108-1 學士班特別演講活動成果報告

活 動 名 稱	【108-1 學士班特別演講】Pancreatic Cancer：Precision medicine		
活動日期時間	108 年 10 月 23 日(三) 13:30 ~15:10	活 動 地 點	正心樓 0813 教室
活動參與人數	40 人	活 動 對 象	營養學系師生

一、活動重點及目的：

It's our pleasure to invite Dr. Gloria Su to Chung Shan Medical University. Her presentation is about pancreatic cancer: precision medicine. The followings are overview of Dr. Su.

Academic Appointments

- Professor of Pathology and Cell Biology (in Otolaryngology/Head and Neck Surgery and in the Herbert Irving Comprehensive Cancer Center) at CUMC

Email: gs2157@columbia.edu

Education & Training

- BA, Biological Sciences, Northwestern University
- PhD, Immunology, University of Chicago

Honors & Awards

- 2015 Distinguished Achievement Award from Shanghai Tongji University East Hospital for exceptional contribution to pancreatic cancer research and clinical management
- 2014 Ruth Leff Siegel Award for Excellence in Pancreatic Cancer Research

Dr. Gloria Su and her laboratory study the molecular genetics of head and neck squamous cell carcinoma (HNSCC) and pancreatic ductal adenocarcinoma, as well as mouse modeling needed for both cancer types. HNSCC and pancreatic ductal adenocarcinoma are both results of accumulated genetic alterations. Both cancer types share some common oncogenes and tumor-suppressor genes (e.g. p16 and p53), but each has its unique targeted mutations (e.g. Cyclin D1 for HNSCC and K-ras for pancreatic cancer). We continue to compare and contrast the molecular genetic profiles of these two cancer types using both broad genome-scanning approach and candidate-gene approach. By establishing the cancer genetic profiles, we hope to reveal new prognostic markers, discover tumor marker for early detection analysis, and develop chemopreventive and therapeutic treatments that target tumor-specific pathways.

Dr. Su's laboratory has developed multiple genetically-engineered mouse models that recapitulate human pancreatic cancer at both genetic and histologic levels. Using these genetically-engineered mouse models, Dr. Su's team is interrogating the biology of tumor development, progression, and metastasis. Notably, her team has reported that the loss of the wild-type *KRAS* is associated with pancreatic cancer metastasis in mice and in humans. They have also demonstrated that the inactivation of different tumor-suppressor genes

following *Kras* activation may influence the dichotomy of PanIN and IPMN (pancreatic precancerous lesions) development and progression. Specifically, the inactivation of the activin signaling preferentially promotes the development of IPMN. In addition to mouse modeling, Dr. Su and her team have contributed to our understanding of the cancer genetics of human IPMN and recently shown that the dysregulation of the PI3K-PTEN signaling pathway is associated with poor prognosis among IPMN patients.

Research Interests

- Genetic profiling of human pancreatic cancer and head and neck cancer, and mouse modeling for both cancer types

Grants

THE DEVELOPMENT AND PROGRESSION OF IPMN TO PDA IN THE CONTEXT OF INACTIVATED ACTIVIN SIGNALING (Federal Gov)

Mar 15 2017 - Feb 28 2022

GENOMICS AND MECHANISMS OF ESOPHAGEAL CARCINOGENESIS (Federal Gov)

Sep 21 2016 - Aug 31 2021

THE ROLE OF WILD-TYPE KRAS IN THE CONTEXT OF TUMOR PROGRESSION AND METASTASIS (Federal Gov)

May 1 2015 - Apr 30 2020

PATHWAY-SPECIFIC EXOSOMAL PROFILING IN MURINE MODELS OF HEAD AND NECK SQUAMOUS CELL CARCINOMA (Private)

Apr 1 2016 - Mar 31 2017

MOUSE MODEL FOR HUMAN PANCREATIC DUCTAL ADENOCARCINOMA (Federal Gov)

Sep 1 2004 - Mar 31 2017

PREDICTING PANCREATIC CANCER RESPONSES IN A PARP INHIBITOR-BASED CINICAL TRIAL (Federal Gov)

Sep 30 2009 - Aug 31 2013

NOTCH DECOY TARGETING THE NOTCH SIGNALING PATHWAY IN PANCREA TIC CANCER (Private)

Jul 1 2010 - Jun 30 2012

THE TUMOR-SUPPRESSIVE ROLE OF ALK4/ACVR1B IN PANCREATIC TUMO RIGENESIS (Federal Gov)

Jul 1 2008 - Jun 30 2011

Selected Publications

- W. Qiu, H. E. Remotti, S. M. Tang, E. Wang, L. Dobberteen, A. L. Youssof , J. H. Lee, E. C. Cheung, and **G. H. Su**. Pancreatic DCLK1+ Cells Originate Distinctly from PDX1+ Progenitors and Contribute to the Initiation of Intraductal Papillary Mucinous Neoplasm in Mice. *Cancer Letters* 2018; 423:71-79 (Epub 2018, March 8).
- C. C. Yu, W. Qiu, C. S. Juang, M. M. Mansukhani, B. Halmos, **G. H. Su**. Mutant allele specific imbalance in oncogenes with copy number alterations: occurrence, mechanisms, and potential clinical implications. *Cancer Letters* 2017, January; 384:86-93 (Epub 2016 Oct 8).
- W. Qiu, S. M. Tang, S. Lee, A. T. Turk, A. N. Sireci, A. Qiu, C. Rose, C. Xie, J. Kitajewski, H.-J. Wen, H. C. Crawford, P. A. Sims, R. H. Hruban, H. E. Remotti, **G. H. Su.** Loss of Activin Receptor Type 1B Promotes Development of Intraductal Papillary Mucinous Neoplasms in Mice with Activated KRAS. *Gastroenterology* 2016; 150 (1)218-228 (Epub Sept 22, 2015).
- D. Garcia-Carracedo, C. C. Yu, N. Akhavan, S. A. Fine, F. Schönleben, N. Maehara, D. C. Karg, C. Xie, W. Qiu, R. L. Fine, H. E. Remotti, **G. H. Su.** Smad4 loss synergizes with TGFalpha overexpression in promoting metaplasia, PanIN development, and fibrosis. *PLoS One* 2015, Mar 24;10(3):e0120851. PMCID: PMC4372593
- D. Garcia-Carracedo, A. T. Turk, S. A. Fine, N. Akhavan, B. C. Tweel, R. Parsons, J. A. Chabot, J. D. Allendorf, J. M. Genkinger, H. E. Remotti, **G. H. Su**. Loss of PTEN expression is associated with poor prognosis in patients with intraductal papillary mucinous neoplasms of the pancreas. *Clin Cancer Research* 2013, 19(24):6830-41. (Epub Nov 12, 2013). PMID: 24132918
- W. Qiu, F. Sahin, C.A. Iacobuzio-Donahue, Dario Garcia-Carracedo, W. M. Wang, Chia-Yu Kuo, Dan E. Arking, A. M. Lowy, R. H. Hruban, H. E. Remotti, **G. H. Su.** Disruption of *p16* and Activation of *Kras* in Pancreas Increases Ductal Adenocarcinoma Formation and Metastasis in vivo. *Oncotarget 2011,* 2:862-73 (Epub Nov 23, 2011).
- W. Qiu, X. Li, H. Tang, A. S. Huang, A. A. Panteleyev, D. M. Owens, **G. H. Su**. Conditional activin reporter type IB (Acvr1b) knockout mice revealed hair loss abnormality. *Journal of Investigative Dermatology* 2011, 131:1067-76 (Epub Dec 2010).
- F. Schönleben, W. Qiu, N. T. Ciau, D. J. Ho, X. Li, J. D. Allendorf, H. E. Remotti, **G. H. Su.** *PIK3CA* mutations in intraductal papillary mucinous neoplasm/carcinoma (IPMN/IPMC) of the pancreas. *Clinical Cancer Research* 2006, 12:3851-5.
- W. Qiu, , X. Li, D. J. Ho, L. G. Close, S. Manolidis, B. P. Bennett, **G. H. Su.** *PIK3CA* mutations in head and neck squamous cell carcinoma. *Clinical Cancer Research* 2006, 12:1441-6.

Dr. Su's talk is very professional about precision medicine. The audience pay great attention for this presentation and have active question and answer. In addition, several medical doctors from Chung Shan Medical University hospital also join this speech. After her talk, we also visit hospital and talk about the future cooperation.

二、活動剪影：

演講開始前，學生陸續簽到

主持人開場介紹講者

演講開始

演講進行中

演講進行中

全場認真聆聽講者專業演說

致贈感謝狀

演講結束後主持人合照留影