Welcome to the Vernon Brightman Research Society Spring Newsletter, where you will find the most up to date information on current research and opportunities for research at Penn Dental!

Spring, 2014

Upcoming Events

RESEARCH RECEPTION
February 6, 2014
Meet the researchers and find a project!

ORAL HEALTH FAIR
April 16, 2014
Learn about current oral health research and products!

AADR/AEDA ADVOCACY DAY IN D.C.
April 8, 2014
Stand up for dental education and research funding!

STUDENT RESEARCH DAY
May 15, 2014
See what projects your classmates have done!

RESEARCH POSTER WORKSHOP
Date TBD
Improve your poster design skills!

Welcome!

Hey there! Thanks for picking up a copy of the Vernon Brightman Research Society’s newsletter! VBRS is an organization dedicated to promoting student research activities at the School of Dental Medicine here at Penn. Research is the driving force behind advancing dental academia and technology. As future healthcare providers, it is vital that we be able to critically analyze the results of oral health findings as well as the efficacy of newly developed dental materials, tools, and techniques. The research highlights, resources, and upcoming events contained in this newsletter are just a glimpse of the research sphere at Penn SDM. We hope you enjoy!

Yours truly,

VBRS Board
Chris Kim (D3) was one of the first few students to start the research honors program. As a former chemical engineer from the bio-pharmaceutical industry, Chris was immediately drawn to the dental materials research during his first year. His extensive undergraduate research experience in cartilage tissue engineering and nanoengineering biomedical implants was a perfect match for Dr. Mante's dental materials lab at Penn Dental. Chris has worked on multiple projects while at Penn, including an investigation on the interfacial fracture behaviors that occur in a composite resin-adhesive-dentin joint, as well as the effect of antibacterial agents, called Gantrez and triclosan, on the fracture toughness of the adhesive layer between composite resin and dentin. His in vitro model specimens were specifically designed using mechanical engineering principles such as linear elasticity of materials and plain-strain conditions. After two summers in the lab, Chris published three abstracts and one paper all as first author. His findings were presented at the 2013 International Association of Dental Research (IADR) Conference in Seattle, WA, and the 2013 International Congress of Adhesive Dentistry in Philadelphia, PA. This academic year, Chris hopes to present his research at the 2014 American Association of Dental Research (AADR) Conference in Charlotte, NC, and the 2014 International Association of Dental Research (IADR) Conference in Cape Town, South Africa. Chris is currently completing a dual degree program while at Penn, finishing both a DMD and Masters in Bioengineering. Chris believes that dentistry is, at its core, a practical application of biomedical engineering. He believes that dentistry will constantly evolve with research, coming in the form of novel products and therapeutic approaches chair-side.
The Dental Library Homepage can link you to all of our important databases and other online resources. You can find us at: http://www.library.upenn.edu/dental

Here’s just a few of our most important resources:

**PubMed Plus**
PubMed Plus is your best bet to find articles related to dentistry. We all search Pubmed, but is it sometimes difficult to find what you need? The library has developed videos that focus on important search techniques to help you access information quickly and efficiently. The videos may be viewed at: http://tinyurl.com/pubmedvideo

**Lexicomp Online for Dentistry**
Struggling to find out what effects various medications have on dental treatment? Don't forget Lexicomp Online for Dentistry, which highlights pharmaceutical information relevant specifically to the Dental professional. Lexicomp Online for Dentistry can be found on the Dental Library's homepage or at: http://hdl.library.upenn.edu/1017/91276

**Exam Master - NBDE Part 1**
Exam Master's board review for the NBDE (National Board Dental Exam Part 1) contains over 2100 practice and review questions with detailed explanations. Questions are organized into over 30 subjects for quick and comprehensive review. This resource can be found on the Dental Library's homepage or at: http://hdl.library.upenn.edu/1017/97844

Access resources without visiting the Library!

**Proxy Bookmark**
Browsing e-resources on campus is easy. Most of our journal and database providers are able to detect that you are on campus, and give you access to the high-quality content that Penn provides. Off-campus is another story. If you are looking for articles on the web by using Google Scholar or by going directly to a vendor's site, and you haven't logged in (or "proxied") as a Penn user, we've made a browser bookmark button to help you log in without going all the way back to the Library web site. Learn more at: http://guides.library.upenn.edu/nettools

**BrowZine**
BrowZine is a tablet-based alerting service that allows you to browse, read and monitor many of the Penn Libraries journal subscriptions on your iPad, Android or Kindle. It works by pulling together articles from library subscribed databases, uniting them into complete issues, and displaying them in a “newsstand” type presentation. Learn more at: http://appsontap.wordpress.com/2013/10/24/browzine-is-now-available-to-the-penn-community/

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**Student Spotlight: Leah Yi**

Leah has been working with her supervising graduate student, Fanxing Xu, on a project in Dr. Grave’s lab that focuses on FOXO1’s role in the impairment of wound healing, a common complication of diabetes. Prolonged hyperglycemic conditions, as in chronic diabetes, generate all sorts of problems that lead to a state of oxidative stress. Previously, it has been shown that FOXO1 plays a protective role under normoglycemic conditions by stimulating expression of antioxidants in the face of oxidative stress. However, when in vitro keratinocytes are cultured in hyperglycemic conditions and deprived of insulin (to mimic insulin resistance), FOXO1 increases the expression of pro-inflammatory cytokines induced by oxidative stress, which in turn activates more FOXO1. This positive feedback mechanism ultimately leads to uncontrolled inflammation, delayed cell migration, and disruption of the wound healing process. To date, the lab has studied several proteins regulated by FOXO1 and how they themselves affect wound healing.

Leah first met Dr. Graves at the VBRS Research Reception event last spring semester. She was interested in his work and drawn by his enthusiasm in getting students involved in his lab. Fanxing Xu has been a huge source of help and knowledge for Leah during her summer research and even now. Leah has continued to conduct experiments for Fanxing's project throughout her second year at Penn SDM, and is currently working on a proposal to start her own project under the Research Honors Program. When asked for some advice to give to her fellow D1 and D2 classmates, Leah recommended “getting involved in research as soon as possible. It’s a great learning experience, an excellent chance to get involved in the more exciting areas of dental academia, and a good motivator to stay interested in our classes.”
Faculty Spotlight:
Dr. Joseph DiRienzo

Dr. DiRienzo teaches at the University Of Pennsylvania School of Dental Medicine in the Department of Microbiology. He studies the role of bacteria in the pathogenesis of periodontal diseases.

Dr. DiRienzo earned his BSc in Biology from Providence College in 1972. He continued his training at McGill University completing his PhD in microbiology in 1977. Additionally, he worked at the State University of New York at Stony Brook during his postdoctoral training in biochemistry. Dr. DiRienzo has a number of impressive credentials including the Scientific Review Panel (Vaccines Against Microbial Diseases, NIH), the Editorial Review Board (Oral Microbiology and Immunology), Special Emphasis Review Panel (Interdisciplinary Research Consortium I, NCRR/NIH), and the James A. Shannon Director's Award (NIDCR/NIH). Dr. DiRienzo is most proud of having been able to carry out independent research in the field of microbiology for such an extended period of time.

The ongoing project Dr. DiRienzo is most excited about is the studies of Aggregatibacter actinomycetemcomitans, a Gram-negative periodontal bacterium, and its interaction with cells from the human oral cavity. The species exhibit a relatively large repertoire of toxins and other proteins that have significant potential to damage cells and tissues important for maintaining oral health.

Finally, Dr. DiRienzo believes research can be an invaluable part of a dental school education. He feels that participating in research allows students to develop a more refined perspective of the science of dentistry and oral health. Additionally, having a hands-on experience with the scientific method makes students more creative and disciplined thinkers. He also believes that research experience provides students with a better appreciation of how techniques and procedures important to dental practice are developed and evolve to incorporate improvements or new approaches.

Interested in research this summer?

Consider participating in the Penn Dental Summer Research Program! Students work full time in July and August with a faculty preceptor on a mutually-agreed upon research project, culminating in a poster presentation to be given at school-wide, national, and even international events. Funding for projects is provided based on scientific merit and availability of funds. Students participating in the research program are eligible for various fellowships and awards. Summer projects may also qualify for the Research Honors Program, assuming additional requirements are met.

How to Apply: Students must submit a proposal describing the project and fill out an application form: http://www.dental.upenn.edu/research/student_research/summer_research_program

Application Due Date: Beginning of April (TBA)

Contact: Dr. Joseph DiRienzo (Director, Summer Research Program)
Dr. Kathleen Boesze-Battaglia (Director, Research Honors Program)
Fun Facts: Unexpected Uses for Toothpaste!

Remove scuffs from shoes. Just squirt a dab on the scuffed area and rub with a soft cloth. Wipe clean with a damp cloth. The leather will look like new!

Clean your sneakers. Some non-gel toothpaste and an old toothbrush can get the rubber part of your dirty sneakers clean and white!

Prevent fogged goggles and mirrors. Coat the lenses or mirror with non-gel toothpaste and wipe it off before going about your activities. No more fog!

Shine bathroom and kitchen chrome. The fine abrasive in non-gel toothpaste works just as well as commercial cleaners!

Remove crayon from walls. Squirt the toothpaste on the wall and start scrubbing. The fine abrasive in the toothpaste will rub away the crayon every time!

Remove ink or lipstick stains from fabric. It doesn’t always work, but it’s worth a try! Rub the fabric vigorously with toothpaste on the stain, then rinse with water.

Remove watermarks from furniture. Get rid of those watermark rings on wood left by cold beverages!

Clear up pimples. Dab a bit of non-gel, non-whitening toothpaste on the offending spot, and it should be dried up by morning! The toothpaste dehydrates the pimple and absorbs the oil. This remedy works best on pimples that have come to a head. Caution: This remedy may be irritating to sensitive skin.

Clean smells from hands. The ingredients in toothpaste that deodorize your mouth will work on your hands as well!

Questions? Want to Get Involved?

Contact the VBRS Exec Board!

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