EP 096

Hypoxic Pancreatic Cancer Derived Exosomal MiR-30b-5p Promotes Tumor Angiogenesis By Inhibiting GJA1 Expression

Xiaodong TIAN[1], Kai CHEN[1], Yinmo YANG*[1]

[1]*General Surgery, Peking University First Hospital, CHINA*

Background : Most patients with pancreatic ductal adenocarcinoma (PDAC) have vascular invasion and metastasis, leading to low surgical resection rate and dismal prognosis. Tumor angiogenesis is closely related to vascular invasion and metastasis. However, anti-angiogenesis therapeutic effects in PDAC are limited. It is imperative to explore molecular mechanism of angiogenesis in PDAC.

Methods : We utilized scRNA-seq data to delineate the transcriptional profiles of endothelial cells in PDAC. The angiogenesis models in vitro and vivo were used to explore the role of PDAC derived exosomes under hypoxic condition in tumor angiogenesis.

Results : Here, we found that endothelial cells in PDAC had distinct gene expression profiles compared with normal pancreas. The marker genes of endothelial cells in PDAC were enriched for hypoxia and angiogenesis. MiR-30b-5p were significantly enriched in hypoxic PDAC cells derived exosomes, which could be transferred to HUVEC, resulting in the upregulation of miR-30b-5p. Hypoxic PDAC cells derived exosomes could promote tube formation and endothelial cells migration via miR-30b-5p mediated downregulation of gap junction protein GJA1. Moreover, hypoxic PDAC cells derived exosomes increased new microvascular density in vivo. Patients with PDAC had higher levels of total miR-30b-5p and exosomal miR-30b-5p in peripheral blood plasma than healthy subjects. In addition, there were significant correlations for the levels of total miR-30b-5p or exosomal miR-30b-5p between peripheral blood plasma and portal vein plasma.

Conclusions : Hypoxic PDAC cells derived exosomal miR-30b-5p promoted angiogenesis by inhibiting GJA1, and miR-30b-5p was a potential diagnostic marker for PDAC.

Corresponding Author : **Yinmo YANG** (YangyinmoSCI@bjmu.edu.cn)