



yale medicine magazine

ad(vantage) points

Yale School of Medicine has continued to emphasize diversity across its research capabilities, curriculum, student body, faculty, and staff.

Autumn 2019

ALSO 4 Dean Robert Alpern's successor / 42 Ending preventable maternal deaths / 46 Orthopaedics & Rehabilitation's new chair

Features

12/ **Examining distinction**

Yale School of Medicine's students and faculty are a more varied group with each passing year, making for a more balanced place to study medicine.

By Adrian Bonenberger

16/ **Discovery potluck**

Laboratories and departments increasingly seek intellectual and scientific breakthroughs by diversifying the types of science and scientists present at the bench. *By John Curtis*

20/ **Inclusion of women as a diversity measure**

The changing ways in which women have been included and studied at Yale School of Medicine over the years is a useful gauge of progress. *By Carolyn M. Mazure, PhD*

24/ **When one career isn't enough**

Most people attend medical school to become physicians; some, however, use their degrees to pursue other goals. *By Alison Mosier-Mills*

28/ **Balancing the curriculum**

Yale School of Medicine administrators, faculty, and students work together to make sure the school's academic offerings minimize potentially harmful distractions. *By John Curtis*

32/ **Gaming the system**

A board game to ease the stress of learning organic chemistry. *By Adrian Bonenberger*

34/ **A complex but enduring partnership**

After two centuries of shared history, the School of Medicine and the city of New Haven continue to shape each other. *By Rebecca J. Frey, PhD '99*

38/ **A disease deflector**

Microbial biodiversity helps keep humans healthy by shielding them from fatal infections. *By Jenny Blair, MD '04*

autumn 2019 departments

2 From the editor / 3 Dialogue / 4 Chronicle / 9 Round Up / 40 Capsule / 42 Faces / 46 Q&A / 48 Books / 49 End Note

Gaming the system

A board game to ease the stress of learning organic chemistry.

BY ADRIAN BONENBERGER

Most students hoping to enter medical school view organic chemistry, colloquially called “orgo,” with apprehension and fear; failure to excel in the course means risking one’s chances of admission to a good institution. Failure to pass the course means dooming one’s dreams of becoming a doctor entirely.

Prerak Juthani, however, a third-year student at Yale School of Medicine, loved his time in organic chemistry. He saw it as a game in which you had to use different chemicals to synthesize unique substances.

“I enjoyed that class, but I understand why people struggle,” said Juthani. While he is aware of the course’s dire reputation, he believes that the problem is not with the material so much as the context surrounding the course, and existing pedagogical approaches to it. “Organic chemistry is a very unusual class in the sciences, and people have to study for it differently, which throws them for a curve.”

That’s why Juthani co-founded REACT! with a University of California, Berkeley undergraduate while he was there. REACT! takes study aid to a whole new level, combining attributes of board games with attributes of a card game, all dedicated to helping students master organic chemistry.

“Because of my passion for it, I began to tutor struggling students, and in the process figured that I could turn the concepts of organic chemistry into a study aid,” said Juthani. “I got together with a couple friends, and the more we talked about it, the more we realized orgo could be gamified—turned into a competitive game.”

According to [statista.com](https://www.statista.com), a website dedicated to aggregating and analyzing market data, the global board game industry in 2019 is worth approximately \$8.5 billion. That makes a study aid that’s pitched in a board game format a good bet financially—and an excellent fit for the intellectually stimulated high-achieving undergraduates who must take the

daunting class in order to matriculate at medical or graduate school.

After raising money through a Kickstarter campaign—over \$15,000—the team was ready to take it live. Now, REACT! is available at \$40 per set. The game, played by two to four people, includes 212 cards, four reaction maps, four “lab benches,” four dry-erase markers, and one manual.

“The goal is to score as many points as possible,” said Juthani. “You can score many points by saving up and making one big compound, or score a few points many times with smaller reactions. That’s the element of strategy in the game, knowing what’s out there and seeing a viable path based on the reagent cards in your hand.”

According to the co-president of REACT!, Daniel Rosenthal, helping people learn science comes naturally to Juthani. “We met in 2015, a year before Prerak started REACT! He was an energetic student-leader, tutoring hundreds of UC Berkeley students in biology and chemistry at UC Berkeley’s Student Learning Center.”

Rosenthal believes great things are in store for REACT!, and also for his colleague: “Prerak is dynamic, driven, and innovative. Now that he’s at Yale School of Medicine, he’s encouraging me to guide our team and take REACT! to new heights.”

For Juthani’s part, he’s excited about ways to connect with people in and provide value to the New Haven community. Though it took a little while to adjust from his native San Francisco, Juthani said YSM feels like home. “There are so many things happening here at Yale School of Medicine, it can be overwhelming. But once I had spent a couple months here, I found my people and have been able to create a community that drives me to continually do bigger and better things. I’m hoping to continue pursuing my passion of entrepreneurship by doing an MBA here in the near future.” */yale medicine magazine*

Adrian Bonenberger is Editor of Yale Medicine Magazine.