1. No.
   2018G003

2. Title
   Exploration of Novel Biomarkers for Early Pancreatic Cancer Through Organoid-based Pancreatic Cancer Model

3. Period
   2018-2022

4. Summary
   Pancreatic cancer is a typical treatment-resistant solid tumor with a very poor prognosis, but there is a lack of appropriate early detection methods or effective drug therapy for advanced cancer. We reported a novel mouse pancreatic organoid model of pancreatic carcinogenesis, in which cancer-related genes are transfected into pancreatic organoids of normal mice and transplanted subcutaneously into immunodeficient mice, resulting in the formation of tumors with a histological profile similar to human pancreatic cancer. As validation of the usefulness of this model, we screened for drugs that inhibit the growth of the obtained tumor organoids (pancreatic K5-SC organoids), and several candidate drugs were identified. A similar screening was also performed on tumor organoids (intestinal K5-SC) obtained from a carcinogenesis model using intestinal organoids, and the results were compared. Many drugs were common to both. Furthermore, *in vivo* administration of the most effective agents obtained in the screening showed significant growth inhibition compared to the control group. Additionally, the top eight drugs obtained in the K5-SC screening generally showed the same strong growth inhibition effect in A5-SC. These results suggest the usefulness of organoid-based carcinogenesis models.