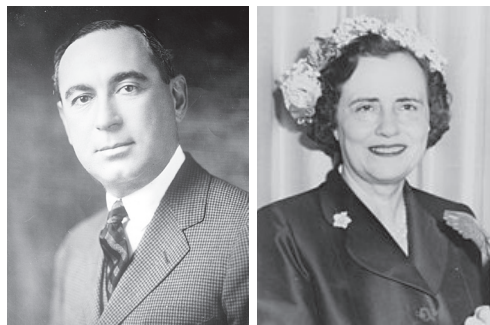


Lasker Foundation Awards Laud Achievements in Genetics, Cancer, and Ebola Response

by Kayla Gross^{CMDB}

While significant scientific breakthroughs can be rewarding in their own right, celebrating critical advances in disease research through award nominations is a wonderful and important tradition within the scientific community. The Lasker Awards, established and endowed in 1945 by the Albert and Mary Lasker Foundation, are one of the most prestigious of these celebrations in the United States, honoring advances made in basic research, clinical medicine, and public service. In particular, they serve not only as an opportunity to applaud the tireless and ingenious efforts of field leaders for their outstanding medical research and service, but also as a call-to-arms those in the biomedical sciences. They are a reminder that there is still much left to understand about a host of diseases and disabilities that affect the lives of so many individuals, within the United States as well as globally. That was indeed the awards'



Albert and Mary Lasker. LIBRARY OF CONGRESS
original purpose, as the Lasker family brought them into existence in the wake of World War II to invigorate both immediate and long-term interest and financial investment from the general public and the U.S. government in cutting-edge medical research.

Albert and Mary Lasker were relentless in their efforts to engage the country in the fight for increased research efforts and funding. Together they reorganized and revitalized

the group that would become the American Cancer Society (ACS), and they were incredibly instrumental in substantially expanding the activities and finances of the National Institutes of Health throughout their lifetimes. After Albert's death in 1952 due to colon cancer, Mary continued to be a passionate patron of medical research, holding leadership positions in a dozen prominent healthcare societies and organizations—including the ACS and Planned Parenthood Foundation—and contributing to the implementation of President Richard Nixon's War on Cancer. Her decades-spanning commitment to medical research advocacy and philanthropy earned her the Presidential Medal of Freedom in 1969 and the Congressional Gold Medal in 1989. Upon her death, she left over \$10 million dollars to the Lasker Foundation, ensuring that her legacy of championing disease research

Continued on page 12, Lasker

Tufts Century Ride

by Nafis Hasan^{CMDB}

The 4th annual Tufts Century Ride took place on Friday, September 25, a perfect day for cruising bikes. The ride was organized under the leadership of the Provost David Harris, PhD^{Provost} and his office, in collaboration with Tufts Cycling team. The aim of the event is to provide a fun way for members of the three Tufts campuses (Boston, Medford, Grafton) to interact with each other. Riders were given the option of riding segments of different lengths - 18, 44, 88 and 106 miles. Approximately 70-80 participants took to the road on that day. Logistical support was provided by Quad Cycles.

The ride began in the cool early Fall morning from the Medford campus. The bikers followed respective group leaders on the Somerville community bike path, the Fresh Pond reservation bike path and Paul Dudley Jr. Bike path to the Boston Memorial Hatch Shell, the designated Boston campus meetup point. The ride doesn't go through the actual

campus in Chinatown for logistical reasons.

Riders then returned to Medford, and took the scenic Minute-man bike trail and MA-2 West through historical towns of Lexington and Concord and onwards to the sprawling hills of Grafton, lined with trees showing hints of Fall colors. The riders reached Grafton around 12-12.30 pm, where refreshments were provided by the Office of the Provost before heading back to Medford around 1 pm. The ride ended in front of Ballou Hall in the Medford campus where a reception was held from 4-6 pm.

Participants from the Sackler school included Caroline Genco, PhD^{IPP}, the new chair of the Integrative Physiology and Pathobiolo-



ALONSO NICHOLS/TUFTS UNIVERSITY

gy (18 miles), Gretchen Meinke, PhD^{DMCB} and Nafis Hasan^{CMDB} (106 miles).

More photos of the ride are posted on the blog for the Office of the Provost: <http://provost.tufts.edu/blog/2015/09/30/2015-tufts-century-ride/>

2015-16 GSC

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David Dickson²

Faculty Liaison
TBD

Dean's Office Liaison
Kathryn Lange

^{1,2} Denotes years on
GSC

InSight Team

Information on page 12

GSC Updates

Student Clubs

One new group recognized, three total funded student clubs

The GSC voted to recognize Tufts Mentoring Circles as a new student group, and also provided it and two other student groups: Tufts Biomedical Business Club (TBBC) and Tufts Biomedical Queer Alliance (TBQA), with funding. More information about these clubs is available on page 8 of this issue. Additionally, the groups will provide monthly updates that will recap recent and preview upcoming club activities to be published in the *InSight*.

Committees

Advertising

Kevin Child^{GENE}, Jaymes Farrell^{GENE},
Joshua Oppenheimer^{PPET}

Career Paths

Christina McGuire^{BCHM}, Kevin Child^{GENE},
Amanda Gross^{PPET}, Julia Yelick^{CMDB}

Newsletter

Daniel Wong^{CMP}, Nafis Hasan^{CMDB},
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Social

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Amanda Gross^{PPET}

Social Media

David Dickson^{NRSC/MSTP}



Tufts University Sackler
School Students



sackler_gsc

Committee Reports

Career Paths

Recent Events:

- Th Sep 17 — Jaharis Café: **GSC Coffee Hour**. Second annual event, operates as a Meet & Greet with Club leaders and GSC members. Suggest merging with Welcome BBQ next year.

Newsletter

- Changing publication frequency to monthly, with an emphasis on sourcing content from the entire Sackler community.
- New publishing schedule: 9th of every month.

Social

Recent Events:

- Th Sep 10 — Fajitas & 'Ritas: **GSC Happy Hour**. This replaced the Scavenger Hunt as the orientation social event, as weather has not cooperated in previous years. Event was well attended, but people didn't really mingle.
- W Sep 16 — Jaharis Courtyard: **GSC Welcome BBQ**. This event was previously held in the Posner Courtyard, which had a large grill, and GSC members would cook. Posner is no longer available to the GSC, and bringing personal grills to cook with is insufficient. BBQ was catered this year, avoiding massive lines from the past two years, and was well attended.

Flu Clinics

The 2015-2016 Flu Season is approaching! Walgreens will be conducting Flu Vaccine Clinics for all Health Sciences Students in Posner Lounge on the following dates:

Wednesday, October 14th - 12 to 4 p.m.
Tuesday, October 20th - 12 to 4 p.m.

Be sure to have your health insurance card with you on the day of the clinic. You will also need your Tufts student ID for entry into Posner Hall.

Annual flu vaccination is required for students who have patient contact and highly recommended for all others.

If you have already received a flu vaccine elsewhere, you can send the documentation to Lucia Fenney, Student Advisory & Health Administration Office, 200 Harrison Avenue, Boston, MA 02111 or Fax it to 617-636-2708.

Charlton and Isner Memorial Lectures

New Isner Award joins annual Charlton Competition

Charlton Lecture and Poster Competition

The speaker for this year's Charlton Lecture will be Virginia M.-Y. Lee, PhD, John H. Ware 3rd Endowed Professor in Alzheimer's Research, Professor of Pathology and Laboratory Medicine, and Co-Director of the Center for Neurodegenerative Disease Research at the University of Pennsylvania's Perelman School of Medicine. Her lecture will be on Tuesday, October 27th, from 4-5:30 pm in the Sackler DeBlois Auditorium.

The 2015-2016 Charlton Poster Competition will take place on October 26th and 27th.

The poster competition is on Monday, October 26th, with the final judging the morning of Tuesday, October 27th. Attached please find the Poster Abstract Form & Instructions. The deadline to submit abstracts for the competition is Tuesday, October 13 by 12 pm. Only electronic submissions will be accepted – please send them to Jessica Wang-Strykowski^{SK} at jessica.wang_strykowski@tufts.edu.

We hope many students will participate to showcase their research and compete for great prizes: \$500 - 1st place; \$250 - second place; and \$100 - third place. These prizes are awarded in each of the three judging groups:

Division 1: Junior

Sackler PhD students in years 1-3
MD/PhD students in Sackler years 1-3
Sackler MS students

Division 2: Senior

Sackler biomedical PhD students in years 4 and above
MD/PhD students in Sackler years 4 and above
Sackler CTS PhD students

Division 3: Professional

Medical students
Dental students
Veterinary Medicine students
MD/PhD students in TUSM years 1 & 2

Isner Memorial Lecture and Poster Competition

The annual Jeffrey M. Isner, MD Endowed Memorial Lecture will be held on November 4, 2015. Jeffrey M. Isner, MD, M73, was the chief of cardiovascular research and director of the Human Gene Therapy Laboratory, Tufts University School of Medicine, where he played a pioneering role in developing gene therapies for treating obstructive atherosclerosis and peripheral vascular disease. At the forefront of gene therapy research before his untimely death in 2001, Dr. Isner's dedication to cardiovascular research, for which he received many awards, including the AMA's Doctor William Beaumont Award in Medicine for outstanding research achievements by an investigator under the age of 50, was only matched by his deep love and devotion to his patients, colleagues, friends, and family. Since 2007, the Tufts University School of Medicine community has convened each November to hear cutting-edge presentations by leaders in the basic or clinically-relevant scientific communities focused on the fields of gene therapy, vascular biology, angiogenesis-related research and cardiovascular medicine.

This year, there will be a special student poster competition to mark the 10th anniversary of the Jeffrey M. Isner MD Endowed Memorial Lectureship. The competition will recognize an outstanding Sackler School graduate student carrying out cutting-edge, pre-clinical or clinically-relevant PhD-related research, which is aligned with the scope and goals of the Jeffrey M. Isner MD Endowed Memorial Lectureship. All Sackler students working towards their PhD degrees are eligible and the winner will receive a \$500 prize.

Students who wish to compete in the Isner Poster Competition must participate in the Charlton Poster Competition. Students selected as Charlton semifinalists and whose research matches the Isner requirements will be automatically considered for both the Charlton and Isner prizes. The Isner Poster winner will be announced at the Isner Lecture on November 4.

The deadline for submitting abstracts for Charlton Poster Competition is October 13 by 12PM. The entry form and instructions were sent out via e-mail on October 2. Please contact Jessica Wang-Strykowski^{SK} (jessica.wang_strykowski@tufts.edu) if you require them.

Notes from the InSight: Designing a poster?

Avoid having a pixellated and distorted Tufts logo prominently displayed at the top of your poster! High-resolution versions of the Tufts University logo, as well as school-specific logos are available for download from the Tufts University Relations office.

Be sure to consult the Visual Identity Guide for details about which logo should be used, and how the logo should be used and laid out in relation to the rest of your work. The Visual Identity Guide also includes some suggested fonts and colors to use to help get you started with your project.

Be aware: The Office of Communications emphasizes that you should not use the Tufts seal on your poster. See the Tufts University Visual Identity Guide for more information, and which logos to use.

Tufts University Logos:

<http://publications.tufts.edu/brand-guides-and-logos/download-logos/>

Tufts University Visual Identity Guide:

<http://publications.tufts.edu/wp-content/uploads/TuftsVisualIdentity-final.pdf>

Notes from the Library...

by Laura Pavelch^{HHS}

Whether orientation is a recent or distant memory, here are a few tips on the resources and spaces available at the library:

Finding Books at Tufts: We have a lot of books, both in print and electronically. Unfortunately, it is not always easy to find these books. When you want to know whether or not the library has a specific book, search the library catalog (<http://library.tufts.edu/>) by title, author or course reserves (a few books are on reserve for Sackler courses). If a book is located at another Tufts library, then you can request that it be delivered to the Hirsh Health Sciences Library by clicking the 'Request Item' button at the top of the catalog record. You will be notified when the book is ready for you retrieve at our library. While e-books will appear in the library catalog, you can also browse our e-book collections (<http://www.library.tufts.edu/hsl/resources/ebalpha.html>).

Book not Available at Tufts? Search WorldCat (<http://tufts.worldcat.org/>), a global catalog of library collections. You can request that books available at Boston Library Consortium libraries be delivered to our library at no charge. For more information on requesting books, book chapters and journal articles from non-Tufts libraries, see: <http://www.library.tufts.edu/hsl/services/doc-DelPolProc.html>.

Study Rooms: Study rooms are located on the 5th, 6th and 7th floors of the Sackler building. Study rooms on the 5th floor may be reserved for groups of two or more people. Study rooms on the other two floors are available on a first come, first served basis with precedence given to groups. To make a reservation for the 5th floor study room, see: <http://tufts.libcal.com/booking/hhs>.

Computers: Public computers are located on the 4th and 5th floors of Sackler. In addition, two computer labs, also located on the 5th floor, are available for use when not occupied by a class. Laptops, both Macs and PCs, are available for check out at the Library Service Desk. Software installed on library computers includes: Adobe products (Illustrator, InDesign, Photoshop, etc.), MatLab, SAS, SPSS and Stata. Complete list of software on library computers: <http://www.library.tufts.edu/hsl/computing/softinlibrary.html>.

[edu/hsl/computing/softinlibrary.html](http://www.library.tufts.edu/hsl/computing/softinlibrary.html).

Software: Visit the Tufts Technology Services Help Desk on the 5th floor of Sackler to get software installed on your personal computer. Complete list of available software: <https://it.tufts.edu/soft>. Unfortunately, Adobe software is not available for installation on students' personal computers, and Adobe only offers a student discount on their Creative Cloud Complete package.

Lynda.com: Online library of video tutorials that teach software, creative and business skills, including beginner to advanced Illustrator, R, Tableau, SPSS. Tufts Technology Services recently acquired a license that allows Tufts students, faculty and staff unlimited access to Lynda.com. Free apps for iOS and Android devices allow you to watch videos on your mobile device. To access, go to: <https://it.tufts.edu/lyndacampus>, click the 'Login' button and sign in with your Tufts username and password.

Upcoming Library Events

Registration for any of the listed Open Workshops: <http://www.library.tufts.edu/hsl/education/workshops.html>

Open Workshop: EndNote Basics

W Oct 7 & Th Oct 8, 12-1 PM

Sackler 510

EndNote is a citation management program that allows you to create, organize and store references, and insert formatted citations and bibliographies into documents. In this session, you will learn how to: export references from databases, such as PubMed and Google Scholar; create references from PDFs; insert citations and bibliographies, and choose citation styles. Same session offered both days.

Open Workshop: Journal Scam – Is this Where I Should Publish?

W Oct 21, 12-1 PM

Sackler 510

This session will help participants identify

PubMed Tip of the Month: Using MeSH Headings

Including MeSH terms in a PubMed search can help you get more precise results.

What is MeSH? Most of the more than 25 million citations in PubMed come from MEDLINE, the National Library of Medicine's (NLM) journal citation database. Medical Subject Headings (MeSH) is a controlled vocabulary of standardized terms that indexers (actual humans!) apply to each article in MEDLINE to describe the publication type and topics covered in the article.

Why should you care about MeSH? Biomedical topics are often expressed in different ways. For example, chronic kidney disease may also be called end-stage renal disease, chronic renal failure, or abbreviated as ESRD. The MeSH term for this condition is *kidney failure, chronic*. Using MeSH terms in a PubMed search helps you find articles regardless of how an author referred to that topic. MeSH terms also allow you to search on all concepts in a broad category without having to enter every term. MeSH headings are arranged in a hierarchy of broader and narrower terms; when you search a broader term, all the narrower terms are automatically included in your search. For example, the MeSH term for cancer, *neoplasms*, can be used to search for all types of cancer.

How do I find MeSH terms? When you conduct a search in PubMed, the database will try to match your terms to MeSH headings in a process called automatic term mapping. To see how the PubMed translated your search, look for a box labeled

'Search Details' in the right column on the results page (you will need to scroll down the page). You can also search the MeSH database directly by choosing 'MeSH' from the dropdown menu to the left of the PubMed search box. See this example of the term *meningitis* in the MeSH database: <http://www.ncbi.nlm.nih.gov/mesh/68008581>.

Need help with MeSH? Contact me at laura.pavelch@tufts.edu or 617-636-0385.

Library Events, continued

predatory publishers who exploit the 'author pays' business model and do not provide proper editorial and publishing services. A guide for assessing publishers will be explored through case studies.

Open Workshop: Disseminating Your Research

Th Oct 22, 12-1 PM

Sackler 510

Introduction to options beyond traditional subscription journals for disseminating your work.

Fun Fridays: Pumpkin Painting & Halloween Crafts

F Oct 23, 2-3 PM

Library Service Desk, Sackler 4

Hirsh Health Sciences Library on Social Media:

Tufts University Hirsh Health Sciences Library



TuftsHHSL

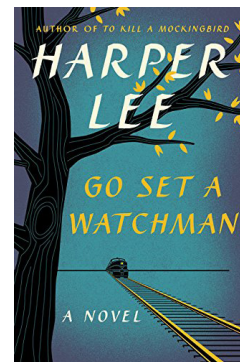
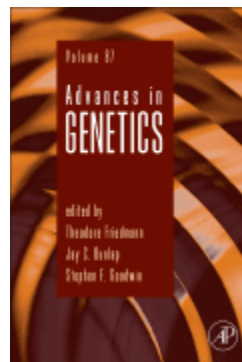
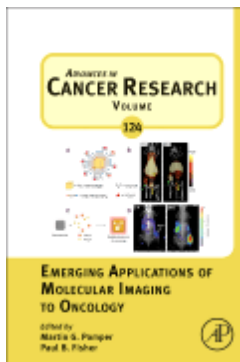
On the Shelf

by Laura Pavelch^{HHSL}

For work...**(Book Series) Advances in...**

Location: Electronic

Released on a quarterly basis, the Advances in... series publish comprehensive reviews on current topics in various fields. The library currently receives several titles, including: Advances in Applied Microbiology, Advances in Cancer Research, Advances in Drug Research, and Advances in Genetics. Browse the ScienceDirect e-book series for available titles: <https://login.ezproxy.library.tufts.edu/login?url=http://www.sciencedirect.com/science/bookseries/all/full-text-access>.

**And leisure...****Go Set a Watchman**

Harper Lee

Location: HHSL Leisure Reading Fiction L477g

This companion novel to To Kill a Mockingbird was published this past summer amidst controversy surrounding its discovery and contrary reviews. Now you can read it for yourself. Two copies available in the leisure reading section located on Sackler 4.

Sackler Student Publications June 2015 to present

compiled by Laura Pavelch^{HHSL}

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Continued on page 6, Student Publications

Student publications, continued

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Hanson E^{NRSC}, Armbruster M, Cantu D, **Andresen L^{NRSC}**, Taylor A, Danbolt NC, Dulla CG. Astrocytic glutamate uptake is slow and does not limit neuronal NMDA receptor activation in the neonatal neocortex. *Glia.* 2015;63(10):1784-96; PubMed PMID: 25914127.

Hooper A^{NRSC}, Maguire J. Characterization of a novel subtype of hippocampal interneurons that express corticotropin-releasing hormone. *Hippocampus.* 2015 [Epub ahead of print]; PubMed PMID: 26135556.

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Jang W, Schwob JE. Transcription factor p63 controls the reserve status but not the stemness of horizontal basal cells in the olfactory epithelium. *Proc Natl Acad Sci U S A.* 2015;112(36):E5068-77; PubMed PMID: 26305958.

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Ullrich CK, **Rodday AM^{CTS}**, Bingen K, Kupst MJ, Patel SK, Syrjala KL, Harris LL, Recklitis CJ, Schwartz L, Davies S, Guinan EC, Chang G, Wolfe J, Parsons SK. Parent outlook: How parents view the road ahead as they embark on hematopoietic stem cell transplantation for their child. *Biol Blood Marrow Transplant.* 2015 [Epub ahead of print]; PubMed PMID: 26348891.

Continued on page 9, Student Publications

What's the secret?

Tips on Top Techniques

CRISPR: Clustered Regularly Interspaced Short Palindromic Repeat

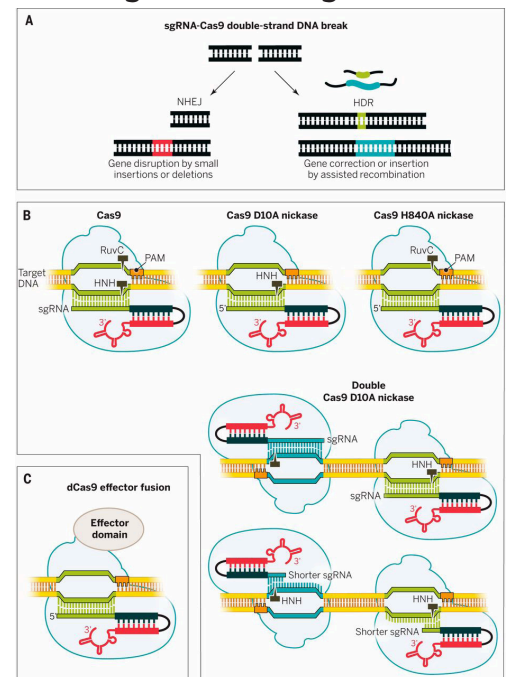
by Brian Lin^{CMD}

What's the Secret? *Is a recurring guest column written by a resident expert on a particular technique, highlighting strategies that may be difficult to find in published protocols. This month's featured technique is CRISPR, and while Brian's notes are presented in a bullet-point list, the format is flexible. Interested in submitting your advice about a technique you use? E-mail us: insight@elist.tufts.edu*

- Off-target activity of CRISPR is a subject of intense debate, but generally, fears are based on initial reports and not the newer systematic and un-biased genome-wide studies, which show much lower incidences of off-target mutations.
- CRISPR isn't just for knock-outs or knock-ins, you can use them for activation (CRISPRa), repression (CRISPRi), binding studies, manipulating epigenetics on targeted loci, and all of these can be made photoactivatable (just because you can).
- While earlier on, targeted sites were limited to sequences adjacent to NGG sites due to requirements of the Cas9 protein, recent directed evolution experiments and alternative species of origin have developed variants of Cas9 which together, allow targeting across the entire genome.
- While non-homologous end joining (NHEJ) is sufficient for simple knock-outs, they are highly variable. To control the deletions that are made, or to knock something in, you require the less efficient homology-driven repair (HR) pathway. To increase efficiency, you can block NHEJ pathway enzymes with inhibitors, such as SCR7 and others, as long as the cell-type or embryo can tolerate the drug.
- HR Donors can be short (~100 bp) oligos with 40 bp homology arms on either side purified through PAGE/HPLC, or long (multi-KB) linearized plasmids with 1-4 kb homology arms. Short oligos are perfect for knocking in FRT sites or point mutations, while long plasmid donors knock-in reporters such as TdTomato, or CreER.
- Remember to silently mutate the PAM site in the donor molecule, unless you want Cas9 to cut your donor molecule over and over again, resulting in little to no efficient HR.
- Alternatives to wildtype Cas9: nickases, catalytically dead, FokI-Cas9 fusions, and more importantly, the much newer Cpf1 enzyme. All have their uses and drawbacks which are beyond the scope of this article.
- Cpf1 is a new player to keep an eye out for, as its smaller, easier to work with, and more importantly, it leaves sticky ends—not blunt, and cuts far away from the recognition site. This potentially allows far more HR to occur, and increases the number of “tries” you have to knock something in as the PAM site will still be there until it gets deleted or correctly homologously recombined.
- Because CRISPR efficiency is heavily dependent on a brief but high dose of Cas9 protein, donor molecules, and gRNA, highest efficiencies will occur with nucleofection of Cas9 mRNA, donor, and transcribed gRNA. When nucleofection or RNA (either bought or self-IVT) is not feasible, direct transfection of the very easy to use PX3/PX4 series of plasmids from Feng Zhang's lab, available from Addgene is quite good as well, depending on transfection efficiency. These plasmids contain a dual gRNA promoter and a Cas9 promoter, coupled with a selection marker and are extremely easy to custom clone.
- When you have CRISPR edited cells, the

next thing to do is clonally expand them, either by limiting dilution (Easy, fast, but low efficiency) or FACS into 96 well plates at single cell numbers (fast, high efficiency, but pay as you go). Remember to supplement some amount of conditioned media from confluent cells of the same type (~50/50) with fresh media to soften the blow on lonely and potentially suicidal single cells. This is followed by expansion, splitting, and testing by sequencing/genotyping to identify the clones that worked!

CRISPR-CAS9 as a genome editing tool



Overview of the CRISPR/CAS9 system from Doudna JA and Charpentier E. Science. 2014;346(6213); PubMed PMID: [25430774](https://pubmed.ncbi.nlm.nih.gov/25430774/).

Additional Resources

Addgene guide to CRISPR
<https://www.addgene.org/CRISPR/guide/>

Sackler student groups for 2015-2016

An introduction to the GSC-funded clubs and their activities.

The Sackler Graduate Student Council (GSC) receives a portion of the Student Activity Fee that every Sackler student pays each year and uses those funds to host events throughout to enrich student life on campus. In order to better serve the student body, the GSC allocates some of its annual budget to student groups that provide more focused programming.

This year, three student groups have been funded: Tufts Biomedical Business Club (TBBC), Tufts University Biomedical Queer Alliance (TBQA), and Tufts Mentoring Circles Program (TMCP). Short descriptions of each club are provided below, and the activities of the clubs will be summarized here along with a preview of upcoming events.

Tufts Biomedical Business Club

(TBBC) from Jaclyn Dunphy^{NRSC}

The Tufts Biomedical Business Club (TBBC) is a student run organization whose mission is to cultivate business leaders in the health and life sciences. TBBC is a growing community of graduate, medical, dental and nutrition students, postdocs, physicians, scientists and alumni. It provides members with opportunities to learn about consulting, business development, entrepreneurship, intellectual property and more. We engage our members through a number of initiatives including a seminar series, Biotech Journal Club, Consulting Case Study Group, panel discussions, and most recently Biotech BUZZ. E-mail tuftsbiotech@gmail.com for more information.

Tufts University Biomedical Queer Alliance (TBQA)

from Laura Darnieder^{NRSC}

Tufts University Biomedical Queer Alliance (TBQA) is a graduate school-based, student-led club organized to create a supportive environment for non-heterosexual and non-cisgendered (NH&NC) individuals between the different professional health and degree programs within the downtown Tufts University campus. In addition, we aim to increase engagement and awareness of the student body in LGBTQ issues that affect both their fellow students as well as the communities they serve. Our organization fosters collaboration and mentorship between physi-

cians, researchers, and students, and aims to strengthen the commitment of Tufts Medical Center and Tufts University Health Sciences campus in supporting NH&NC health, research, and career development. We aim to do this through a variety of activities, including panel discussions, creating mentoring opportunities, orientation events, curriculum feedback, and social events. E-mail TuftsBQA@elist.tufts.edu for more information.

Tufts Mentoring Circles Program (TMCP)

from Siobhan McRee^{GENE} and Carrie Hui^{CMDB}

The Tufts Mentoring Circles Program (TMCP) is a student run organization whose mission is create a confidential space that enables meaningful and helpful discussion of career development and/or work-life balance topics to facilitate personal growth and aid in goal exploration. Through the formation of small group mentoring circles, we aim to connect individuals who will become each other's advocates and accountability partners. These mentoring circles will be a general resource for providing insight, fostering cross-program and cross-departmental collaboration, supporting graduate student life and well-being, and promoting opportunities for networking within the greater Tufts community. If you would like to get involved, including helping organize circles, reach out to alumni, or plan events, e-mail tuftsmentoring@gmail.com for more information.

Upcoming Events:

- **TMCP Circle Meetings**
Oct 1-31 — *Various locations*
- **TBBC Biotech BUZZ!**
Fri Oct 9 — 8:30AM, *Stearns 108*
Start your day with a jolt of caffeine and biotech gossip! This month's topic will be "drug pricing" and how Martin Shkreli became Public Enemy No. 1 by hiking the price of his company's drug 5000% overnight. Join the conversation that even has the presidential candidates buzzing!
- **TBQA Lunch Talk with Raimi Marx**

W Oct 14 — noon, *Sackler 2*

Joint talk between TBQA and SH Interest Group.

- **TMCP "Diversity Toward Institutional Transformation" (External Event)**

Tu Oct 16 — 12:30-4PM,

Murray Function Room, Boston College

Tufts Mentoring Circles invites you to the National Research Mentoring Network forum at Boston College. Outstanding leaders who have led innovative initiatives to address mentoring in science will lead a panel discussion about the challenges and opportunities of diversifying the science workforce.

- **TBBC/GSC Science Open Mic Night**

Tu Oct 20 — 5-7PM, *Sackler 114*

In collaboration with GSC: Moderator Dan Jay, PhD^{DMCB} will introduce his approach to science and art in a two-minute "Flash Talk". Students are encouraged to present their own short flash talks (2 slides + 2 minutes) to practice engaging an audience and improving scientific communication. Food and drinks will be served!

- **TBQA Joint Monthly Meeting**

TBD — noon, *Sackler 2*

- **TBQA DRAG Bingo Social**

TBD — 7PM, *Club Cafe*

Recent Events:

- **TBQA Orientation Social**
M Aug 31: Orientation social with new medical students.
- **TBQA Joint Monthly Meeting**
W Sep 9: First monthly meeting with TBQA members across all Boston Campus-based graduate programs. Discussions on year-long events, goals, and interests in sub-committees (e.g. social, outreach, curriculum reform).
- **TBBC/TBQA/TMCP/GSC GSC Coffee Hour**
Th Sep 17: New member sign-up. Meet & Greet with TBQA PhD directors. Q&A with TMCP coordinators.

Continued on page 9, Clubs

Clubs, continued

- **TMCP Mentor Training**
W Sep 21: Dr. Angela Seliga from Boston University ran a mentor training session for alumni and students who will serve as mentors for this year's Mentoring Circles. All students also interested in being mentors were invited to attend. Her training outlined the expectations and responsibilities of mentors and posed hypothetical but realistic scenarios of mentor-mentee situations for active role playing.
- **TBQA Joint Monthly Meeting**
W Sep 30: Invited faculty member to discuss how to better collaborate between PhD, medical, and dental communities.
- **TMCP Mentoring Circles Kick-Off**
Keynote speaker and Sackler 2009 Outstanding Mentor Awardee Phil Hinds, PhD. Circles were introduced to the program aims and met their fellow circle members, engaging on issues of personal importance in a get-to-know-you activity.
- **TBQA Picnic in the Common**
Sa Oct 3: Postponed due to weather. Reschedule date to be determined.
- **TBBC Dr. Ted Sybertz**
M Oct 5: The former VP of Drug Discovery and Development at Genzyme came to share his experiences of his more than 30 year career in the biotech and pharmaceutical industries.

- **TBBC VentureLabs Fellows Lunch & Learn**
Tu Sep 29: Dr. Jordi Mata-Fink, Dr. John Casey and Lauren Digange from Flagship Ventures came to recruit for the VentureLabs Fellows Program. The program is a paid, 12-week fellowship for students who are within 2 years of graduating. Students interested in life-sciences entrepreneurship and startups are strongly encouraged to apply. Decisions about the first cohort (Summer 2016: June 6 to September 26) will be made before the end of the year, so apply soon!
- **TBBC Biotech Journal Club**
F Oct 2: This month Julie Coleman presented on the topic of "The Billion Dollar Biotech" startup, Moderna. To join the mailing list, email tuftsbiotech@gmail.com with the subject line: BJC.

Acknowledgements:

- **TMCP** would like to give a special thanks to Phil Hinds, PhD^{DMCB} for taking the time to speak at our event. Our continuing gratitude goes to the alumni who are enriching our mentoring experience with their knowledge and expertise: Dana Cairns^{CMDB2012}, Elizabeth Kong^{GENE2010}, Sohini Mazumdar^{GENE2013}, and Chris Varma^{HMS/MIT}.

Student publications, continued

Uzturk BG, Jin SX, Rubin B, Bartolome C^{NRSC}, Feig LA. RasGRF1 regulates the hypothalamic-pituitary-adrenal axis specifically in early-adolescent female mice. *J Endocrinol.* 2015;227(1):227-38; PubMed PMID: 26246084.

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Wessler BS^{CTS}, Kent DM, Thaler DE, Ruthazer R, Lutz JS, Serena J. The RoPE score and right-to-left shunt severity by transcranial doppler in the CODICIA study. *Cerebrovasc Dis.* 2015;40(1-2):52-8; PubMed PMID: 26184495.

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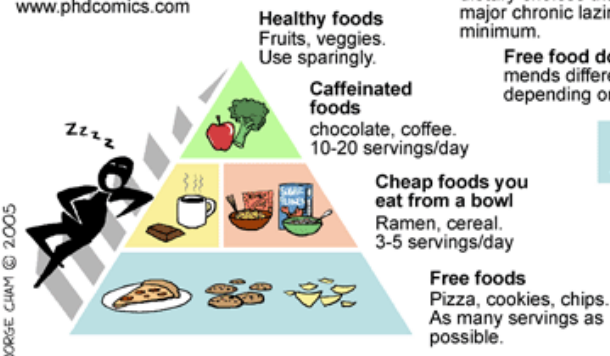
Williamson CD, Wong DS^{CMP}, Bozidis P, Zhang A, Colberg-Poley AM. Isolation of endoplasmic reticulum, mitochondria, and mitochondria-associated membrane and detergent resistant membrane fractions from transfected cells and from human cytomegalovirus-infected primary fibroblasts. *Curr Protoc Cell Biol.* 2015;68:3 27 1-3 33; PubMed PMID: 26331984.

Yuan J, Benway CJ^{GENE}, Bagley J, Iacomini J. MicroRNA-494 promotes cyclosporine-induced nephrotoxicity and epithelial to mesenchymal transition by inhibiting PTEN. *Am J Transplant.* 2015;15(6):1682-91; PubMed PMID: 25854542.

Sequencing a plasmid or PCR product? The Tufts Core Facility no longer provides Sanger sequencing services, but GENEWIZ is now a preferred partner. Questions? Discussion meeting **W Oct 14, 3PM — Jaharis 508**, or contact [Mike Berne](#).

"Piled Higher and Deeper" by Jorge Cham
#582, originally published May 5, 2005 — www.phdcomics.com

The NEW Grad School Food Pyramid
Steps to a cheaper you
www.phdcomics.com



The USDA is proud to present updated guidelines to better grad eating. The new GradPyramid™ is designed to encourage dietary choices that promote productivity, reduce the risk of major chronic laziness, and allow stipends to remain at a minimum.

Free food doesn't fit all. The new GradPyramid recommends different proportions of the four basic food groups depending on your stage in the PhD process:

First years: take advantage of over-abundant Free Foods, but vary your pizza topping intake. Avoid cookies with raisins (it's fruit in disguise).

Years 2-3: Maintain a steady diet of sugar and caffeine for late night quals study sessions. Go easy on sleep, and limit daylight.

Years 4 and over: Aging bodies and empty wallets make bowl foods right for you. Choose cereals with cartoon characters on box and ramen sold in bulk. Be physically active at least once.

The Secret Science Reform you haven't heard of

by Nafis Hasan^{CMD}

Thanks to the creativity of politicians, the title of this “secret” bill is exactly that. The Secret Science Reform may sound like a juvenile act, but its implications are anything but. Passed in the Congress, this bill (H.R. 1030), with its Senatorial twin (S. 544), aims to “prohibit the Environmental Protection Agency from proposing, finalizing, or disseminating a covered action unless all scientific and technical information relied on to support such action is the best available science, specifically identified, and publicly available in a manner sufficient for independent analysis and substantial reproduction of research results”. These bills have attracted backlash from major scientific groups and Democrat politicians who fear that if these bills are made into laws, the EPA’s ability to curb pollution will be severely undermined, which in turn would add more fuel to the climate change fire. While sponsors of both bills (House and Senate Republicans) trumpet the intentions of these bills to be in the best interest of the American public, because of course, we all want regulations to be based on the “best available science”, chances are high that these bills are actually a result of heavy industry lobbying for lowering regulations.

The last clause of this bill, “substantial reproduction of research results”, is the one that could be easily manipulated by the for-profit industries.

Besides the pollution and climate change aspect, something which Republican politicians seem to have little faith in even in the face of “best available science”, these bills will also threaten the violation of privacy of study volunteers who have provided sensitive information to aid the EPA’s decisions in forming regulations. Since these bills require “independent analysis” of the data, sensitive information on study participants will have to be disseminated to third party organizations

Co-sponsors of H.R. 1030 / S. 544

House of Representatives

Babin, Brian [R-TX-36]*
Barton, Joe [R-TX-6]
Bridenstine, Jim [R-OK-1]*
Brooks, Mo [R-AL-5]*
Collins, Doug [R-GA-9]
Comstock, Barbara [R-VA-10]*
Cramer, Kevin [R-ND-At Large]*
Crawford, Eric A. “Rick” [R-AR-1]*
Farenthold, Blake [R-TX-27]*
Goodlatte, Bob [R-VA-6]
Gosar, Paul A. [R-AZ-4]*
Harris, Andy [R-MD-1]*
Hultgren, Randy [R-IL-14]*
Kelly, Mike [R-PA-3]
Lucas, Frank D. [R-OK-3]*
Lummis, Cynthia M. [R-WY-AL]*
Neugebauer, Randy [R-TX-19]*
Newhouse, Dan [R-WA-4]*

Palazzo, Steven M. [R-MS-4]*
Pearce, Stevan [R-NM-2]*
Rohrabacher, Dana [R-CA-48]
Schweikert, David [R-AZ-6]*
Sessions, Pete [R-TX-32]*
Tipton, Scott R. [R-CO-3]
Weber, Randy K., Sr. [R-TX-14]*
Westerman, Bruce [R-AR-4]*
Westmoreland, Lynn A. [R-GA-3]
Young, Don [R-AK-AL]*

Senate

Crapo, Mike [R-ID]*
Enzi, Michael B. [R-WY]*
Fischer, Deb [R-NE]*
Flake, Jeff [R-AZ]*
Inhofe, James M. [R-OK]*
Risch, James E. [R-ID]*
Vitter, David [R-LA]*

for further validation.

The last clause of this bill, “substantial reproduction of research results”, is the one that could be easily manipulated by the for-profit industries. It is no surprise to anyone in scientific research that reproducibility has become a major issue today. In fact, this irreproducibility problem has grown so large that in 2014, the Federal government’s Office of Science and Technology Policy (OSTP) launched an initiative to counter this issue. As more and more papers are retracted due to lack of reproducibility, this act would essentially allow industries to create confusion among the public using social and traditional media services.

The case of bisphenol-A is a prime example where suggested lack of reproducibility has allowed the industry to keep introducing it in low-doses into everyday household goods and obfuscate public opinion regarding the dangers of this chemical. While the food and drug administration has imposed a limit on how much BPA can be present in food packaging, current research shows that even smaller doses of BPA can still increase risks to hormonally controlled cancers, especially those of the breast. However, due to “uncontrolled” contamination in their experiments, the FDA concluded that low dose exposure to BPA is not harmful and this contamination issue is unsolvable. But as a recent paper by vom Saal et al. (2014) showed, the contamination is easily controllable and therefore cannot be the basis as to why the EPA or the FDA

cannot regulate lower exposure limits for BPA than currently approved. This failure of quality control has aided independent think-tanks pushing the free market ideology, such as the Competitive Enterprise Institute, to pressure the Congress to reduce funding for such research.

Throughout history, industry backed research groups have created confusion among the public that severely hampered regulation of toxic and carcinogenic agents such as tobacco, asbestos and lead. All this confusion was created based on the apparent lack of reproducibility of scientific studies, even though there was significant amount of epidemiological evidence for strict regulation of these agents.

These historical examples show that while the ideology of Science remains pure, the practice is not immune to corruption. Therefore, asking for “independent analysis” and “substantial reproduction” without defining a standard for the design of these studies will allow special interest groups to hinder the implementation of public health policies that are intended to protect the American public.

Fortunately, the White House has taken a stand against these bills and have threatened to veto them if they do indeed end up in the Oval office. As scientists, citizens and community members, we can inform ourselves of the current onslaught against Science that is taking place in Capitol Hill and take necessary actions such as calling our representatives or petitioning the White House, if necessary to stop further destruction of our environment.

References and additional reading

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Tufts Public Health

WORKING ACROSS DISCIPLINES AND GLOBAL BOUNDARIES

Social Justice Lecture Series

Nashira Baril, *"Where Our Public Health Training Falls Short and How We can Better Walk our Walk"*

Th Oct 22, noon-1PM — M&V 102

Nashira Baril received her MPH in Maternal and Child Health at the Boston University School of Public Health in 2006 and spent 12 years at the Boston Public Health Commission leading health equity efforts internally and with community coalitions across New England. She is currently working as a consultant supporting public health organizations working towards racial equity and is leading the planning of Boston's first freestanding birth center.



Natalia Mehlman Petrzela, *"Wellness, Culture, and U.S. Education, Past and Present"*

Tu Oct 27, noon-1PM — M&V 105

Natalia Mehlman Petrzela is Assistant Professor of History at the New School in New York City and the author of *Classroom Wars: Language, Sex and the Making of Modern Political Culture* (Oxford University Press, 2015), which details the roots of the culture wars in American public schools, specifically around sexuality and bilingual education. Natalia's most recent research focuses on American "wellness culture" and asks how Americans have engaged in food and fitness regimes as a path to self-fulfillment. She is also the co-founder of Healthclass2.0, an experiential wellness education program embedded in New York City's public schools.



Maria Nardi, *"Health and the Built Environment: A Connected Park System Builds Equitable Communities"*

Th Dec 3, noon-1PM — M&V 102

Maria Nardi received her Masters in Landscape Architecture from Harvard University Graduate School of Design. Currently, she serves as the Assistant Director of Planning and Design Excellence at Miami-Dade Parks Department where she directs the Park and Public Space Master Plan, a national model for how parks shape equitable communities. Prior to her work at Miami-Dade County, she was Chief of Urban Design for the City of Miami where she initiated Miami21, a rewrite of land use policy to build a healthier, more walkable Miami.



Art on a budget

Student discounts to access the arts in Boston.

compiled by Daniel Wong^{CMP}

ArtsEmerson Student and Advance Student Tickets

Various times

Emerson/Paramount Theater, 559 Washington St, Boston and Emerson/Cutler Majestic Theater, 219 Tremont St, Boston - **\$10 rush or \$15 advance, ArtsEmerson productions**

https://artsemerson.org/Online/default.asp?BOParam::WScontent::loadArticle::permalink=ticket_offers

Full time high school or college students with a student ID are able to get up to two tickets for \$10 via same day rush in-person, or \$15 advance in-person or online. Online purchases require student ID to be shown at the door.

BSO College Card

Free tickets available weekly

Symphony Hall, 301 Massachusetts Ave, Boston - **\$25/year**
bso.org/brands/bso/education-community/students-educators/bso-college-card.aspx

Students can purchase the BSO College Card, which entitles the cardholder to one free ticket per concert to selected BSO performances. Available shows are announced on Mondays.

Museum of Fine Art

10am-4:45pm, except W,Th,F 10am-9:45pm; Avenue of the Arts, 465 Huntington Ave,

Boston - **Free with Tufts ID / \$23 student**

mfa.org/membership/universities

Admission to the MFA is **free** for Tufts students with your student ID. You also receive 10% off in the Museum Bookstore & Shops.

Isabella Stewart Gardner Museum Third Thursdays

Third Thursday of each month, 5:30pm

Isabella Stewart Gardner Museum,

280 The Fenway, Boston - **\$5 with student ID / \$15 adults, cash wine bar**

gardnermuseum.org/calendar/event_series/third_thursdays

Enjoy wine and a night at the museum! The Third Thursday series features short talks about art and the museum, live music, and other activities throughout each evening.

ICA Free Thursday Nights

Every Thursday night, 5-9pm

Institute of Contemporary Art,
100 Northern Ave, Boston - **Free**

icaboston.org/visit/

Admission to the ICA is free Thursday nights from 5 PM until the museum closes at 9 PM.

Lasker, continued

and public health would continue.

The tenacity and passion of Albert and Mary Lasker for medical research and outreach are reflected in the recipients of their foundation's awards, as Lasker laureates are exceptional leaders in their fields. Indeed, over eighty Lasker Award recipients have also gone on to be awarded a Nobel Prize, forty-four of them within the last three decades. This year's laureates are no exception to this trend of excellence.



2015 Albert Lasker Basic Medical Research Award winners Evelyn M. Witkin (left) and Stephen J. Elledge (right).
JANE GITSCHIER/RUTGERS TODAY
EMMANUEL ORDING/THE BOSTON GLOBE

The Albert Lasker Basic Medical Research Award was bestowed upon two recipients in 2015—Dr. Evelyn Witkin of Rutgers University and Dr. Stephen Elledge of Brigham and Women's Hospital—for advances made in understanding bacterial and eukaryotic DNA damage repair. Dr. Witkin's work began in 1944 when, at Cold Spring Harbor Laboratory, she uncovered a radiation-resistant strain of *Escherichia coli* while investigating the effects of ultraviolet light on impeding bacterial cell division. One summer's worth of work ignited an entire career, as she pursued studying DNA mutagenesis and subsequently DNA damage repair over numerous decades. Her work, in conjunction with that of Dr. Miroslav Radman, led to the discovery and characterization of the SOS response, a broad, error-prone DNA damage response in bacteria that promotes both repair and mutagenesis and is mediated by the proteins RecA and LexA. Like Witkin, Dr. Elledge has made astounding impacts in the biomedical research community due to his work on DNA damage response mechanisms, but in the eukaryotic system. Initially he studied how DNA synthesis and damage repair pathways interacted in yeast, and these findings eventually led him to investigations regarding the ATM-mediated damage response. Significantly, he discovered

how ATR detects DNA damage and initiates the subsequent response cascade; he continues to investigate the complexity of these pathways, as well as a host of other topics related to DNA and cell cycle maintenance.



James 2015 Lasker-DeBakey Clinical Medical Award Winner James Allison.
LASKER FOUNDATION

Dr. James Allison of the University of Texas MD Anderson Cancer Center was bestowed with the Lasker-DeBakey Clinical Medical Research Award this year for his development of a monoclonal antibody that stimulates tumor detection by the immune system. His work delineating the role of the protein receptor CTLA-4 in T-cell proliferation and as an antagonist to CD28-mediated T-cell activation led him to cancer immunotherapy research. He proposed that blocking CTLA-4 suppression of T-cell response would allow the immune system to detect tumors it previously ignored. Initial success in mouse models—where an anti-CTLA-4 antibody spurred tumor rejection—led Allison to pursue advancing this treatment to clinical trials. Over a decade later, the human anti-CTLA-4 antibody, termed ipilimumab, was approved by the FDA in 2011 for treatment of late-stage melanoma. This type of immune therapy is a radical one, as it triggers a general immune response instead of targeting tumor-specific markers, and thus has promising potential to be a treatment option for multiple types of cancer.

In 2015, the recipient of the Lasker-Bloomberg Public Service Award was not an individual, but rather an organization. Médecins Sans Frontières (MSF, also known as Doctors Without Borders) was commended for their tremendous response to the Ebola outbreaks in Africa last year. Members of MSF were on the ground from day one, serving as leaders in disease treatment and containment as well as pillars of patient and community support despite facing immense challenges on a local, national, and global scale. Even after the most significant outbreaks subsided, MSF continued their efforts



Joanne Liu, International President of Doctors without Borders (MSF), with a member of the MSF team in Sierra Leone.
P.K. LEE/DOCTORS WITHOUT BORDERS

through advocacy for programs and support that will aid and improve response efficacy to future epidemics.

No doubt this year's award laureates will continue to change the face of medicine in the years to come and also inspire future medical researchers and advocates to do the same.

Interested in writing?

We'd like your contribution! Works about both science and non-science topics accepted. Writers will be acknowledged, with increasing recognition (guest writer, contributor, staff writer) for additional content submissions and publication. E-mail us: insight@elist.tufts.edu

InSight Newsletter Team

Kayla Gross^{CMDB}
Kofi Gyan^{PREP}
Nafis Hasan^{CMDB, GSC}
Sanna Herwald^{MMB/MSTP, GSC}
Laura Pavlech^{HHSL}
Daniel Wong^{CMP, GSC}

InSight Contributors

Laura Pavlech^{HHSL}

InSight Guest Writers

Kayla Gross^{CMDB}
Kofi Gyan^{PREP}
Brian Lin^{CMDB}

Team: Participated in planning of and coordination of content this year.

Contributors: Contributed substantial content this year, and not a GSC program rep.

Guest Writers: Contributed a single long article or a few short articles this year aside from club updates, and not a GSC program representative.