Bridging the Gap
End of Research and First Faculty Appointment
Basic Science Breakout Session
AAS Fall Courses | 21 October 2017

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Memorial Sloan Kettering Cancer Center™

#AASFC17

@AcademicSurgery

Disclosure(s)

I have *recently* made these transitions

I like to operate AND I love science. . . . . .

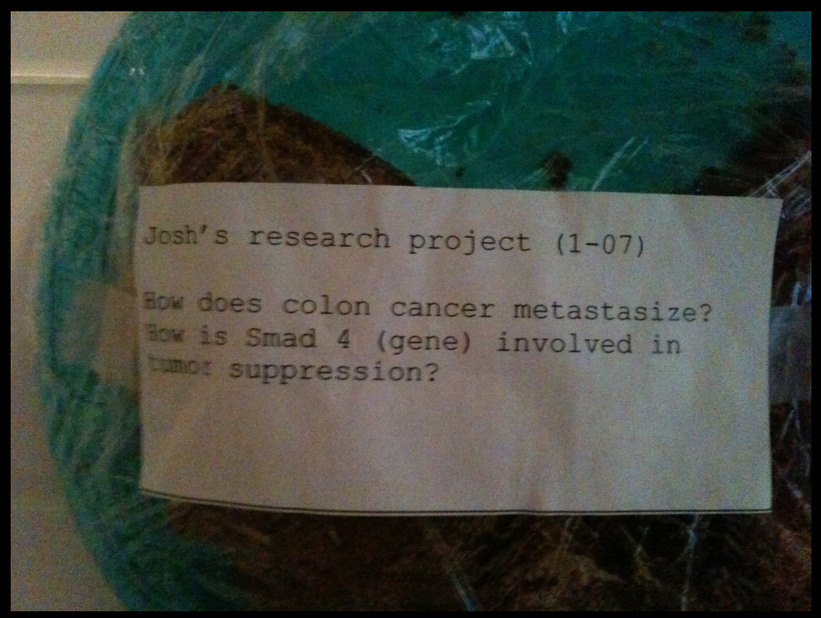
This talk is based on experience and opinion not formal analysis OR data

Objectives

- My story (briefly)—more importantly what's your story?
- Challenges in re-integrating back into clinical work: Oh the tension!
- Finishing and staying involved
- Passion, Perseverance and Commitment
- Unique/Expert advice, Transition to Faculty and Conclusions

My Story: Beer, Biology and Behinds

DNA → RNA → Protein

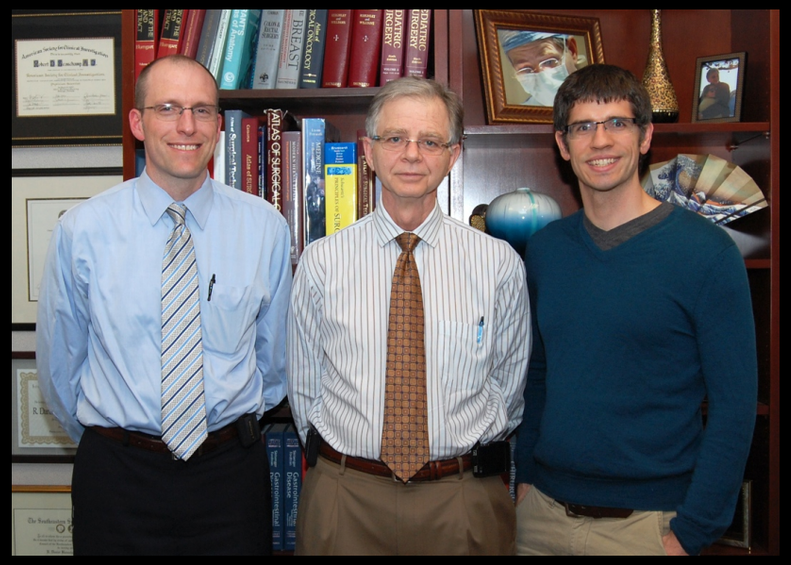


Mentorship, collaboration and encouragement: KEY

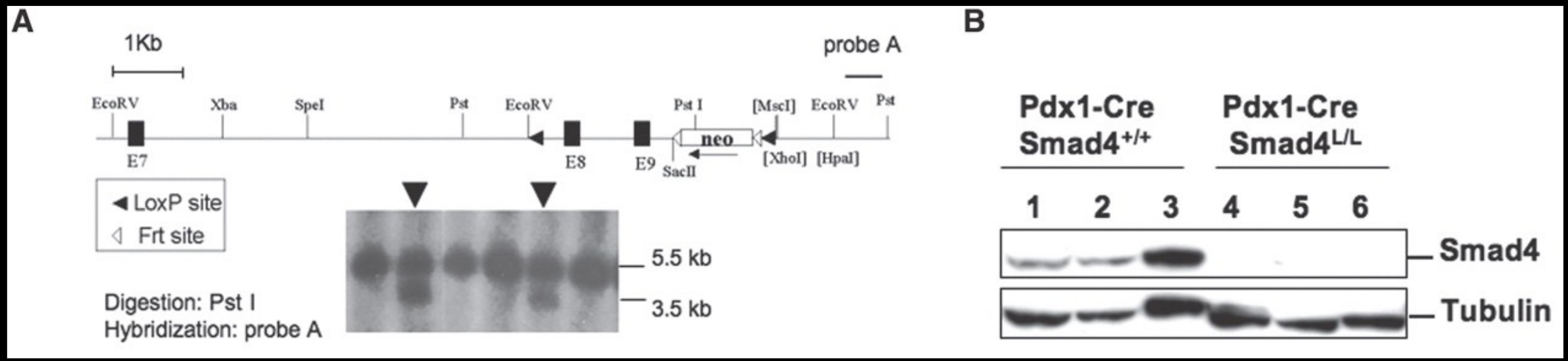
Support & Inspiration: Family, Friends

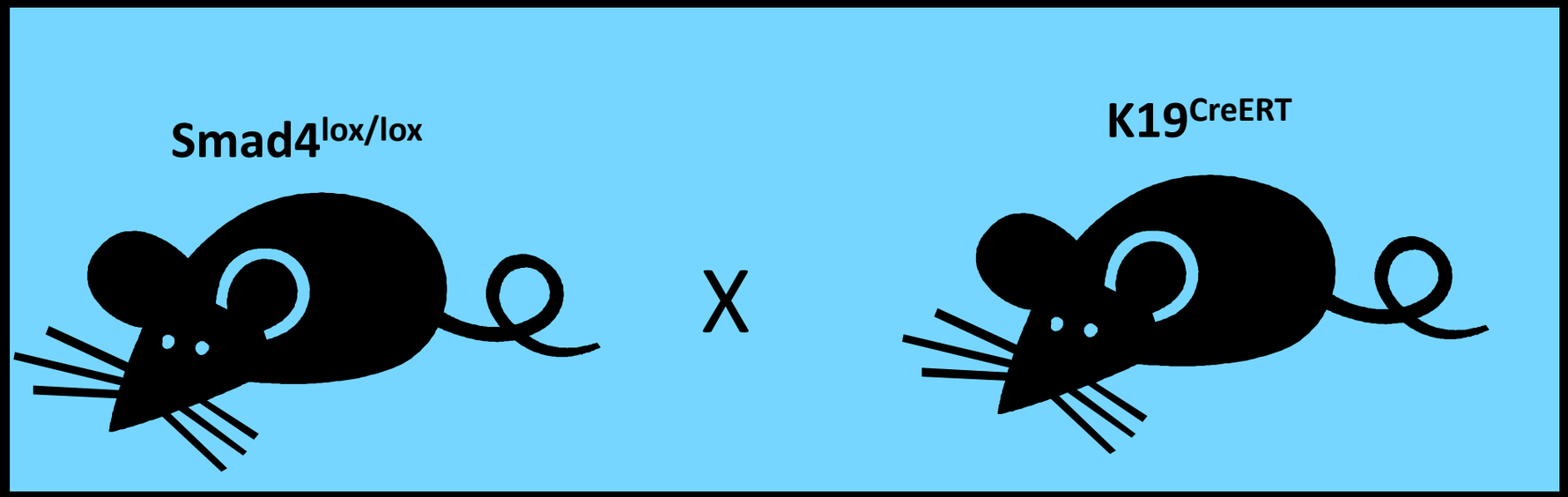
SMAD4-related surgical diseases

- Colorectal Cancer
- Juvenile Polyposis (JP)
- Hereditary hemorrhagic telangiectasia (HHT)
- Thoracoabdominal aortic aneurysms in association w JP
- Cholangiocarcinoma
- Pancreas cancer
- Intra-ductal mucinous neoplasm of the pancreas
- Ampullary adenocarcinoma
- Oral and esophageal squamous cell carcinoma



Generation of an Inducible, Tissue-Specific Smad4 Knockout

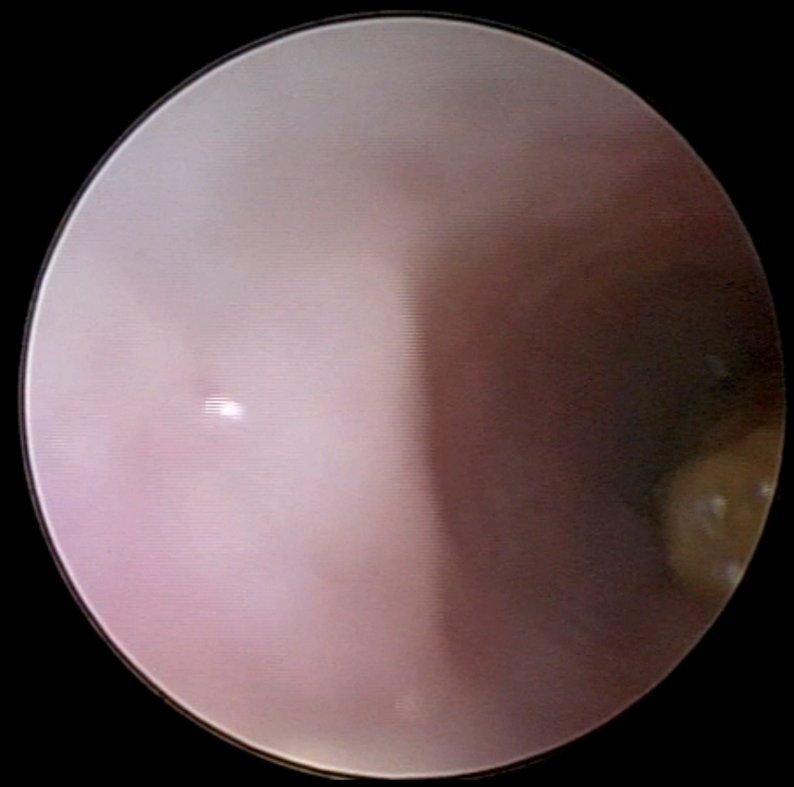




Adapted from Bardeesy N, et al., Smad4 in Pancreas Development and Cancer. *Genes & Development*, 2006.

Mouse colonoscopy: more tumors when Smad4 is depleted (and I was hooked!)

Wildtype: Smad4 intact



APC1638-Smad4 null: Smad4 depleted, Wnt active

Smad4-Mediated Signaling Inhibits Intestinal Neoplasia by Inhibiting Expression of β-Catenin
Freeman TJ, **Smith JJ**, Chen X, Washington MK, Roland JT, Means AL, Eschrich SA, Yeatman TJ, Deane NG, Beauchamp RD.
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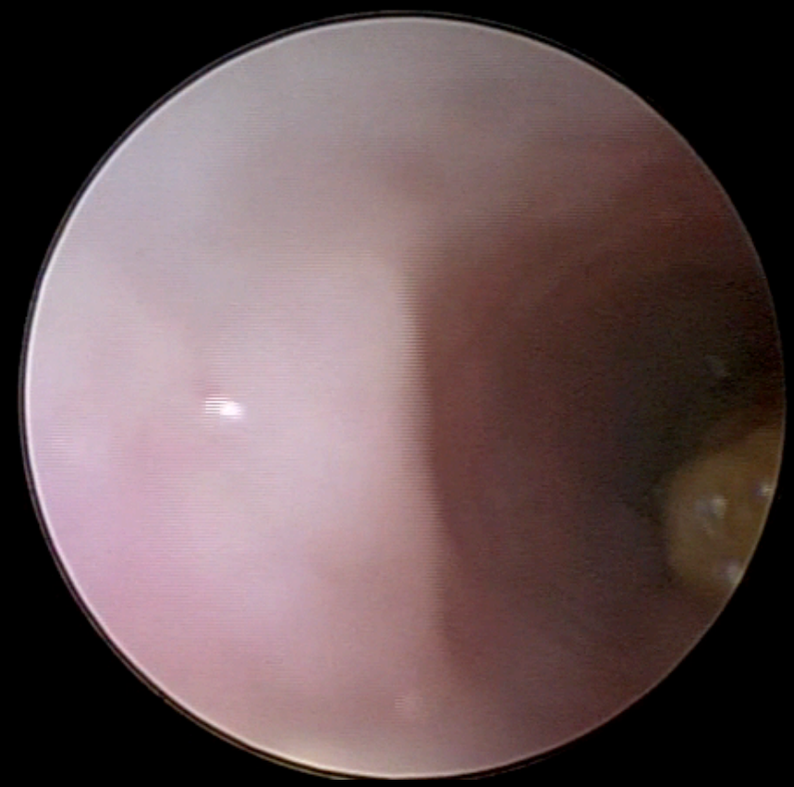

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www.nytimes.com/interactive/2016/06/05/magazine/new-york-life.html?_r=0#/intro-new-york-introduction

Welcome to the constant tension!

- As a surgeon scientist there are constant tensions:
  - ➡ Clinical excellence
  - ➡ Scientific excellence
- To be successful I think you have to ‘pay attention to the cues’. . . . then react to them appropriately
- Then you have to be steadfast in pursuit of your goal!

Then one evolves. . . .with some cues

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Research Training → Residency → Job

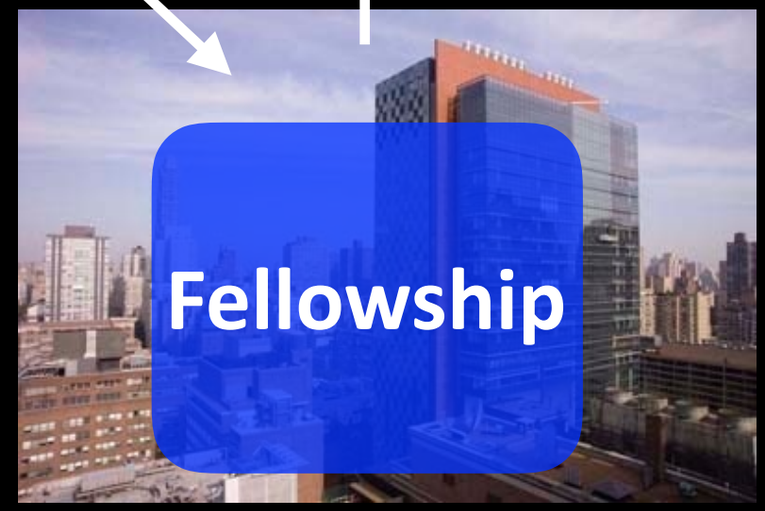
Then one evolves. . . .with some cues

Research Training

Residency

Job

Fellowship



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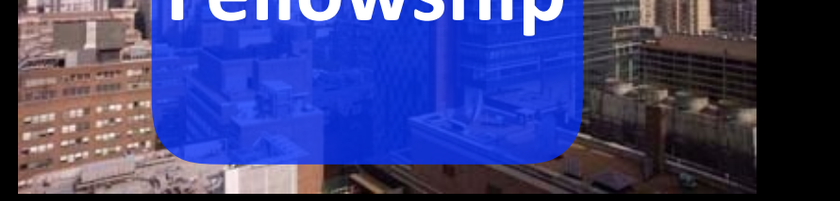
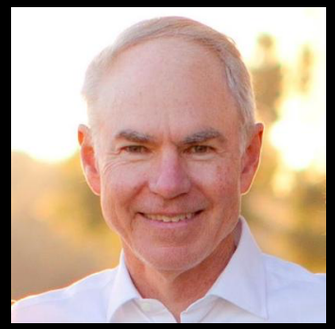
Research Training

Residency

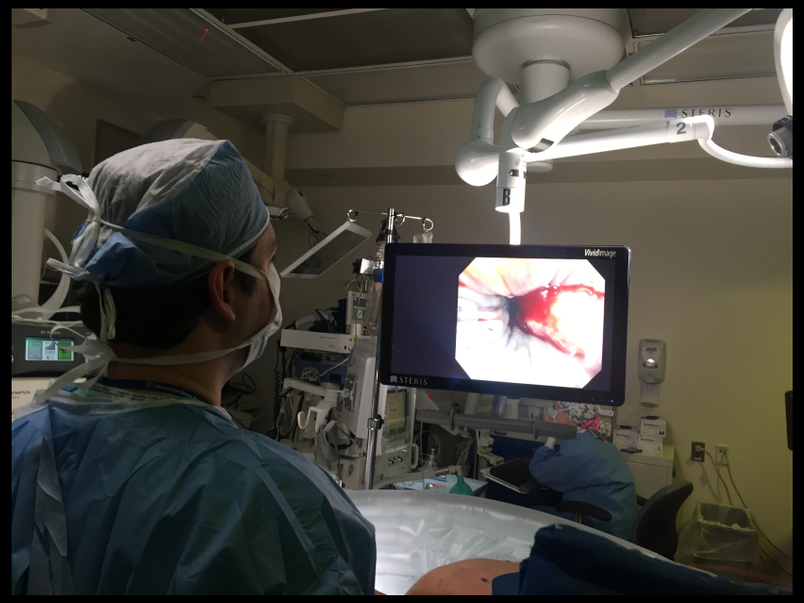
Job

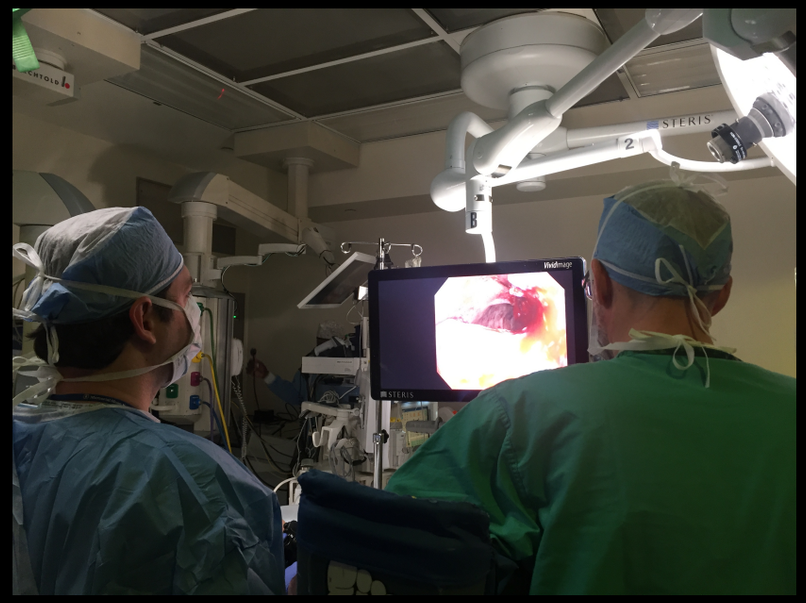
Fellowship

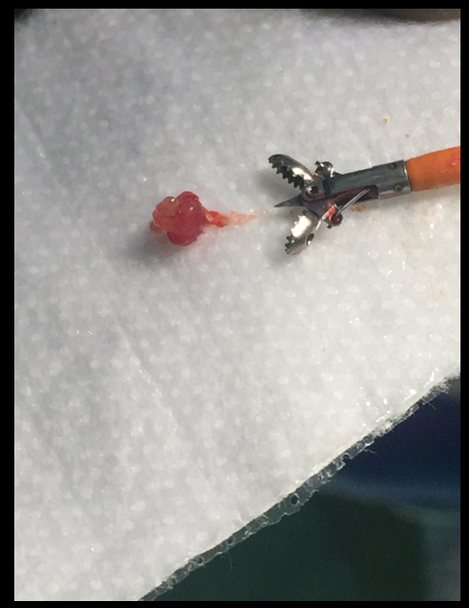




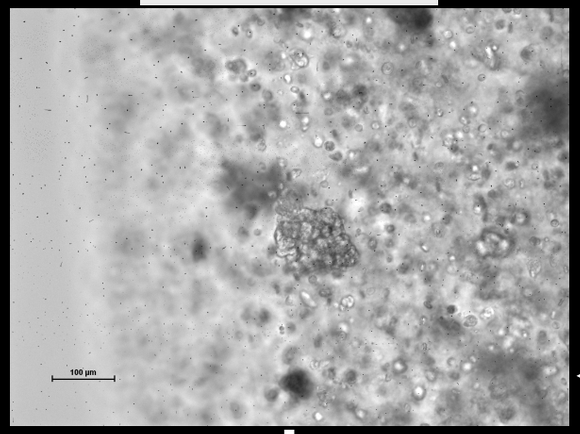
Faculty

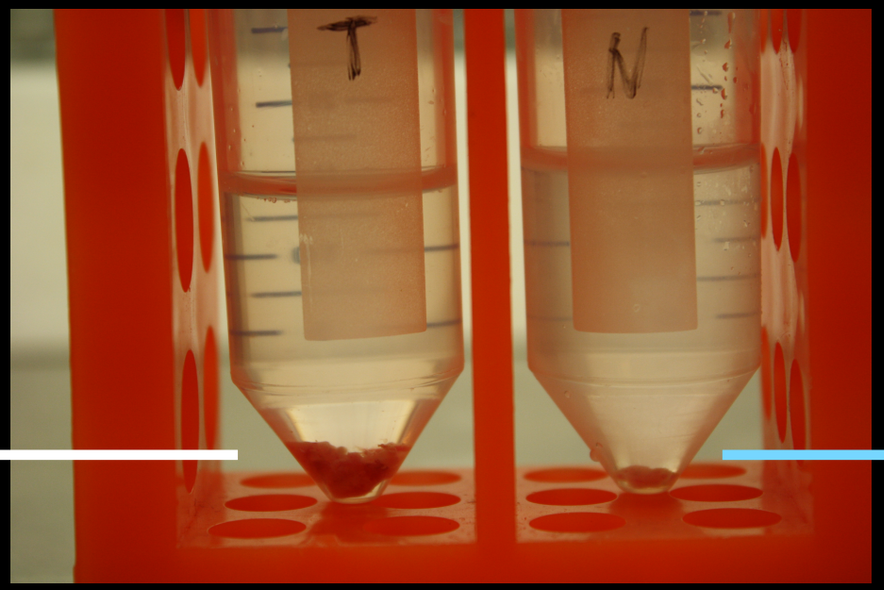




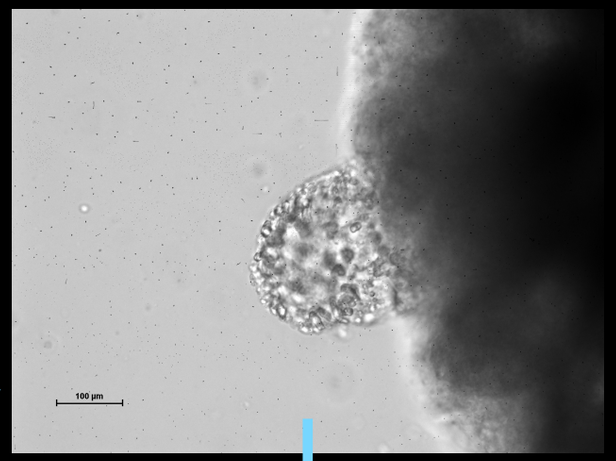


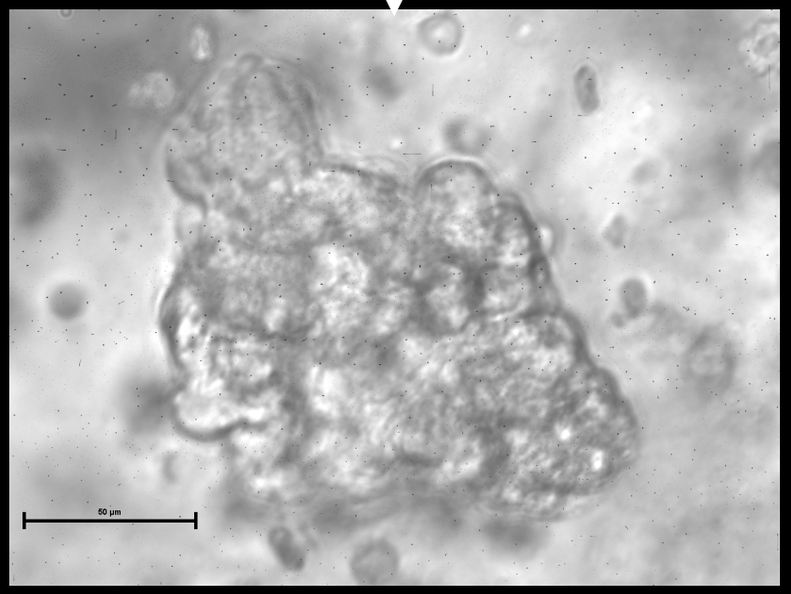
Tumor



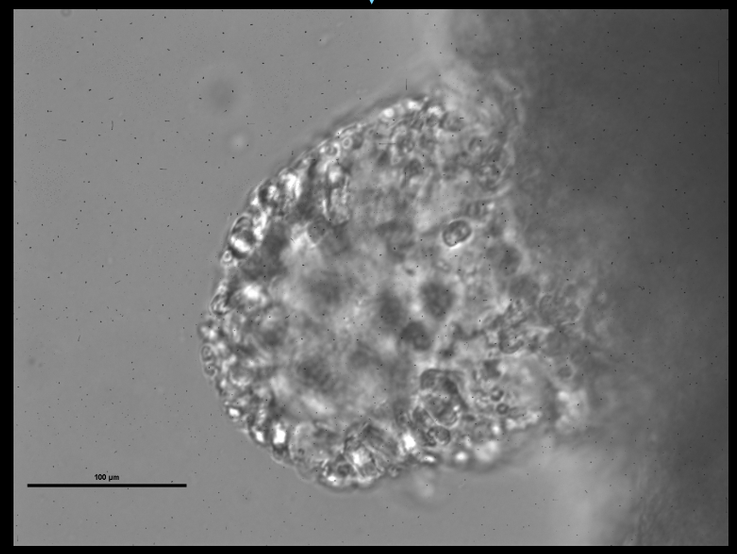


Normal

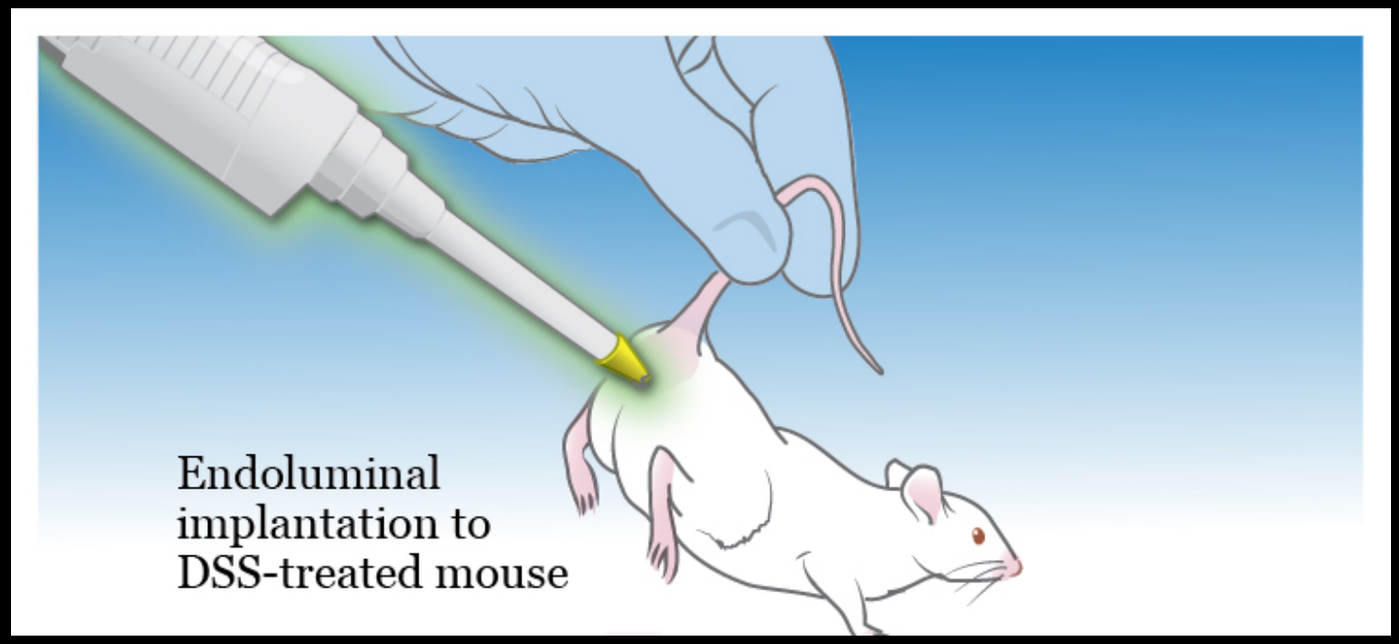


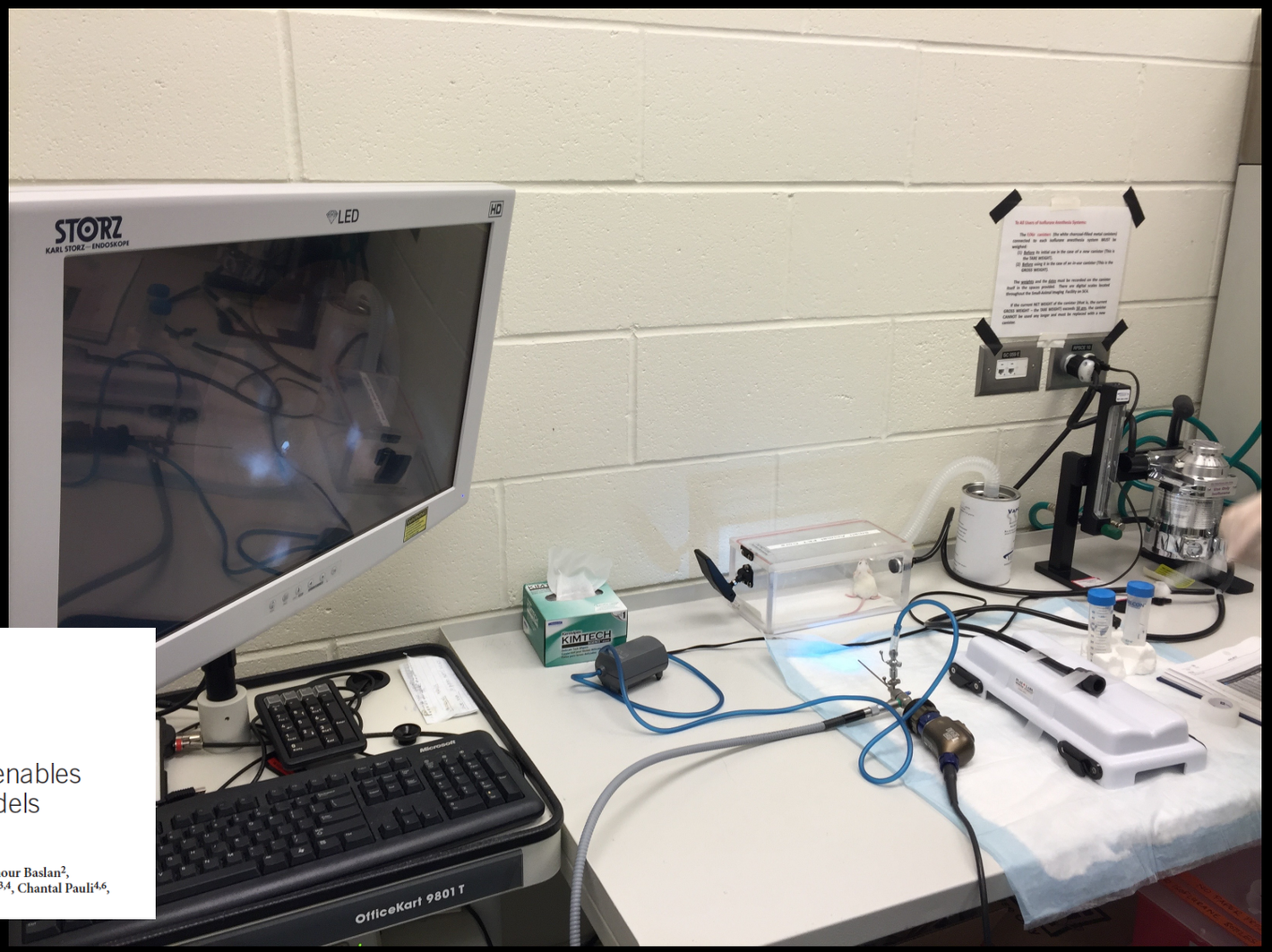


Lab **Clinic**



Sawyers-Smith Lab Endoluminal Model Setup





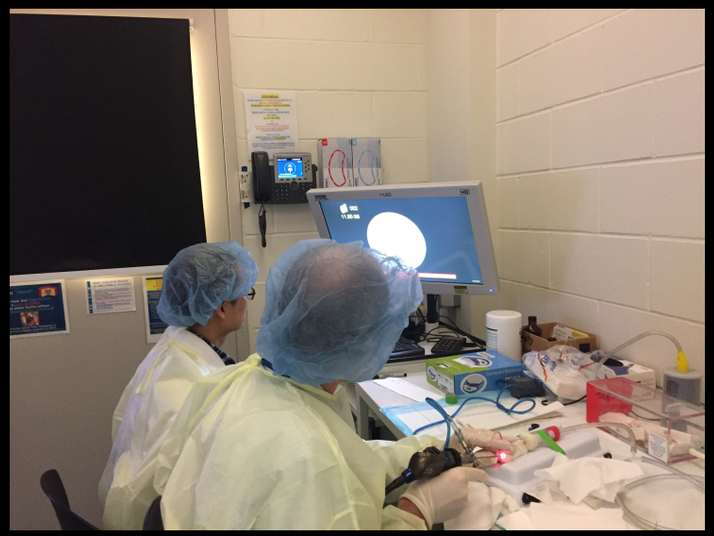
nature biotechnology

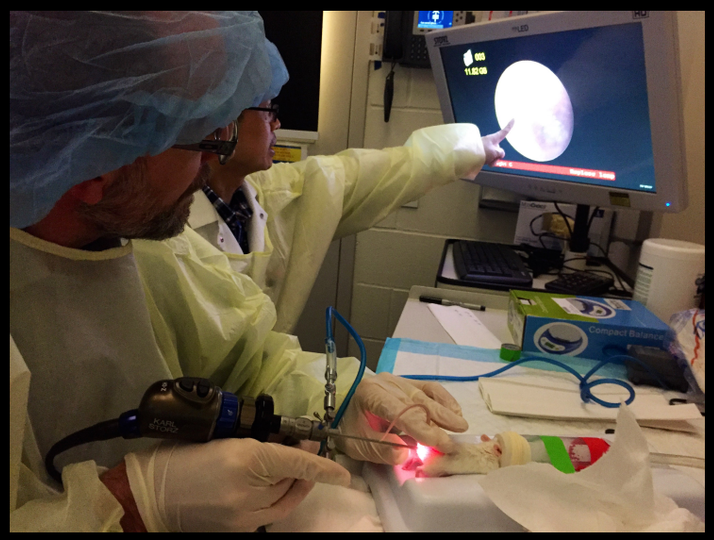
Transplantation of engineered organoids enables rapid generation of metastatic mouse models of colorectal cancer

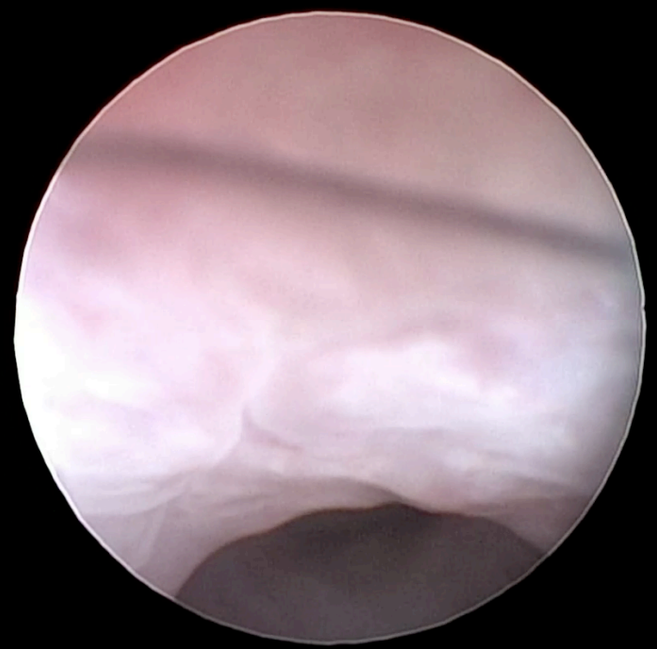
Kevin P O'Rourke[1,2], Evangelia Loizou[2,3], Geulah Livshits[2], Emma M Schatoff[1,4], Timour Baslan[2], Eusebio Manchado[2], Janelle Simon[2], Paul B Romesser[2,5], Benjamin Leach[4], Teng Han[3,4], Chantal Pauli[4,6], Himisha Beltran[4,6], Mark A Rubin[4,6], Lukas E Dow[4] & Scott W Lowe[2,7]

Credits:
Scott Lowe
Luke Dow
Kevin O'Rourke

My clinical work MATCHES my laboratory work

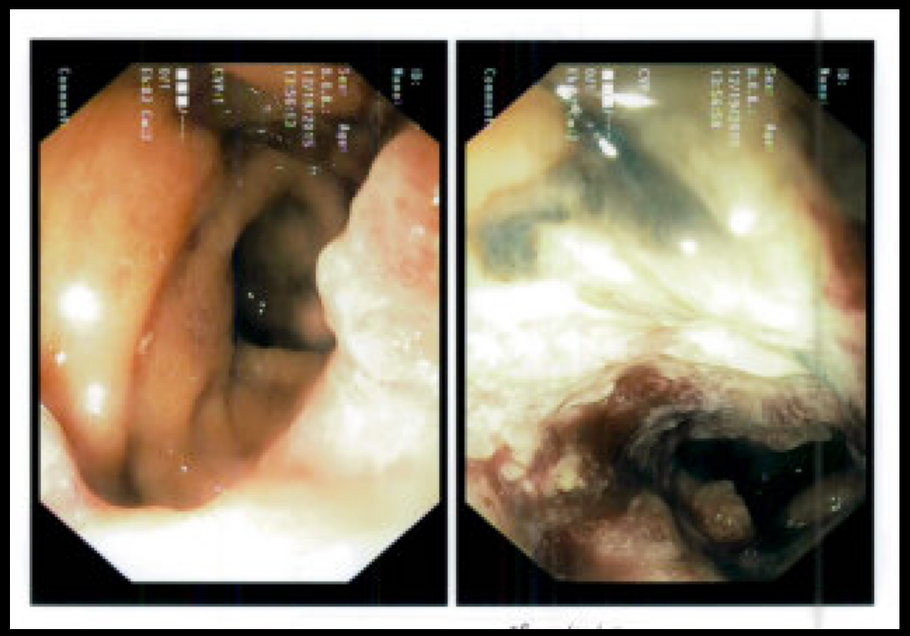






n=15
12 week timepoint
12 October 2017

11/15 with tumors by endoscopy
All 15 alive after DSS



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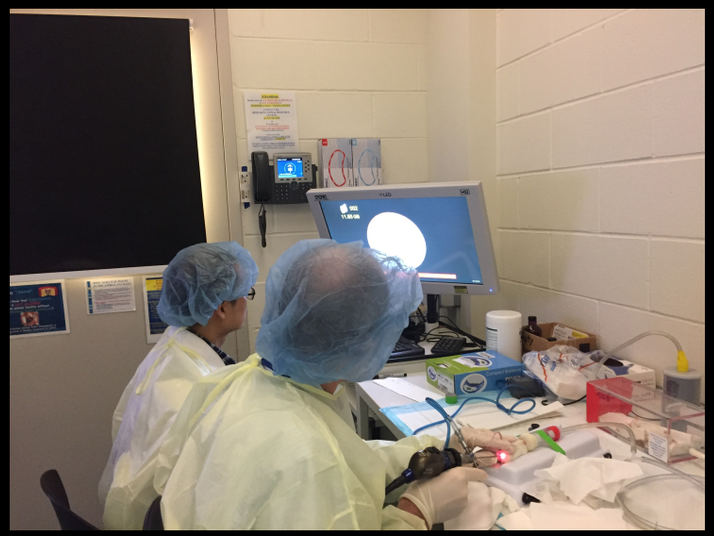

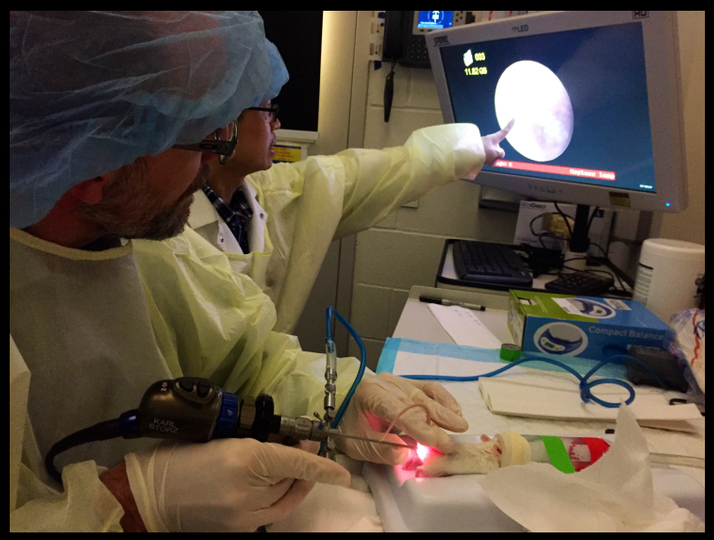

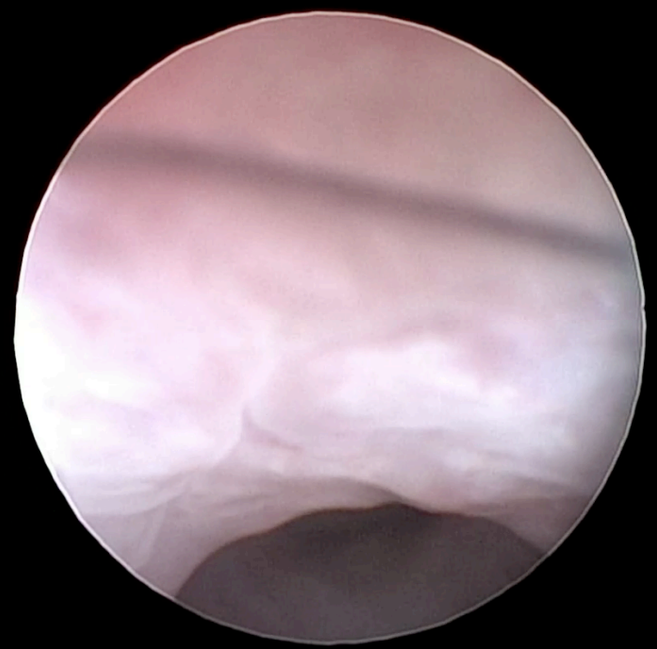

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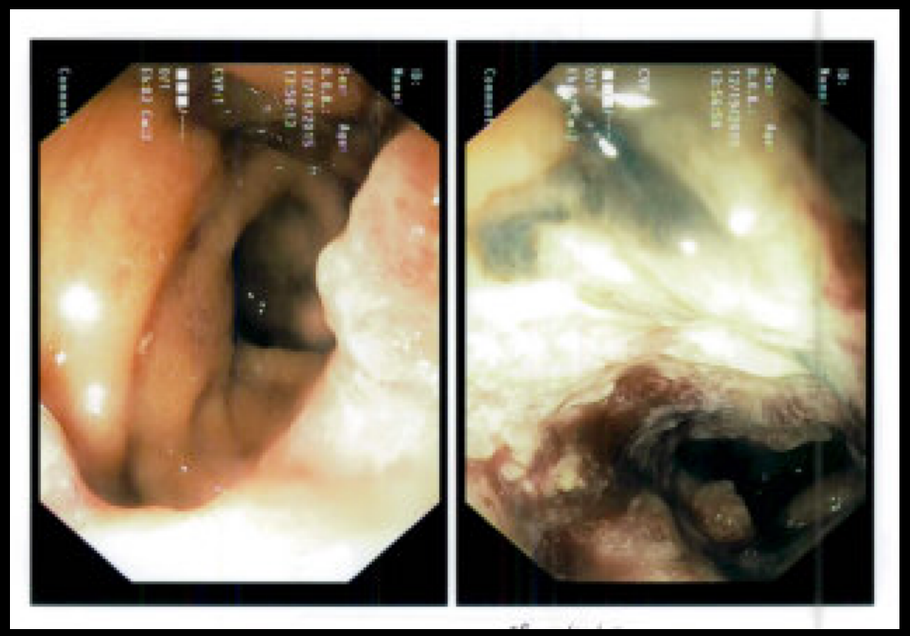
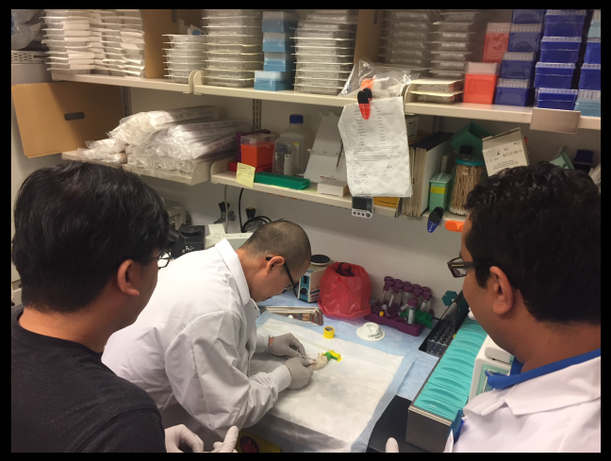
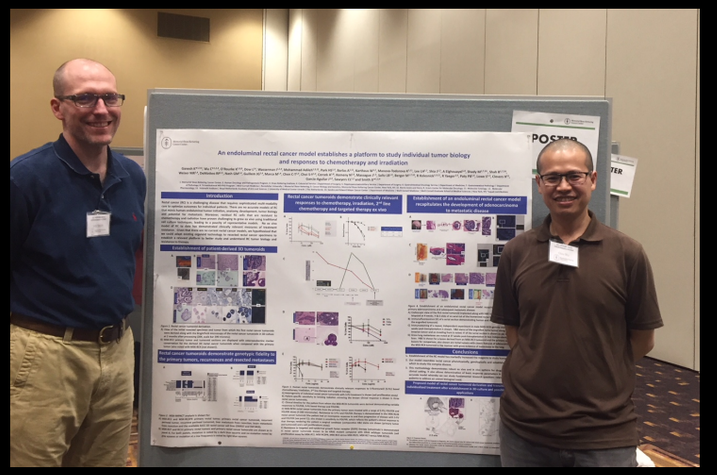


What's your story?





https://twitter.com/isardasorensen

Finishing and Staying Involved

- ‘Get YOUR work done while in the lab’ T. Frankel

- Stay up with the literature and techniques

- Focus on the clinical training whilst in the clinical realm—you will never get the chance again

Passion and Commitment

- Do what you love and stick with it (grit/perseverance)

- Find a niche in an area in which you can excel

- Synergy between research and clinical work is KEY

Thanks to my fellow surgeon-scientists! (and Twitterati)

@ashgosain

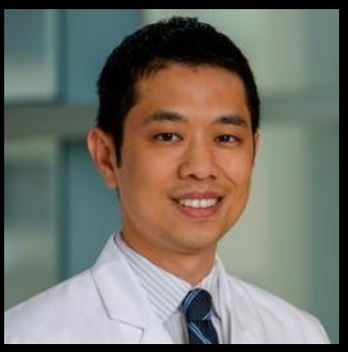
@drewshirleyMD

@kibbemr

@JeremyLDavisMD

@colinalexmartin

@MattKaladyMD



@SamWangMD

What did you do in your post-research years that you thought was helpful?

- Residency: presence in the lab (when able)
- Fellowship: read, checked in (when able), seminars, talks

- Ensured prior contributions didn’t ‘slip through the cracks’

  ➡ Kept lines of communication and collaboration OPEN

- Fostered relationships with PI & collaborators
- Written commitments and plans proposed & kept

Did you publish much after time in the lab?

- Many did: often as a result of continued collaboration

- Some did not: chose to publish only what they did in lab

  ➡ then focused on residency/fellowship and reset as junior faculty

- Answers varied based on support, location of fellowship training & mentor support

Did you have support during the transition along the way?

- Many said yes!
  - ➡ Some support was ‘virtual’
  - ➡ Much support was ‘real’ and intentional
- A few even had lab space, went to lab meetings and kept a lab notebook!

Do you work on the same thing you did in the lab now?

- Many work on an iteration of the same theme (nice for building a ‘track record’)

- A couple have changed and feel this was a temporary setback

  ➡ although now moving in a positive direction and addressing an unmet need of scientific & clinical interest

- Many are using the same model systems or assays

Anything you would do differently in the transition from lab to faculty?

- Find a niche sooner

  ➡ Work extra hard to REFINE an area of focus

- Ensure you have experienced/technical help right away

- Think more carefully during fellowship or late in residency about transition to K award, generation of preliminary data and transition toward independence

Transition to Faculty

- Chief & Chair=essential to success (shared vision & GOALS)

- Residency and Fellowship are the time for clinical skill development

➡Junior faculty = primary focus is to mature as a scientist (who happens to operate on Thursdays. . . .)

- CRITICAL to be embedded in an established laboratory to start

➡ tantalizing to have your own space and time right away BUT dangerous and I think unrealistic

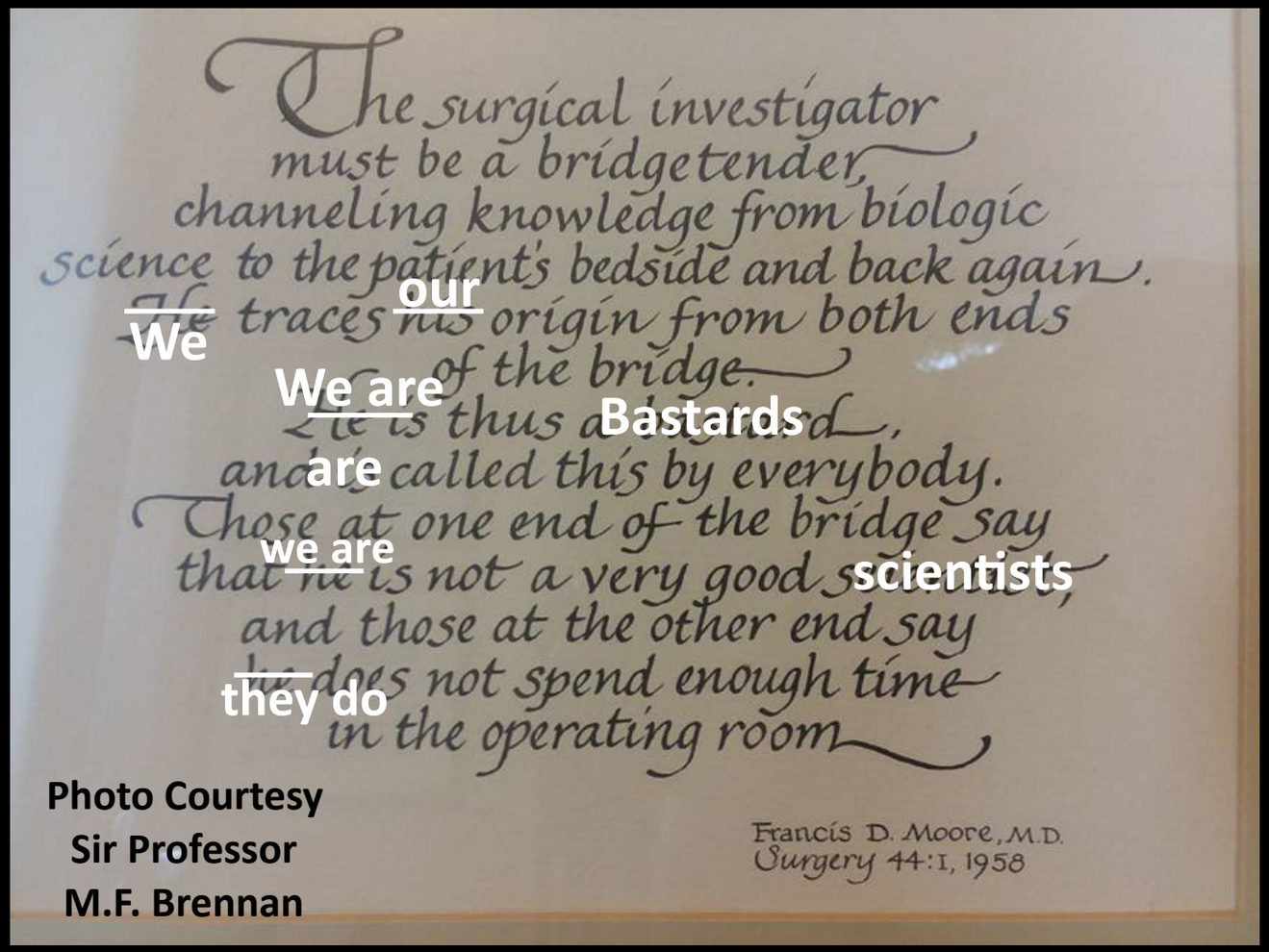
Pearls from Select Leaders

- ‘The first 5-7 years is the foundation. Take time to lay it well. There are few chances to hit the reset button mid-career. Albeit seductive to be busy clinically it interferes with academic success and eats your scientific fuel.’ J. Drebin

- ‘If you are truly passionate about being an academic surgeon, and having an impact, you will! The impact you will have is through the trainees you mentor, the patients you care for, and the research you conduct.’ M. Kibbe

FYI both are inductees to the National Academy of Medicine

NAM



~~We~~ our

We are

Bastards

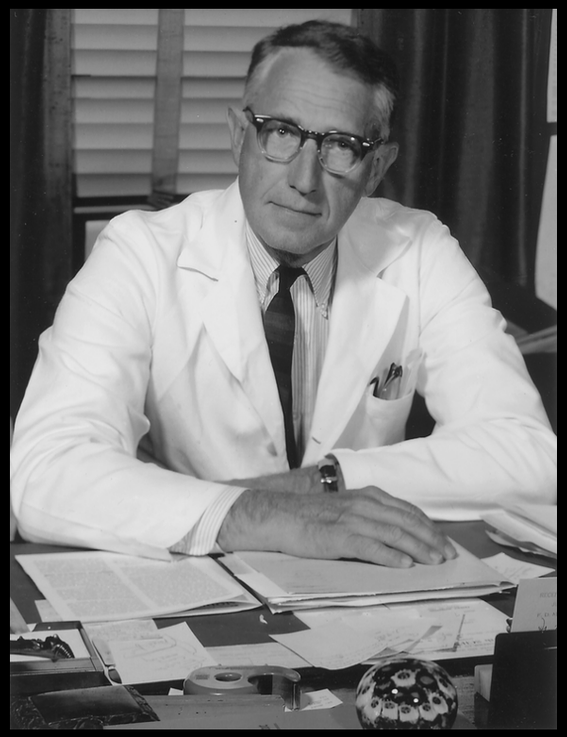
are

we are

scientists

they do

Photo Courtesy
Sir Professor
M.F. Brennan



Adapted from M.F. Brennan Ann Surg. 2002 Apr; 235(4): 600–601.
One of the original surgeon-scientists!
Chairman of Surgery, P. B. Brigham Hospital
1948-1976

http://www.nytimes.com/interactive/2016/06/05/magazine/new-york-life.html?_r=0#/intro-new-york-introduction

Conclusions

- Being well-trained & focused clinically allows you the space and time to use your early career to become a competitive surgeon-scientist

- Being a successful surgeon-scientist has to be a core-value that you, your family, leaders and colleagues embrace
  - ➡ Must be a source of pride and enjoyment
  - ➡ Find a niche, focus and respond to the cues/persevere!
  - ➡ Expect & then overcome challenges and adversity

Thank you for your time

James Ewing Hospital—opened 1950
1975 renamed Schwartz Intl. Hall of Science for Cancer Research

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@sloankettering

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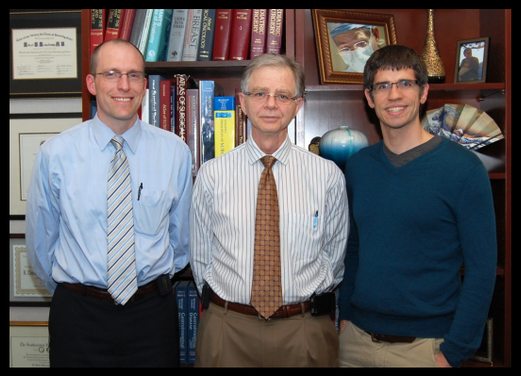
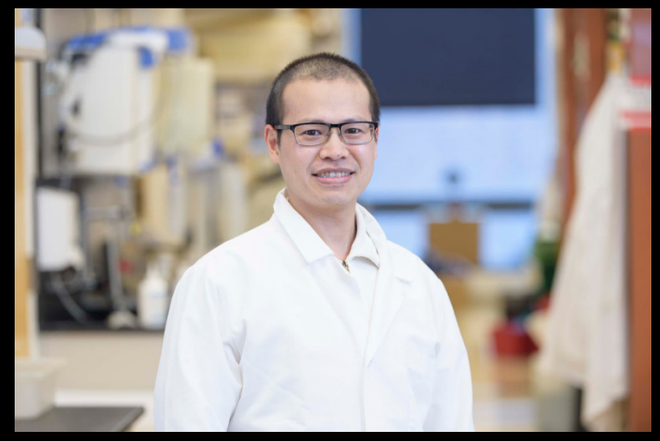
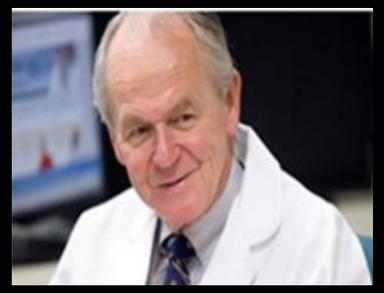
I'll be happy to take questions during the panel







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