Wednesday 12 Feb 2014

RED WINE, RESVERATROL AND DRUG-ELUTING STENTS

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LSU Health Sciences Center in Shreveport, LA

Arterial disease is characterized by vessel narrowing and a loss of blood flow to tissues. Balloon angioplasty, or angioplasty coupled to the placement of a stent, are approaches used clinically for correcting these blockages. However, restenosis, or vessel re-narrowing, is a common complication of these procedures. Drug-eluting stents were thus conceived to reduce the risk of restenosis and improve prognosis. Unfortunately, current generation drug-eluting stents (DES) are associated with unintended complications including potentially fatal late-term thrombosis and hypersensitivity reactions. These shortcomings of current approaches provided an impetus for the engineering of novel device therapies that exhibit increased biocompatibility and promote vascular healing after angioplasty. That engineering requires the collaboration of sciences ranging from engineering, polymer chemistry, and analytical chemistry, to pharmacology and vascular biology. Resveratrol and quercetin are red wine polyphenols with known vascular protective effects. The goal of our research is to develop a stent coating that releases these drugs within a therapeutic range and provides an extended release profile to inhibit cascades responsible for restenosis and thrombosis. To achieve the greatest efficacy at the lowest concentrations, we are using isobolographic analysis to identify synergistic combinations of resveratrol and quercetin. The most synergistic drug combination is being incorporated into a branched, or arborescent, poly(styrene-isobutylene-styrene) tri-block polymer (arbIBS) and applied to stainless steel stent surrogates using the novel NanoElectrospray process. We are using in vitro screening techniques to assess the efficacy and biocompatibility of these drug-coated surfaces. Scanning electron and Raman microscopy techniques are utilized to assess the distribution of drugs within the polymeric matrix and the integrity of the coating pre- and post-elution. In addition, we are using computational fluid dynamic (CFD) simulations to complement experimental studies, providing valuable insight into potential vascular tissue pharmacokinetics. Ongoing experiments are aimed at introducing this novel stent coating into a rat model of angioplasty for further evaluation.

6:00-6:30 pm Reception, Howell Hall Atrium
6:30-7:15 pm Dinner, Nigh University Center, Heritage Room, Room 326
7:15-8:15 pm Presentation
University of Central Oklahoma,
Edmond, OK
http://www.uco.edu/

UCO campus map

Menu, Ultimate BBQ Buffet
Grilled hickory chicken, sliced BBQ brisket, slow-cooked pulled pork
ranch style beans, mini corn cob
cornbread with butter
potato salad, green salad, macaroni salad
apple pie or peach cobbler
coffee and tea

Cost
$18 members
$5 students

RSVP Deadline
Friday, February 7th, 5 pm
Contact: Carla Supon
phone: 405-974-5732
email: csupon@uco.edu

Vegetarian option available. Please indicate when you RSVP

Directions Campus map (QR above or see page 3) Paid parking is available in the Visitor Lot, east of the Nigh University Center. The Howell Hall Atrium is on the ground floor between Howell Hall and the Howell Hall Laboratory Annex Building. The Heritage Room is on the third floor of the Nigh University Center at the top of the center stairway.

Dugas Bioskecth on next page →

Tammy Dugas Biographical Sketch

Dr. Tammy Dugas is a toxicologist currently serving as Associate Professor in the Department of Pharmacology, Toxicology and Neuroscience at the LSU Health Sciences Center in Shreveport, LA. Dr. Dugas obtained both her B.S. in Biochemistry and her Ph.D. in Chemistry at the Louisiana State University A & M College in Baton Rouge. She then completed one postdoctoral fellowship in Biochemistry at the Drexel University College of Medicine in Philadelphia, PA and another in Toxicology at the University of Texas Medical Branch in Galveston. In 2001, she joined the faculty at the LSU Health Sciences Center. Since that time, she has pursued diverse research endeavors in the areas of drug metabolism and mechanisms by which toxic chemicals, either from environmental exposures or drug therapies, target the cardiovascular system to exacerbate the progression of cardiovascular diseases. In pursuit of these research goals, she became interested in documented adverse outcomes observed in some individuals implanted with drug-eluting stents. Through her broad training in both cardiovascular toxicology and chemistry, she was able to bring together a group of collaborating laboratories in pursuit of the development of novel coatings for drug-eluting stents. Hopefully, these new coatings utilizing natural products exert equivalent efficacies compared to current generation products, but with fewer side effects.

PARKING LOT DESIGNATIONS – VALID FALL 2013

All vehicles must display a current UCO parking decal and park in their designated parking lots.

- **Commuter** Parking (any current UCO permit from 4pm - 7am)
- **Commuter** Parking (from 7am - 4pm only)
- **Housing** Parking only, 24 hours/day
- **Faculty/Staff** Parking (any current UCO permit from 4pm - 7am)
- **Faculty/Staff** Parking only, 24 hours/day
- **Multipermit** Parking (any current UCO permit required)
- **Multipermit** Parking (from 7am - 4pm only)
- **Visitor** Parking - metered or pay lot parking, (must be paid)
- **Reserved** Use
- **Authorized Vehicles** Only
- **Disabled** Parking
- **Motorcycle** Parking
- **Bicycle** Rack

Lot	Walking Distance from Nigh University Center (minutes)
1	7:00
6	4:00
12	4:30
16	7:00
18	5:00
22	8:00
29	6:30
49	11:00
54	8:00

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If you arrive between	*Look for open spaces*
7 and 9am	In all parking lots
9 to 11am	North and east side of campus
11am to 3pm	North of Ayers