May 20th, 12:30 PM

Anthelmintic Screening for Parasitic Nematodes

Elfawal A. Mostafa  
*University of Massachusetts Medical School*

Dan Lawler  
*Worcester Polytechnic Institute*

Dirk Albrecht  
*Worcester Polytechnic Institute*

*See next page for additional authors*

Follow this and additional works at: [http://escholarship.umassmed.edu/cts_retreat](http://escholarship.umassmed.edu/cts_retreat)

Part of the [Investigative Techniques Commons](http://escholarship.umassmed.edu/cts_retreat), [Medicinal Chemistry and Pharmaceutics Commons](http://escholarship.umassmed.edu/cts_retreat), [Parasitic Diseases Commons](http://escholarship.umassmed.edu/cts_retreat), and the [Parasitology Commons](http://escholarship.umassmed.edu/cts_retreat)

---

Mostafa, Elfawal A.; Lawler, Dan; Albrecht, Dirk; and Aroian, Raffi V., "Anthelmintic Screening for Parasitic Nematodes" (2016).  
*UMass Center for Clinical and Translational Science Research Retreat*. 16.  
[http://escholarship.umassmed.edu/cts_retreat/2016/posters/16](http://escholarship.umassmed.edu/cts_retreat/2016/posters/16)

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
Presenter Information
Elfawal A. Mostafa, Dan Lawler, Dirk Albrecht, and Raffi V. Aroian

Keywords
nematodes, phenotypic screening, anthelminthic screening, drug discovery, parasites, Caenorhabditis elegans

Creative Commons License
This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.

This poster abstract is available at eScholarship@UMMS: http://escholarship.umassmed.edu/cts_retreat/2016/posters/16
Anthelminthic Screening for Parasitic Nematodes

Mostafa Elfawal, PhD¹, Dan Lawler M.Eng², Dirk Albrecht, PhD², Raffi Aroian, PhD¹

¹Program in Molecular Medicine, University of Massachusetts Medical School Worcester
²Quantitative Neurology Lab, Worcester Polytechnic Institute

For many parasitic diseases, high-throughput phenotypic screening is an important tool in finding new drugs. Some of the most important parasitic diseases are caused by nematodes. However, these parasitic nematodes are not typically amenable to high throughput screening. Due to the ease of its maintenance and suitability for high throughput assay, the nematode Caenorhabditis elegans is instead used. To address whether C. elegans is a good model for nematode drug discovery, we compared the drug susceptibility of C. elegans relative to the human hookworm nematode parasite Ancylostoma ceylanicum at several developmental stages using a library of FDA approved drugs. I will present results of these studies that point to how well C. elegans efficacy correlates with hookworm efficacy and how early larval stages (easier to get) correlated with adult stages (more representative of what stage is targeted in human therapy). In addition, we are working on moderate-high throughput system for screening adult parasites. Murine Holigmosomoides polygyrus is a good model for human parasitic nematodes. Using Union Biometrica, Copas, worm sorter we were able to sort H. polygyrus into 384 well format. Here I will discuss the capabilities of this system as well as how we are building de novo, in collaboration with the Albrecht laboratory at WPI, an imaging and image analysis platform for screening adult stages of this parasite against large drug libraries.

Mostafa A. Elfawal, Ph.D.
=======================================
Program in Molecular Medicine
University of Massachusetts Medical School
Biotech Two, Suite 219
373 Plantation Street
Worcester, MA  01605-2377
Mostafa.Elfawal@umassmed.edu