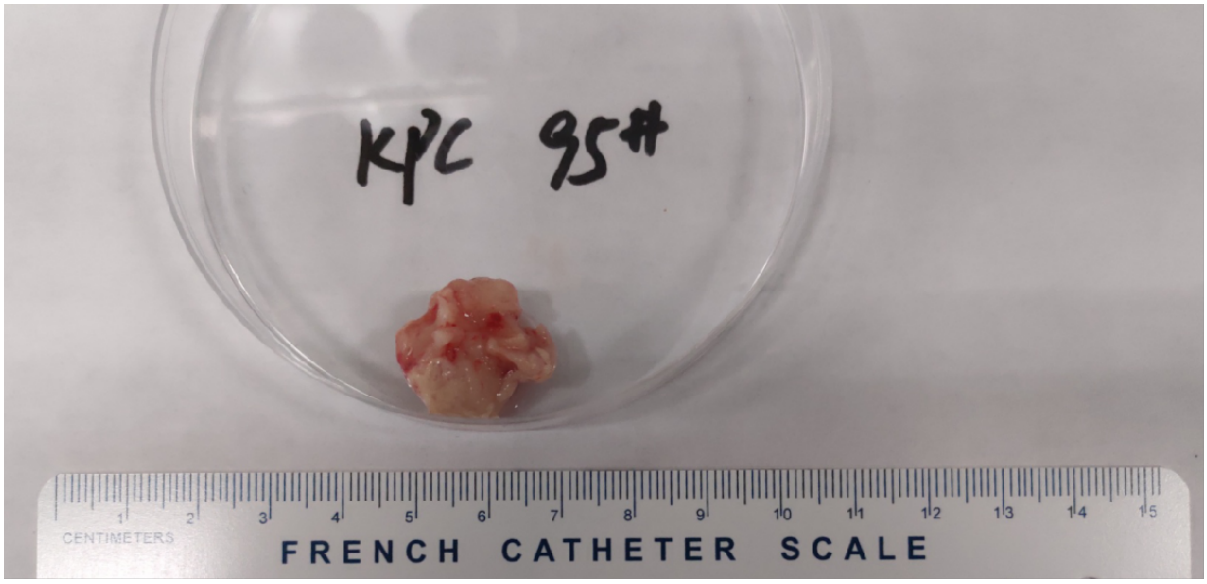
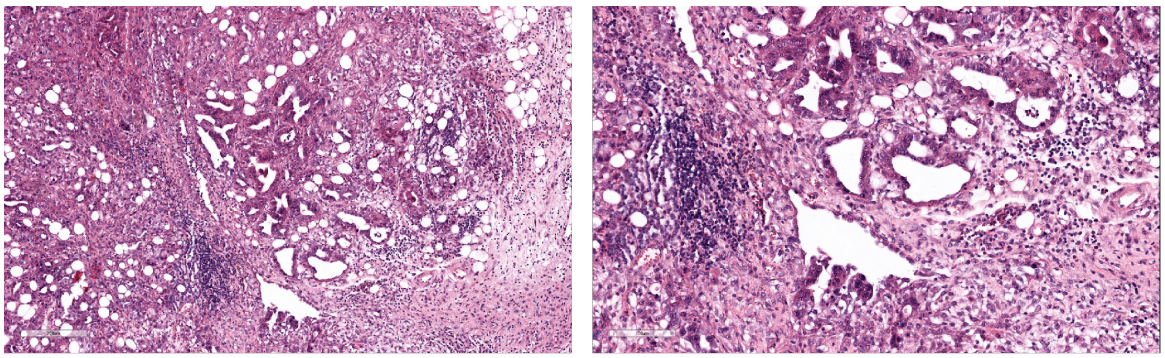


Fig 1 The spontaneous pancreatic tumor of KPC mouse model with large volume, uneven surface and multiple nodular projections.



10× 20×

Fig 2 HE 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.