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Development of a novel EUS-compatible cryoablation device for the in situ treatment of pancreatic cancerJohn M Baust
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There is a pressing need for the development of new devices facilitating advanced minimally invasive approaches for the in situ treatment of pancreatic cancer (PaCa). Additionally, studies now suggest that combinatorial approaches may provide for personalization of strategies to treat PaCa. While promising the development of personalized, minimally invasive, combinatorial therapies has been slowed as a result of technological limitations. To this end, we have developed an endoscopic ultrasound (EUS) compatible cryo catheter (*FrostBite*) designed for the transesophageal in situ ablation of PaCa. *FrostBite* has a 13cm long 17 gauge needle with a 3cm ablation tip attached to a ~1m flexible catheter to enable passage through the working channel of a EUS endoscope. Studies have demonstrated the generation of a 3.0 cm diameter iceball with a tip temperature of $\leq 170^{\circ}\text{C}$ and penetration of the -40 and -20°C isotherms to 2 cm and 2.5 cm, respectively following a 5 min freeze. Analysis of tissue destruction using tissue engineered PaCa tumor revealed a >2.5 cm ablation area 1 day post freeze. Pilot in vivo studies in a porcine model demonstrated the generation of a 2 cm freeze zone within 4 minutes. This presentation will discuss performance testing of the *FrostBite* EUS-cryo catheter in conjunction with the supercritical nitrogen (SCN) cryoablation system. Additionally, discussion of the impact of adjunctive drug based treatments with freezing to provide for more targeted and personalized treatment paradigm will be included. Together, these studies have demonstrated the potential of this new approach to provide a next-generation strategy for the treatment of PaCa.

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Translational research in pancreatic cancer: The experience of Peking Union Medical College HospitalJunchao Guo
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As the key department of Peking Union Medical College Hospital (PUMCH), translational research of pancreatic cancer (PanC) in the center of pancreatic surgery is a long traditional department in PUMCH and was established in 1950's by Prof. Xianjiu Zeng. It published the first scientific paper in pancreatology in China and enjoys the best prestige in the fields of pancreatic endocrine and exocrine tumor in China. In 2010, we established the first pancreatic consultation center in PUMCH to carry out multidisciplinary treatment (MDT). There were 9 GI-related clinical departments with strong faculty support. 22 eminent professors and specialists were involved. Up to now, more than 100 joint consultations have been held, and 700 cases of patients gained benefits. Our research targets of prevention and control measures of pancreatic cancer are based on three levels: 1. etiologic factors; 2. early diagnosis and treatment; 3. comprehensive therapy. Seven research projects are undergoing in our center, including: 1. Building national biological specimen bank and data center; 2. Creating three pancreatic cancer progression models; 3. Formulating reliable methods in early diagnosis of pancreatic cancer; 4. Exploring the mechanism of chemotherapy resistance; 5. Investigating tumor specific SNVs by exon sequencing; 6. Establishing a pancreatic cancer treatment network in China. 7. Searching the protein net of pancreatic cancer. From 2002 to 2012, our center got 45 research projects supported by Chinese government and the research funding was close to 50 million Yuan. Up to now, we have collected 1,916 cases of PanC samples and 9,975 cases of other biologic samples of PanC. It is the first time to discover five cancer related miRNA (hsa-let-7c, hsa-miR-122-5p, hsa-miR-451a, hsa-miR-142-5p, and hsa-miR-199a-3p) by our center which may be useful for early diagnosis of PanC, and to build the largest animal model data of PanC in the world. The achievements we have got include: one experts consensus; two sample libraries; two patient information data libraries; three technology platforms; 164 article; five patents; three books; thirty five research projects and 129 students.

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