Lactobacillus Attenuate the Progression of Pancreatic Cancer Promoted by Porphyromonas Gingivalis in K-ras^{G12D} Transgenic Mice

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Simple Summary: Pancreatic cancer is aggressive and lethal with a five year survival rate of only 5–9%. While the exact pathogenesis of pancreatic cancer is not fully understood, oral pathogens associated with periodontitis, such as Porphyromonas gingivalis (P. gingivalis), are linked to the disease. The aim of our study was to investigate the causal association between exposure to P. gingivalis and subsequent carcinogenesis, and the potential modulatory effects of probiotics. We demonstrated that oral exposure to P. gingivalis can accelerate the development of pancreatic ductal adenocarcinoma in mouse models. In addition, the transforming growth factor-β (TGF-β) signaling pathway may be involved in the cancer-promoting effect of P. gingivalis and the suppressive effects of probiotics. Further understanding of the mechanisms of tumor-promoting or tumor-suppressing effects of TGF-β signaling may have potential as a treatment for pancreatic cancer.

Abstract: Accumulating evidence suggests that there is a link between the host microbiome and pancreatic carcinogenesis, and that Porphyromonas gingivalis (P. gingivalis) increases the risk of developing pancreatic cancer. The aim of the current study was to clarify the role of P. gingivalis in the pathogenesis of pancreatic cancer and the potential immune modulatory effects of probiotics.