

Drugs from the Sea

1:00 – 1:50 AM Friday - Fall 2021

Zoom link (if it becomes necessary)

<https://uhealth.zoom.us/j/84721807155?pwd=KytpNFRjS25PQnc4WmVkVjQ1Vy82dz09> (Links to an external site.)

Password: Algae

Instructor: Bill Gerwick (wgerwick@ucsd.edu)

This course will explore some of the more advanced and interesting stories of the search for drugs from the sea. In some cases this has resulted in approved pharmaceutical agents, and in others the development process is ongoing. The interesting biology and chemistry of marine life will be discussed, and the discovery and development process described in broad detail. The discussions will be multi-faceted and include elements of marine biology, biodiversity conservation, organic chemistry, biochemistry, economics, societal issues and ethics.

Sept 23	Introduction to “Drugs from the Sea”	Gerwick
Oct 1	COVID-19 and the search for new antivirals	Gerwick
Oct 8	Teaching a toxin to kill cancer	Dr. Nicole Avalon
Oct 15	Shrimp that weave an algae home	Gerwick
Oct 22	Clown fish and their anemone hosts – an underwater Puppet Show?	Gerwick
Oct 29	Where do fish oils really come from?	Gerwick
Nov 5	A Cone Snail toxin as a pain therapeutic?	Gerwick
Nov 12	An anti-leukemia drug from a sponge?	Gerwick
Nov 19	New Frontiers – genome mining approaches	Gerwick
Nov 26	Thanksgiving break	
Dec 3	Visit to SIO, Scripps Pier and Gerwick Labs	Gerwick

Course Objectives

1. To expose students to some of the more impactful and interesting marine natural products, including their discovery, structure determination, chemical ecology, and pharmacological properties
2. To consider the many challenges encountered in the drug discovery and development process
3. To appreciate the highly multidisciplinary process involved in natural products drug discovery
4. To recognize the interlinked dependencies of habitat and biodiversity preservation with human health

-

Text

Primary literature to be assigned in class

-

Grading

Reading Reflections – 6 x 10 pts = 60 points total (due on Thursdays at midnight) [note, there are 8 classes for which reflections are possible (lectures 2-9 inclusive) such that you have the option of not turning in up to two reflections]