2021 BioTech Battles Details

Friday, November 5th, 2021
1:45 pm Mission overview and Team Assembly

You will be working as interdisciplinary teams of 6-7 students and 1 coach. The teams will work to solve a current and pressing question in biotechnology. Each team will work on the question the industrial coach poses. Teams will have 2 hours to work together with their coach to develop a solution. We encourage the speaker to serve as the coach, direct the students to undertake literature research and explore new and fascinating solutions to the posed question. We encourage the coach to guide the students and serve as an expert, but to ultimately allow the students to explore the area and develop their own solution. The students can use as much of this time as they like to prepare their group presentation in response to this question.

4:00 Team Presentations (5-7 min each team) and Award Ceremony

Each team will have 5 minutes to present both their team's problem and their proposed solution. Each team can share a slide(s) if they wish. Teams can decide to have a single spokesperson for the team or have each team member present on aspect of the presentation. There will be 10 minutes for judges and audience members to ask questions. Ultimately the teams will be judged by the speakers for the overall award. A "People's Choice Award" will also be selected by the audience.

2021 BioTech Battles Questions & Teams

Team 1: Michelle Lynn Hall
The power of nucleic-acid based therapies has recently been shown with (for example) the COVID-19 vaccine. The ability to deliver nucleic acids via a nanocarrier (e.g., lipid nanoparticles) has been shown successfully for the vaccine (intramuscularly) and to the liver (i.e., Alnylam's Onpattro via intravenous injection). How would you expand the utility of nucleic acid therapies by enabling their delivery to other tissues as well?

Team 2: Samantha Sarrett
Effective delivery of nucleic acid therapeutics to the central nervous system (CNS) is a multifaceted challenge, where the choice of nucleic acid cargo and route of administration dramatically impact a scientific strategy. If your goal is to enable widespread clinical success for nucleic acids in the CNS, what would you choose to focus on and why? Assume that in order to achieve this goal, you need to advance science – what would your first steps towards that scientific advancement look like?

Team 3: Robin Kleiman
Biotech Battle Question: Neuroscience Drug Discovery efforts have a higher failure rate than many other therapeutic areas. Among the contributing factors that lead to a higher failure rate is the difficulty in identifying translatable endpoints to study in preclinical disease models and the corresponding lack of quantitative biomarkers to monitor the severity or progression of disease. Select a neurodegenerative disorder and novel therapeutic target and design experiments that will demonstrate the preclinical efficacy on translatable endpoints as well as the proposed clinical biomarkers that you will measure to establish clinical proof of concept.

Team 4: Diana Mitrea
There is a growing appreciation that biomolecular condensates play roles in all aspects of biology and disease. It has been recently shown that drugs used regularly in the clinic can selectively concentrate particular condensates. How can this new insight help us improve the efficacy and safety of therapeutic agents in patients?

Team 5: Jan Stoehr
One of the major hurdles in drug development for neurodegenerative diseases is the translational value of in vitro/vivo model systems towards the human patient, which might lead to efficacy in preclinical models but failures in human trials. Many of the systems only model one aspect of a disease (protein aggregation), do not factor aging or suffer from species differences. What would be your proposal for a triaging strategy utilizing available preclinical model systems and human data to increase the translational probability of target discovery and drug mechanisms of action?

Team 6: Gilberto Soler-Llavina
You identify a high unmet medical need in a patient population suffering from a newly discovered disorder. You manage to persuade your Leadership (or convince investors) that it is scientifically sound and feasible to develop a drug to treat or cure this indication. Your potential sponsors are excited yet voice 2 general concerns: 1) the disease appears difficult to diagnose and 2) there is little known about the symptom development and progression in these patients. Obtaining support for this program is made contingent on the design and proposal of a roadmap to mitigate these 2 risks. What would this roadmap look like?

Team	Student		Affiliation	Program	Team
1	Aritra Nath Kundu	akundu@umass.edu	UMass	Chemical Engineering	Michelle Lyn Hall - Eli Lilly
1	Emily Lopes	emlopes@umass.edu	UMass	Molecular & Cellular Biology, VASCI	Michelle Lyn Hall - Eli Lilly
1	Hyerim Ban	hban@umass.edu	UMass	Molecular & Cellular Biology	Michelle Lyn Hall - Eli Lilly
1	Jake Ullom	jullom@umass.edu	UMass	Molecular & Cellular Biology, Veterinary & A	Michelle Lyn Hall - Eli Lilly
1	Rafael Levin	rlevin@clarku.edu	Clark	Biochemistry and Molecular Biology	Michelle Lyn Hall - Eli Lilly
1	Sparsh makhaik	Smakhaik@umass.edu	UMass	Chemistry	Michelle Lyn Hall - Eli Lilly
2	Amber Deneve	adeneve@umass.edu	UMass	Plant Biology	Samantha Sarett - Eli Lilly
2	Brandon Clarke	bstuntebeck@umass.edu	UMass	Polymer Science and Engineering	Samantha Sarett - Eli Lilly
2	Deeksha Mohan	deekshamohan@umass.edu	UMass	Veterinary & Animal Science	Samantha Sarett - Eli Lilly
2	Nidhi Thaker	nthaker@umass.edu	UMass	Molecular & Cellular Biology	Samantha Sarett - Eli Lilly
2	Pintu Kanjilal	PKANJILAL@UMASS.EDU	UMass	Chemistry	Samantha Sarett - Eli Lilly
2	Slesha Shrestha	slshrestha@clarku.edu	Clark	Molecular & Cellular Biology	Samantha Sarett - Eli Lilly
3	Akaansha Rampal	arampal@umass.edu	UMass	Molecular & Cellular Biology	Robin Kleiman - Biogen
3	Anujan Ramesh	anujanramesh@umass.edu	UMass	Biomedical Engineering	Robin Kleiman - Biogen
3	Danny McSweeney	dmcsweeney@umass.edu	UMass	Molecular & Cellular Biology	Robin Kleiman - Biogen
3	Hyuna Kim	hyunakim@umass.edu	UMass	Chemical Engineering, Molecular & Cellula	Robin Kleiman - Biogen
3	Jun-Goo Kwak	jungookwak@umass.edu	UMass	Molecular & Cellular Biology	Robin Kleiman - Biogen
3	Kelly Waters	kwaters@clarku.edu	Clark	Biochemistry	Robin Kleiman - Biogen
4	Emma Kane	emkane@clarku.edu	Clark	Biochemistry and Molecular Biology	Diana Mitrea - Dewpoint Therapeutics
4	Jessica McGory	jmcgory@umass.edu	UMass	Molecular & Cellular Biology	Diana Mitrea - Dewpoint Therapeutics
4	Matthew Lebovich	Mlebovich@umass.edu	UMass	Chemical Engineering	Diana Mitrea - Dewpoint Therapeutics
4	Nathanael Kuzio	nkuzio@umass.edu	UMass	Chemistry	Diana Mitrea - Dewpoint Therapeutics
4	Noelle Dziedzic	ndziedzic@umass.edu	UMass	Molecular & Cellular Biology	Diana Mitrea - Dewpoint Therapeutics
5	Chi Nguyen	chinguyen@clarku.edu	Clark	Molecular & Cellular Biology	Jan Stoehr - Abbvie
5	Hannah Hendrickson	hhendrickson@umass.edu	UMass	Plant Biology	Jan Stoehr - Abbvie
5	Justyne Ogdahl	jogdahl@umass.edu	UMass	Molecular & Cellular Biology	Jan Stoehr - Abbvie
5	Rebecca Huber	rhuber@umass.edu	UMass	Chemical Engineering	Jan Stoehr - Abbvie
5	Steven Beasley	sbeasley@clarku.edu	Clark	Biochemistry - protein science	Jan Stoehr - Abbvie
6	Carey Dougan	cedougan@umass.edu	UMass	Chemical Engineering	Gilberto Soler-Llavina - Novartis
6	Koki Hayashi	khayashi@clarku.edu	Clark	Molecular & Cellular Biology	Gilberto Soler-Llavina - Novartis
6	Narciso Pavon	npavon@umass.edu	UMass	Neuroscience and Behavior	Gilberto Soler-Llavina - Novartis
6	Patrick Ryan	prryan@umass.edu	UMass	Molecular & Cellular Biology	Gilberto Soler-Llavina - Novartis
6	Ritam Das	ritamdas@umass.edu	UMass	Chemistry	Gilberto Soler-Llavina - Novartis
6	Sandor Babik	sbabik@umass.edu	UMass	Chemistry	Gilberto Soler-Llavina - Novartis