



ISOTOPICS

The Cleveland Section of the American Chemical Society

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September Meeting Notice

Wed. Sept 26, 2018

The Oak Barrel

5975 Canal Rd. Valley View, Ohio 44125

<http://theoakbarrel.com>

4:30 pm	Executive Committee Meeting
5:30 pm	Social/Networking
6:15-7:00 pm	Dinner
7:00-8:00 pm	Presentation

On Deck:

Oct. 17 2018

Industry Night

Cleveland ACS Officers

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Isotopics

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"Can a Tree Help Me Pee? Pygeum and BPH"

by Dr. Robert Q. Thompson, Professor of Chemistry and Biochemistry, Oberlin College

Abstract: Benign prostatic hyperplasia (BPH) or enlarged prostate afflicts a majority of men in the United States over the age of sixty. Some men have serious enough symptoms (*e.g.* difficulty urinating) to be seen by a doctor, and some of those will resort to over-the-counter botanicals rather than prescribed pharmaceuticals. One of these botanicals is pygeum, the ground up bark and/or extract of the bark of an African cherry tree, *Prunus africana*. Pygeum contains a number of compounds that may be effective in treating BPH.

An analytical method was developed and optimized to identify and quantify five BPH-active compounds in bark and pygeum capsules. The method involved saponification of natural esters in the material, liquid-liquid and liquid-solid extraction, and LC-APCI-MS (triple quadrupole) quantification. Four bark samples and seven commercial products were analyzed, and the concentrations of the BPH-active compounds were compared.

DINNER RESERVATIONS Please RSVP for the dinner September 13th by emailing to Dr. Chris Boyd (w.c.boyd59@csuohio.edu). At the event, we can take credit card payments, checks made out to "Cleveland ACS", or cash. The cost is \$20 for members and guests, \$10 for retirees or unemployed, and \$5 for students.

More about the Thompson group:

The Thompson research group is developing a set of environmental analytical chemistry experiments that can be used to teach instrumental analysis at the college level. With the laboratory manual, students will be able to explore their local environment by analyzing, for example, dryer lint for brominated flame retardants, rice cakes for organic and inorganic arsenic, soil for organophosphorus pesticides, bedroom air for formaldehyde, and drinking water for microplastics. Instruments necessary for the analyses include a gas chromatograph, liquid chromatograph – mass spectrometer, furnace atomic absorption spectrophotometer, stripping voltammograph, and IR / Raman spectrophotometer.

You're invited! Grand Assembly of Kits Day (GAK) for NCW

Next Saturday, Sept. 8, 2018, is the day when volunteers create the kits that we use for the Section's National Chemistry Week (NCW) Demonstration Programs in October. We call this GAK Day--Grand Assembly of Kits Day.

We can use all the help we can get, so please consider coming, bringing friends of all ages and joining your colleagues. No previous experience required! We'll be there until kit assembly is complete (usually around 3 or so), but you don't need to stay the entire day. We'll have breakfast items, beverages and snacks available all day. Our famous pizza lunch will be served around noon for all participants.

GAK Day starts at 8:30 AM in room W318 of the Dolan Science Center at John Carroll University in University Heights. Once you've arrived at Dolan, we recommend that you take the stairs or elevator at the rear of the WEST wing to the third floor and then turn left. Signs will be posted. If you have any questions about GAK Day or any phase of our NCW Program, please contact Bob Fowler at jrfowler@cox.net.

From ACS Discoveries: Insights from a rare genetic disease may help treat multiple myeloma

ACS Central Science

A new class of drugs for blood cancers such as leukemia and multiple myeloma is showing promise. But it is hobbled by a problem that also plagues other cancer drugs: targeted cells can develop resistance. Now scientists, reporting in *ACS Central Science*, have found that insights into a rare genetic disease known as NGLY1 deficiency could help scientists understand how that resistance works — and potentially how drugs can outsmart it.

A class of compounds called proteasome inhibitors that include bortezomib and carfilzomib — both approved by the U.S. Food and Drug Administration — have been effective at treating certain types of blood cancers. The drugs work by jamming some of cancer cells' machinery to induce cell death. But the drugs have been limited by cancer cells' ability to develop resistance, as well as the inhibitors' inability to fight solid tumors effectively. Studies have suggested that resistance could be linked to a protein called Nrf1. When proteasome inhibitors go into action, Nrf1 is spurred into overdrive to restore the cells' normal activities and keep them alive. If researchers could figure out how to block Nrf1, they might be able to address the resistance problem. Carolyn Bertozzi and colleagues, through studying NGLY1 deficiency, a seemingly unrelated condition, may have hit upon an approach to do this.

The researchers were investigating how lacking the enzyme NGLY1 causes a host of debilitating symptoms. They found that NGLY1 is responsible for activating Nrf1, the protein that is suspected of weakening proteasome inhibitors' effectiveness against cancer. Further testing showed that dampening NGLY1 allowed a proteasome inhibitor to continue doing its work killing cancer cells without interference from Nrf1. This finding, the authors note, holds great promise for the development of combination therapeutics for blood cancers in the future.

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