

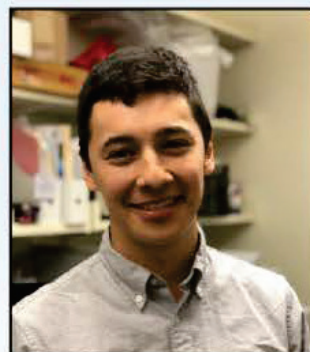
The Microbiome and Drug Delivery

cross-species communication in health and disease

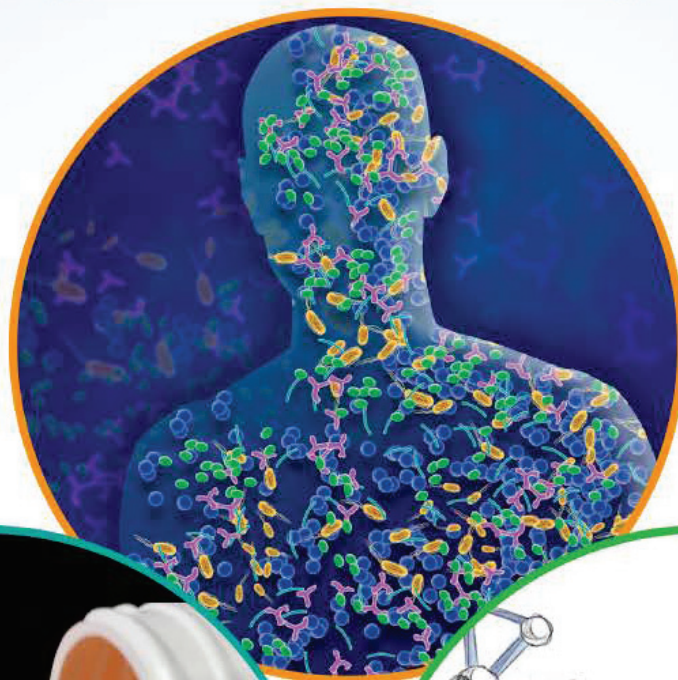
7.341 advanced undergraduate seminar course

First seminar: Tuesday, Sept 1st, 9:30am, <https://bit.ly/33z3j9W>

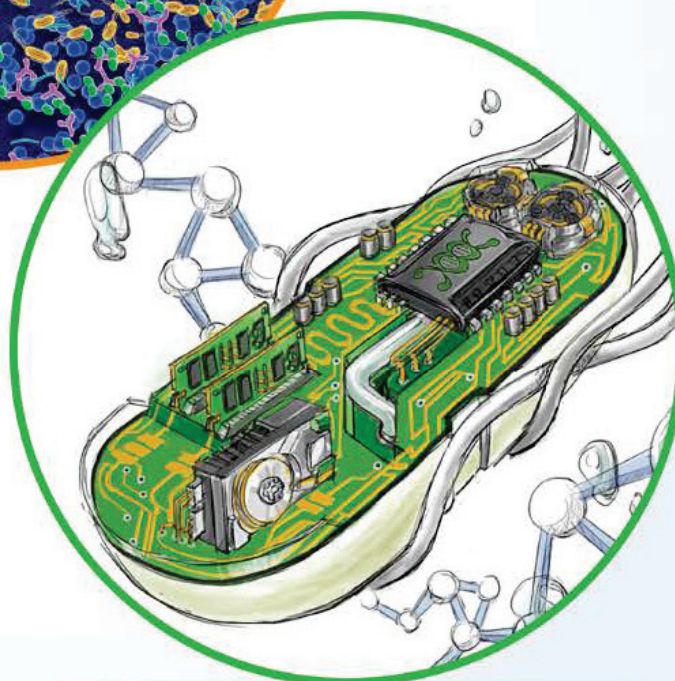
The Microbiome



Dr. Miguel Jimenez
jmiguelfj@mit.edu



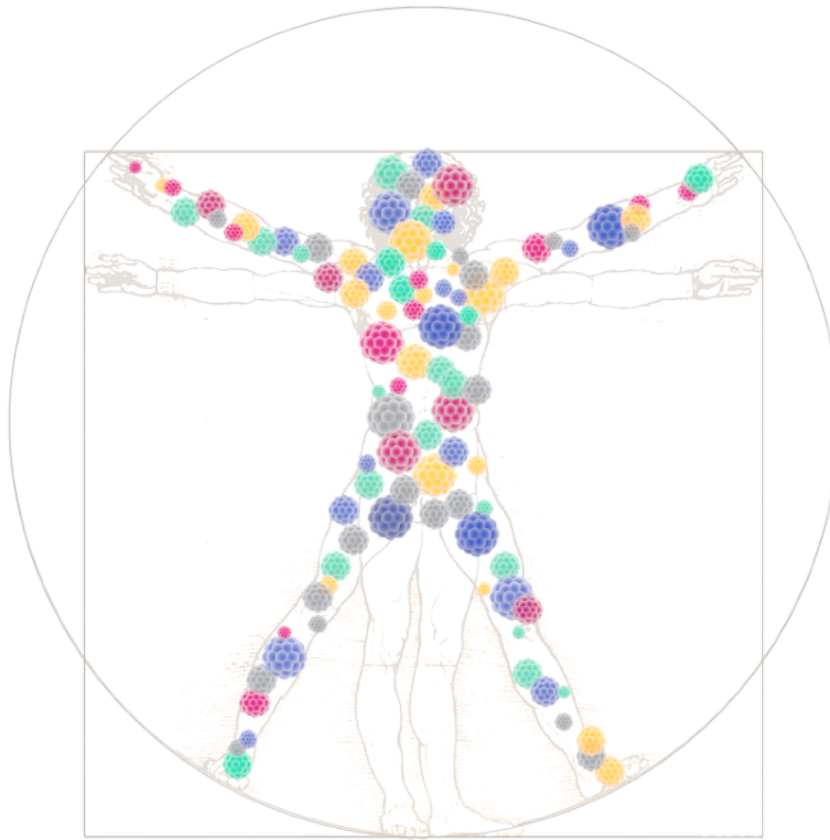
Microbial Therapeutics



Synthetic Biology

Virtual Tour & Guest Speakers





7.342 THE SEEDS AND THE SOIL: ROLES OF TUMOR HETEROGENEITY AND THE TUMOR MICROENVIRONMENT IN CANCER METASTASIS

MIT Biology Advanced Undergraduate Seminars - Fall, 2020

Thursday, 1 pm - 3 pm (Days and Class time are flexible)

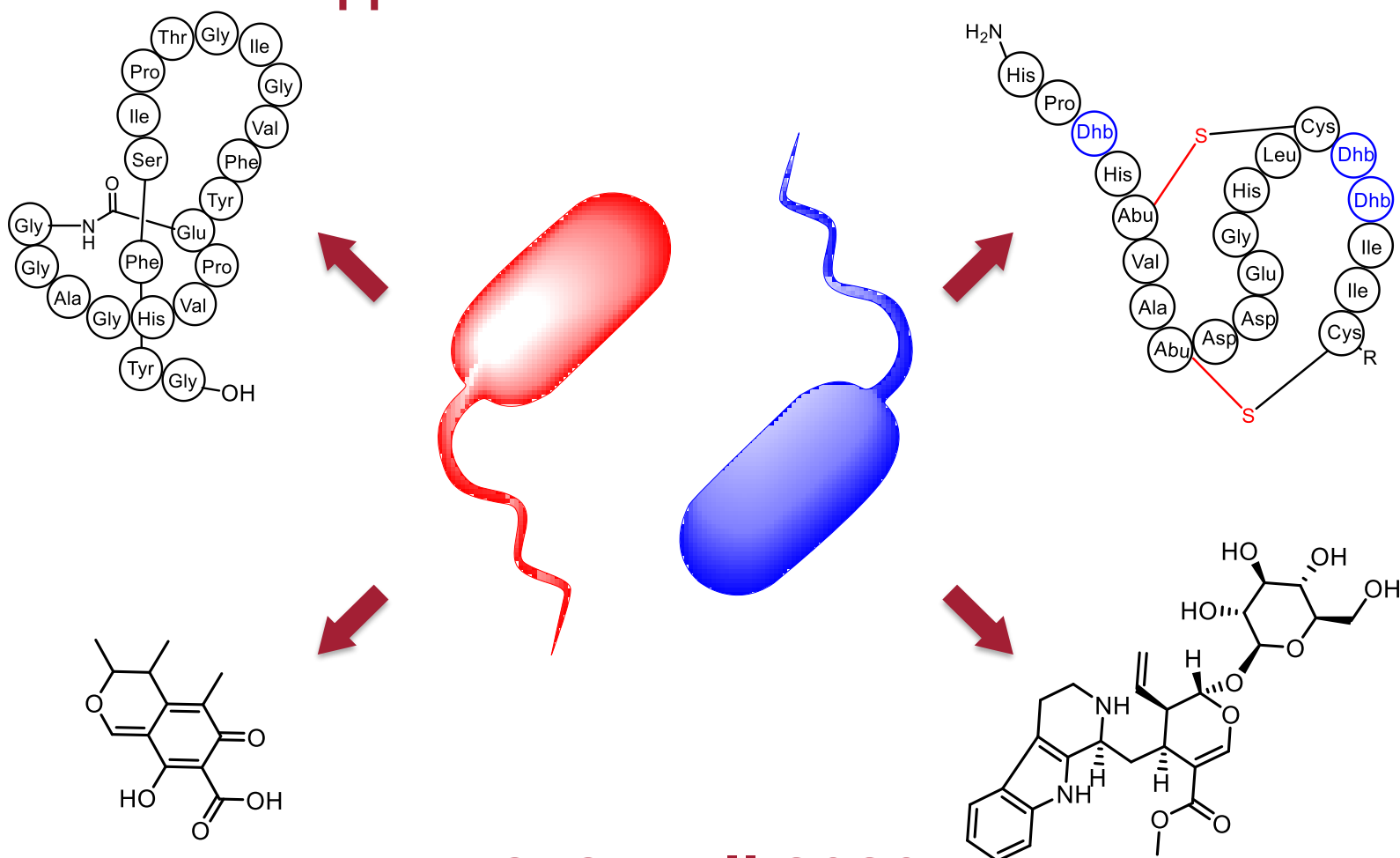
Instructors: Yun Zhang (y.zhang@wi.mit.edu, 919-600-8633, lab of Robert A. Weinberg)

Arthur Lambert (alambert@wi.mit.edu, 603-978-2866, lab of Robert A. Weinberg)

Metastatic disease is responsible for the vast majority of deaths associated with cancer and is considered incurable, yet our understanding of how metastases arise is still developing. In this course, we will begin by introducing various concepts and models that have been proposed to explain how cancer cells disseminate from a primary tumor to distant anatomical sites. Next, we will turn our attention on two critical factors that influence cancer metastasis: heterogeneity of and plasticity among neoplastic cells in the tumor (the seeds) and components of the tumor and tissue microenvironment (the soil). We will explore these frontiers through analysis and discussion of relevant primary research articles. Students will gain a broad understanding of the field of cancer metastasis, including state-of-the-art techniques that are being used to address pressing questions in the field. There will also be a remote "field trip," where students will virtually visit with cancer scientists working at Agios, a Cambridge-based biotechnology company that is developing new therapeutic agents for patients with cancer.

MICROBIAL MEGAPRODUCERS

Discovery, Biosynthesis, Engineering and Applications of Natural Products



7.343: Fall 2020

Nature is a mega-factory of small molecules, peptides, fatty acids, and a host of other natural products (NPs). These NPs have served as or inspired treatments for infections, cancer, and other conditions.

How do scientists discover such NPs? How has the genomic revolution changed this process? How do these discoveries inform biochemistry, synthetic biology, and bioengineering? We'll explore the primary research literature to answer these and other questions.

First Class: Wednesday, Sept. 2nd 1 – 3 pm EDT

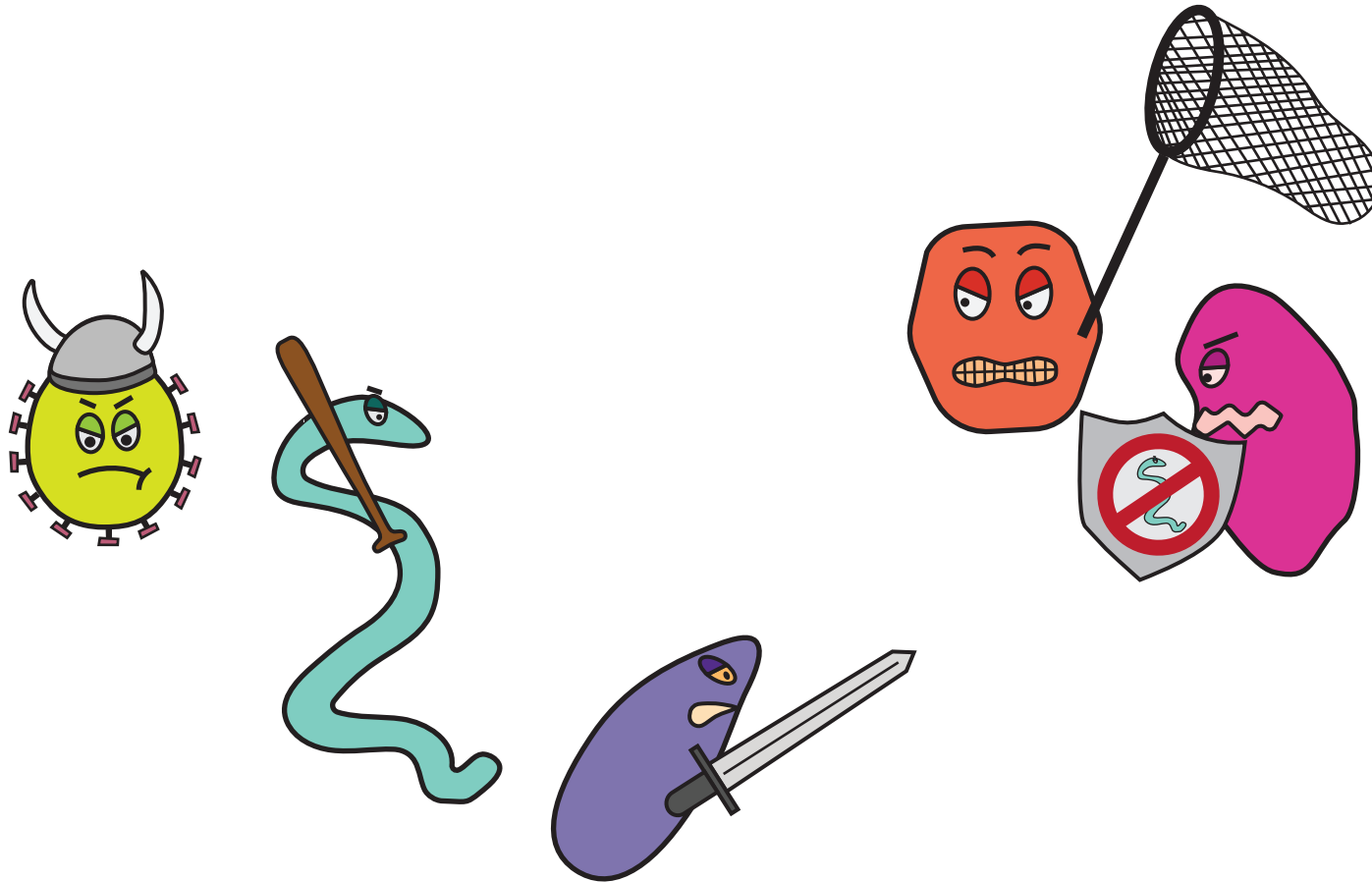
Class day/time for the semester will be determined at the first class based on student/instructor availability

Instructors: Kenton Hetrick (khetrick@mit.edu)

Emily Ulrich (eulrich@mit.edu)

7.344 - Advanced Undergraduate Seminar:

How Parasites Hijack Their Hosts: Mechanisms of Host-Pathogen Interactions



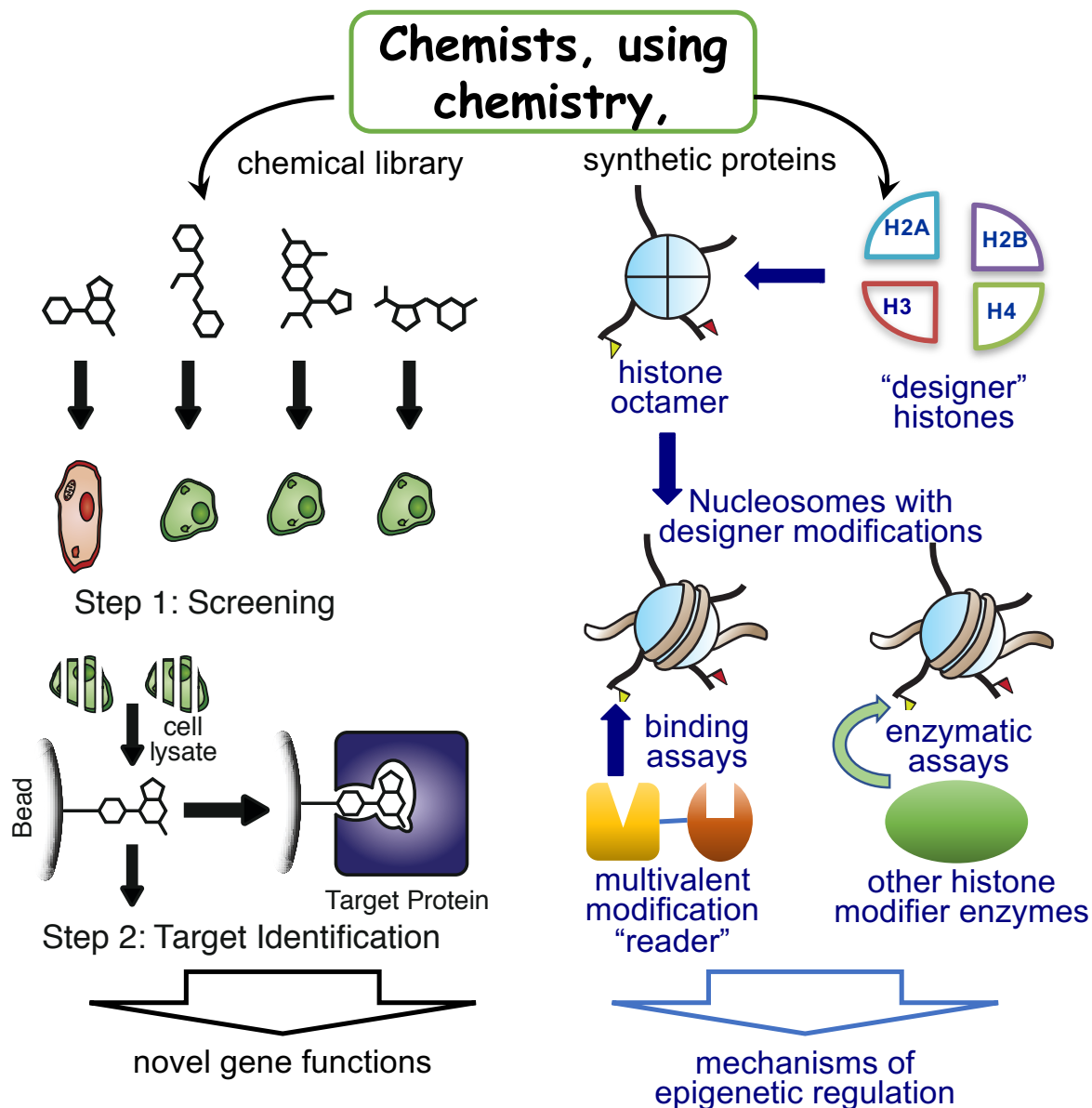
Instructors:

Elizabeth Boydston (liz@wi.mit.edu)
Jon McGinn (mcginn@mit.edu)

Fall 2020

Tuesdays, 2pm-4pm (tentative)
Class day and time are flexible
Please contact us for more information

7.346 Chemical Biology: Using Chemicals and Chemistry to Probe Biological Mechanisms and Identify Therapeutic Targets



to read nature's hieroglyphs

Thursdays, 10 am–noon
Remote seminars.

Instructor: Boyuan Wang

boyuanw@mit.edu

917-855-1293



We will:

- explore a collection of bottom-up approaches to advance research or engineering in biology;
- discover the chemical principles underlying basic protocols widely used in experimental biology;
- identify problems that chemical biology may provide facile solutions for: get prepared for future collaborations at the Chem-Bio interface!