Mathematical Biosciences and Engineering

Research article

A TP53-associated immune prognostic signature for the prediction of the overall survival and therapeutic responses in pancreatic cancer

Yi Liu[1], Long Cheng[2], Xiangyang Song[3], Chao Li[1], Jiantao Zhang[1],* and Lei Wang[1],*

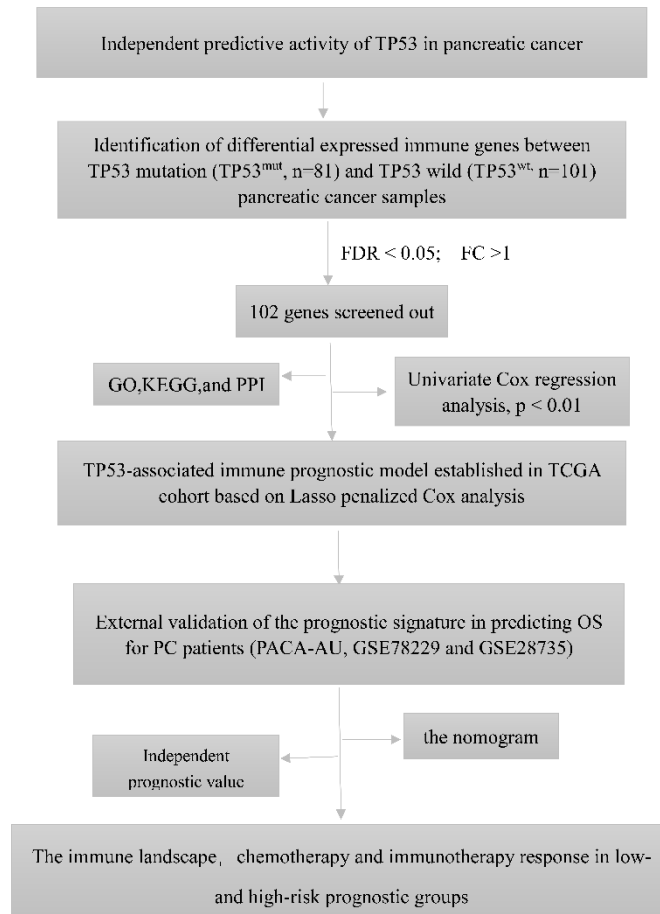[1] Department of Colorectal and Anal Surgery, The First Hospital of Jilin University, Changchun, Jilin, China
[2] Department of Orthopedics, The First Hospital of Jilin University, Changchun, Jilin, China
[3] Department of Hepatobiliary and Pancreatic Surgery, The First Hospital of Jilin University, Street Xinmin 71, Changchun, China
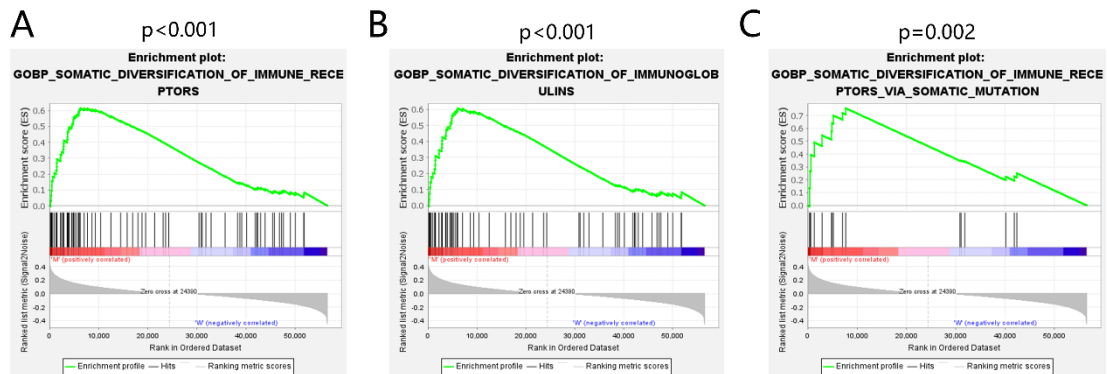
* **Correspondence**: Email: leiwang1967@163.com, zjt@jlu.edu.cn.
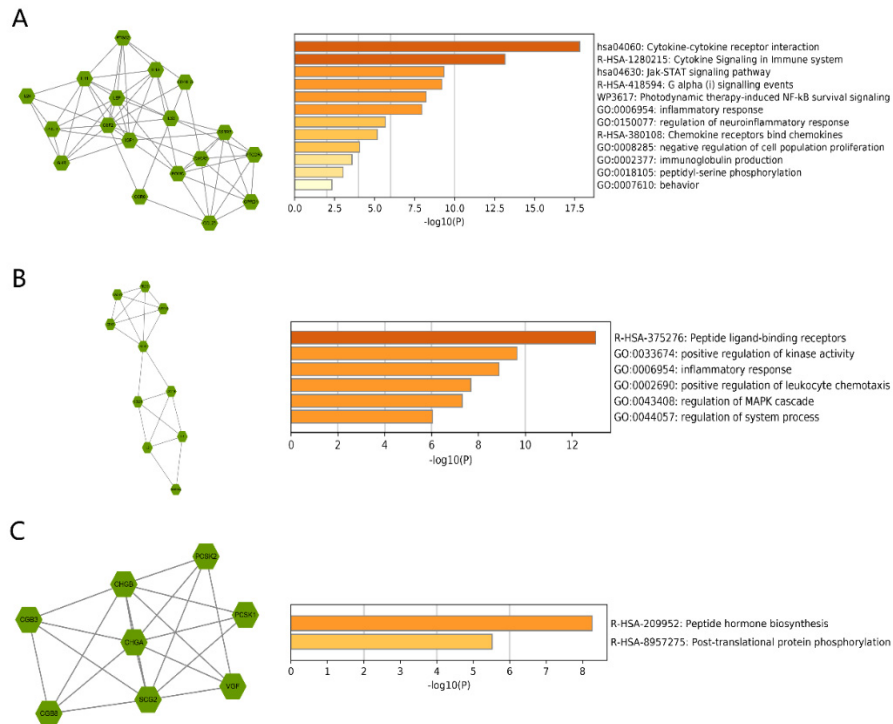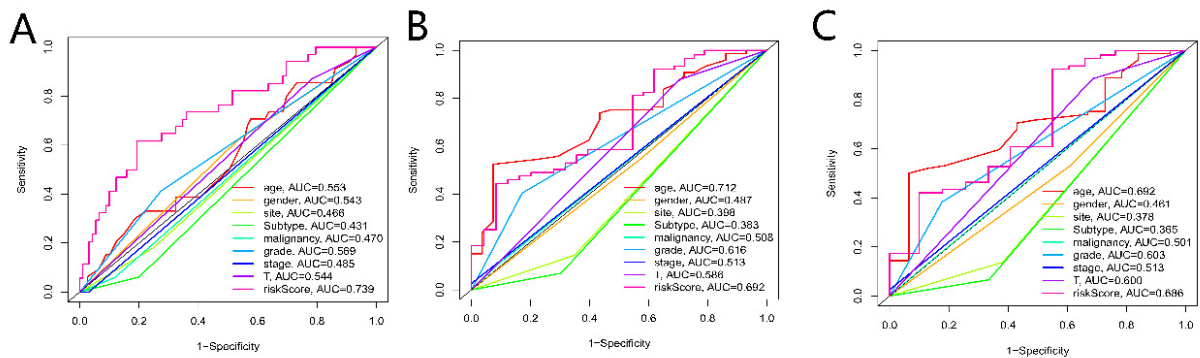
Supplementary

Figure S1. The workflow chart of this study. (OS: overall survival).

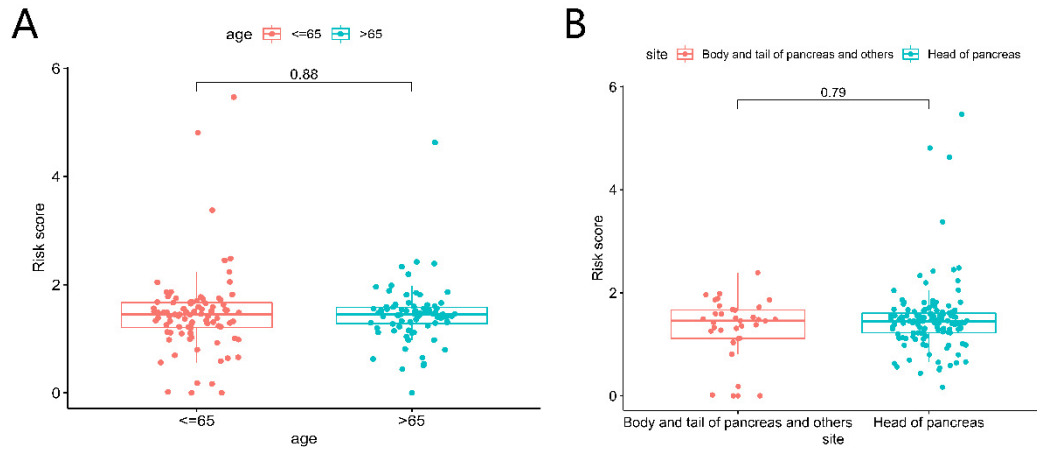Figure S2. Significant enrichment of immune-related biological processes in TP53 [mut] PC patients compared with TP53[wt] PC patients. (TP53[mut]: TP53 mutation type; TP53[wt]: TP53 wild type; PC, pancreatic cancer).

Figure S3. The three significant modules in the PPI network. (A). PPI network of the 18 TP53-related DEIGs in Module 1 and functional enrichment analysis of module 1. (B). PPI network of the 10 TP53-related DEIGs in Module 2 and functional enrichment analysis of module 2. (C). PPI network of the TP53-related DEIGs in Module 2 and functional enrichment analysis of module 2. (DEIGs, differentially expressed immune-related genes; Cytoscape (https://cytoscape.org/; version 3.7.1); Metascape (http://metascape.org/gp/index)).

Figure S4. 1- (A), 2- (B), and 3-year (C) time-dependent ROC analysis of TIPM, age, gender, site, subtype, history of prior malignancy, grade, and TMN staging. (TIPM: TP53-associated immune prognostic signature; TCGA, The Cancer Genome Atlas; TMB: tumor mutation burden).

Figure S5. The correlation between risk score and age(A), site (B) in TCGA pancreatic cancer patients.

Table S1. Clinical data of pancreatic cancer patients in TCGA, ICGC (PACA-AU), and GEO (GSE78229 and GSE28735) databases.

Variable	TCGA (with intact survival time) (n = 184)	PACA-CA (with intact survival time) (n = 246)	PACA-AU (with intact survival time) (n = 450)	GSE28735 (with intact survival time) (n = 42)	GSE78229(with intact survival time) (n = 49)
Gender					
male	101	136	244	NA	NA
female	83	108	206	NA	NA
Age (years)					
<= 65	96	118	253	NA	NA
>65	88	107	197	NA	NA
Grade					
G1	31	NA	NA	NA	2
G2	97	NA	NA	NA	24
G3	51	NA	NA	NA	21
G4	2	NA	NA	NA	1
GX	3	NA	NA	NA	1
Stage					
Stage I	21	NA	NA	NA	4
Stage II	151	NA	NA	NA	44
Stage III	4	NA	NA	NA	0
Stage IV	5	NA	NA	NA	1
unknow	3	NA	NA	NA	NA
Survival status					

Death	100	185	287	29	35
Alive	84	61	163	13	14
Survival time					
>= 5years	8	10	6	0	3
< 5 years	176	236	444	42	46

NA: not applicable.