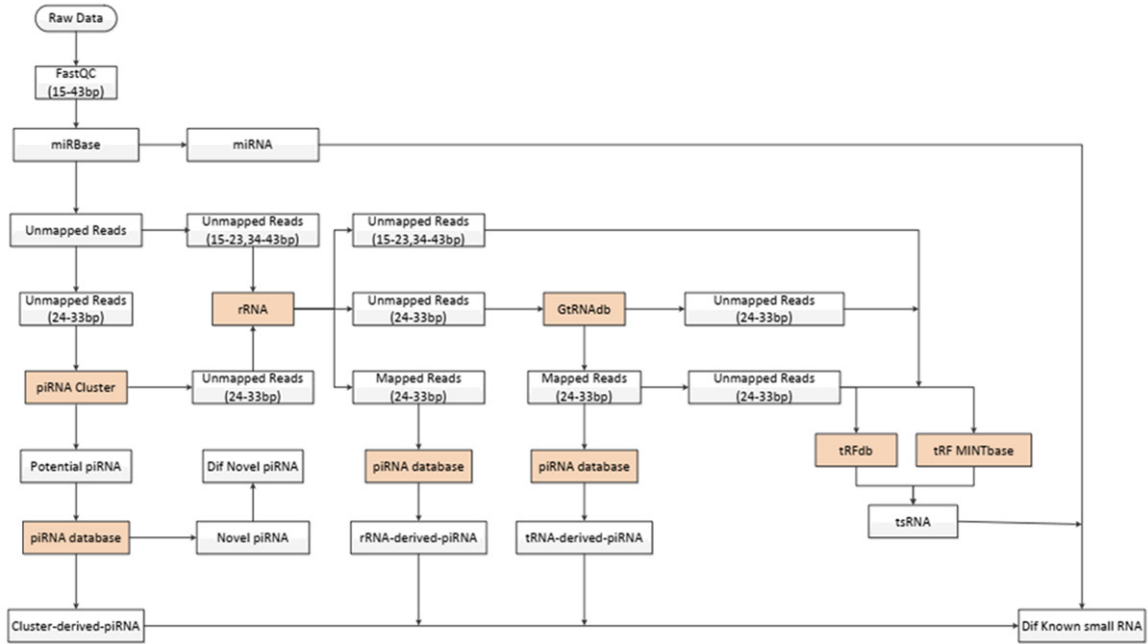
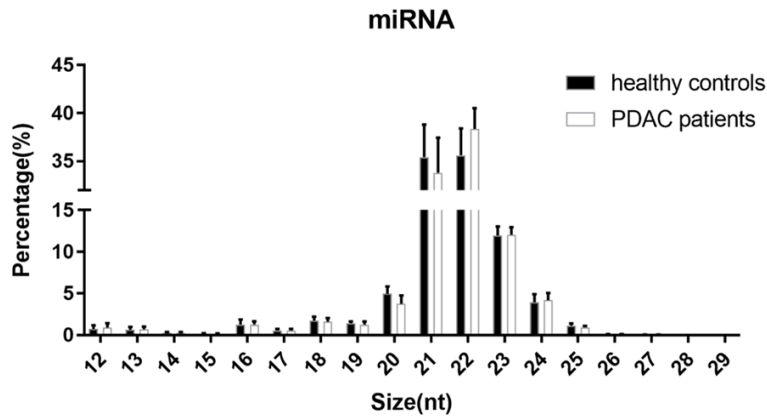


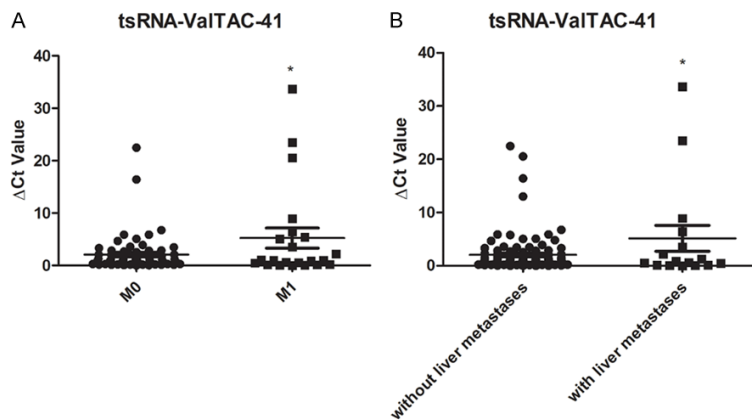
# tsRNAs as diagnostic markers for pancreatic ductal adenocarcinoma



Supplementary Figure 1. Flow-chart of specific steps in small RNA sequencing.

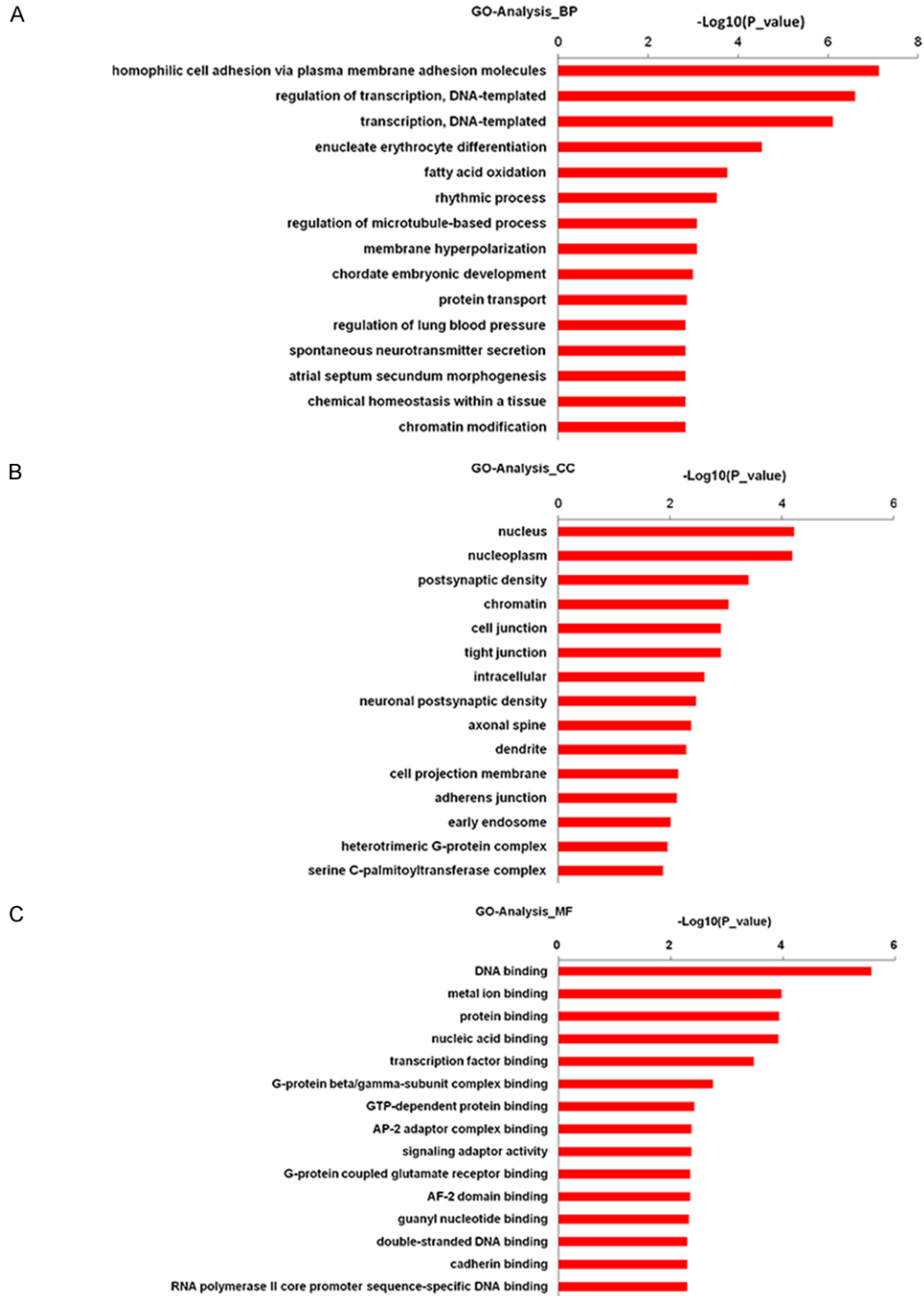


Supplementary Figure 2. Slightly different trend was found in length of miRNAs between PDAC patients and healthy controls. Most miRNAs ranged from 20 nt to 24 nt in length. The level of miRNAs with 20 nt and 22 nt showed differentially expressed tendency ( $P = 0.055$  and  $0.088$  respectively).

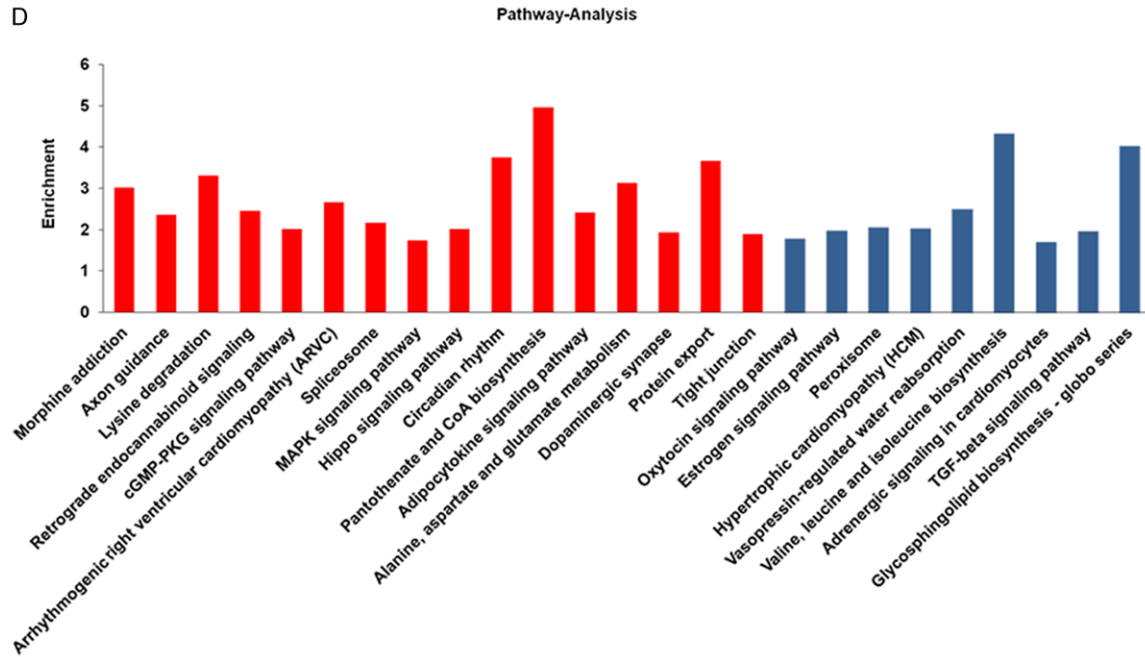


# tsRNAs as diagnostic markers for pancreatic ductal adenocarcinoma

**Supplementary Figure 3.** tsRNA-VaITAC-41 expression in serum showed significant higher in patients in M1 stage (A) as well as patients with liver metastases (B).



# tsRNAs as diagnostic markers for pancreatic ductal adenocarcinoma



**Supplementary Figure 4.** Target gene prediction and function analysis of tsRNA-ValTAC-41. GO enrichment analysis (A-C) and KEGG pathway analysis (D) predicted tsRNA-ValTAC-41 targets.