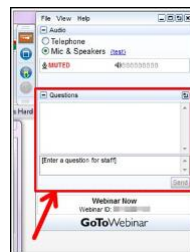




Have Questions?



Type them into questions box!

“Why am I muted?”

Don't worry. Everyone is muted except the presenter and host. Thank you and enjoy the show.

Contact ACS Webinars® at acswebinars@acs.org

1



Join a global community of over 150,000 chemistry professionals

Find the many benefits of ACS membership!

<http://bit.ly/ACSmembership>

2



Benefits of ACS Membership



Chemical & Engineering News (C&EN)

The preeminent weekly digital and print news source.



NEW! ACS SciFinder

ACS Members receive 25 complimentary SciFinder® research activities per year.



NEW! ACS Career Navigator

Your source for leadership development, professional education, career services, and much more.

<http://bit.ly/ACSmembership>

3



@AmericanChemicalSociety



@AmerChemSociety



@AmerChemSociety



<https://www.linkedin.com/company/american-chemical-society>

Contact ACS Webinars® at acswebinars@acs.org

4

How has ACS Webinars[®] benefited you?



“The speaker gave an excellent presentation, he patiently and systematically introduced knowledge and nomenclature to the audience so each listener readily could understand the function and operation of exosomes. The science presented was captivating and served to launch innovative thought about how a scientist might harness the utility of exosomes.”

Fan of the Week
Valarie Thomas

Human Exosomes
An Ideal Vehicle for Delivery of Therapeutic RNAs to Cells and Organs

Hi!
Hello!

<http://bit.ly/DDDS10video>

Be a featured fan on an upcoming webinar! Write to us @ acswebinars@acs.org



ACS Webinars[®]

CLICK • WATCH • LEARN • DISCUSS

LIVE | Thursdays at 2pm ET



Learn from the best and brightest minds in chemistry! Hundreds of webinars on diverse topics presented by experts in the chemical sciences and enterprise.

Recordings are an exclusive ACS member benefit and are made available to registrants via an email invitation once the recording has been edited and posted.

Live Broadcasts of ACS Webinars[®] continue to be available to the general public on Thursdays from 2-3pm ET!

www.acs.org/acswebinars

6

What is ACS on Campus?



ACS visits campuses across the world offering FREE seminars on how to be published, find a job, network and use essential tools like SciFinder. ACS on Campus presents seminars and workshops focused on how to:



- Publish in top journals
- Find a job
- Effectively use research tools like SciFinder® and ACS ChemWorx
- Communicate your science
- Write grant proposals
- Build industry partnerships
- Prepare for a changing employment landscape

<http://acsoncampus.acs.org>

7

#HeroesofChemistry ACS Heroes of Chemistry Award



Inspiring Hero Stories



[View All Past Recipients >>](#)

The ACS Heroes of Chemistry Award is the Annual award sponsored by the American Chemical Society that recognizes talented industrial chemical scientists whose work has led to the development of successful commercialized products ingrained with chemistry for the benefit of humankind.

Deadline: Friday, Feb. 1, 2019

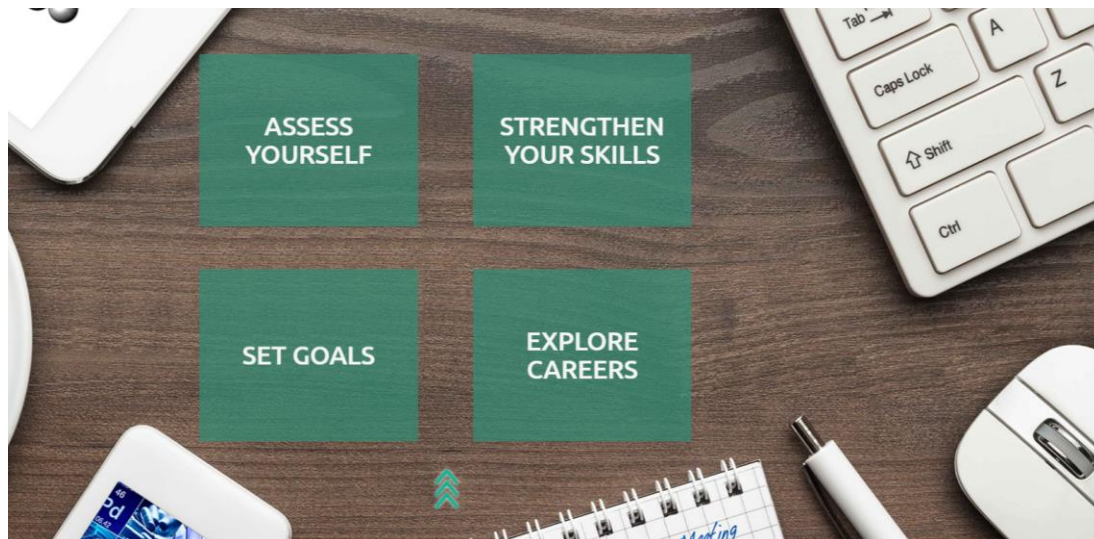
2018 Winners:



www.acs.org/heroes

8

An individual development
planning tool for you!



<https://chemidp.acs.org>

Upcoming ACS Webinars

www.acs.org/acswebinars



Experts

Thursday, February 7, 2019 @ 2-3pm ET

Startups 101: From Lab Scientist to Entrepreneur

Co-produced with ACS Graduate & Postdoctoral Scholars Office



Naresh Sunkara
Nosocom Solutions, Inc.



Corrie Kuniyoshi
ACS Graduate & Postdoctoral Scholars Office



Experts

Thursday, February 14, 2019 @ 2-3pm ET

The Chemistry of Chocolate and Desire

Co-produced with ACS Division of Agricultural & Food Chemistry



Michael Tunick
Drexel University



Brian Guthrie
Cargill

Contact ACS Webinars® at acswebinars@acs.org

10

Spring Workshop

**NOVEL APPROACHES TARGETING BRAIN BARRIERS FOR
EFFECTIVE DELIVERY OF THERAPEUTICS**

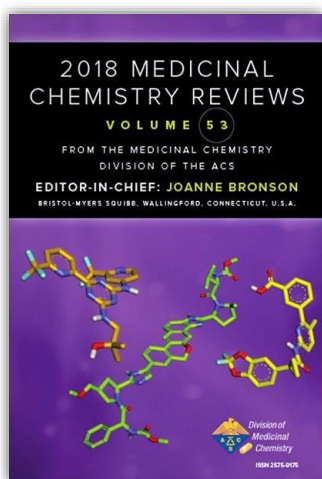
This program will focus on novel science, insights, tools, and approaches for targeting and bypassing the CNS barriers to achieve drug delivery to the brain and spinal cord.

Hyatt Dulles
 Herndon, VA
 April 29 – May 1, 2019

[READ MORE](#)
<https://www.aaps.org/education-and-research/workshops/brain-barriers>

11

Join the Division Today!



For \$25 (\$10 for students), You Will Receive:

- A free digital copy of our annual medicinal chemistry review volume (over 680 pages, \$160 retail price)
- Abstracts of MEDI programming at national meetings
- Access to student travel grants and fellowships

Find out more about the ACS MEDI Division! www.acsmedchem.org

12

Celebrating 5 years & 50 Drug Discovery Webinars!

<http://bit.ly/acsDrugDiscoveryArchive>



2014	2015	2016	2017	2018
<p>Drug Discovery Series #1 - Current Drug Discovery and Development Process 2014 #1 Watch the evolution of the drug discovery and development process to learn the stages and challenges in every step.</p> <p>Focus on Drug Target Classes 2014 #2 Learn in a discussion on the big four: targeting kinase and the off-targets (enzyme and ion channel) and biopharmaceutical targets.</p> <p>Key Concepts in Identifying Drug Leads 2014 #3 Discover how drugmakers are decreasing attrition through the Rule of Five and show how lessons from the past may guide the present.</p> <p>Lead Optimization - Building Efficacy & Safety 2014 #4 Learn strategies on how to effectively optimize small molecule hits and rapidly assess your findings.</p> <p>How to Find Hit and Starting Your Clinical Trial 2014 #5 What do you need to know when filing for Investigational New Drug submissions in the United States and how to manage it?</p> <p>The Role of Chemistry in Clinical Trials: The Big Expense & Lessons Learned 2014 #6 Learn how the properties of the candidate impact decisions in the discovery process.</p> <p>Pharmacokinetics and IP Strategies in Drug Development 2014 #7 Review the basic principles of Pharmacokinetics in drug development strategies as well as its role in determining patent insurance coverage of drug products.</p> <p>Future of Drug Discovery - Challenges, Risks and Rewards 2014 #8 Explore how you need and challenges will be met with the future and the key role you require of future medicinal chemists.</p>	<p>Designing Better Drug Candidates Design/learn-innovative factors that can be used to improve candidate quality from Dr. Paul Leeson.</p> <p>Strategies to Improve Solubility of Drug Candidates Primary causes a number of different strategies for improving drug solubility through structure modification.</p> <p>Program Based Drug Design Strategies Watch Feringa's right drug target is becoming increasingly difficult, learn how focusing on the smaller protein can bring results.</p> <p>Screening Strategies How to determine the size and scope of different screening strategies.</p> <p>Avoiding PAR2 (pan-acyl interference compound) Hits (Similar But there are lots on how to avoid the mess of a drug discovery.</p> <p>Design of Deliverable Macrocyclic Scott Lacey - UC Santa Cruz Nicholas Meeuwel - Bristol-Myers Squibb</p> <p>Designing Big and Thinking Small: Applying Medicinal Chemistry Strategy to Antibody Drug Conjugates L. Nathan - Pfizer New Senior - Seattle Genetics</p> <p>Nucleic Acids Therapeutics: Making Sense of Antisense Oligonucleotides Paula Sen - Ionis Richard Olson - Ionis</p> <p>Crystallography as a Drug Design and Delivery Tool (Special Topic) Robert Hancock - Crystal Pharmacia Vincent Sisti - Abbvie Andrew Burdick - Merck</p> <p>Dealing with Reactive Drug Metabolites in Drug Discovery: Can We Predict Toxicities of Drug Candidates that Form Reactive Metabolites? Debbie Davis - Pfizer Frederick Peter Gaugierich - Vanderbilt University</p> <p>Rational Design of Small Molecules Targeting RNA Mao Ding - Scripps RI Florida Amanda Garner - University of Michigan</p> <p>Cell Penetrating Peptides to Improve Cellular Drug Uptake Dehua Pei - The Ohio State University Justin Han - Bristol-Myers Squibb</p>	<p>I - Time: The Fourth Dimension in Drug Discovery The Importance of Drug Target Kinetics in Drug Design Robert Copeland - Endgame, Inc. Dan Enronson - Carmot Therapeutics</p> <p>Long-Acting Injectable Medications: Strategies and Mechanism Considerations Julie Rehner - Abbvie Andrea Bai - Merck</p> <p>Modified Release Formulations for Solubility Stained Compounds Margaret Hu - Merck John Morrison - BMS</p> <p>The Medicinal Chemist of Tomorrow (Special Topic) Jon Baran - Actavis Ravi Varughese - Merck Misty Smith - Takeda/Castrol</p> <p>II - Beyond Traditional Small Molecules III - Immunology</p>	<p>I - Fighting Cancer</p> <p>1. Fighting Cancer: Targeting CNS Malignancy with Kinase Inhibitors Timothy P. McElhin - Genentech Mark Williams - Bristol-Myers Squibb</p> <p>2. Fighting Cancer: Epigenetic targets for Oncology Suzett Conroy - Oxford Sharan Bagai - AstraZeneca</p> <p>3. Fighting Cancer: Allostery and Targeting Cancer Cell Metabolism Sofia Krimm - AstraZeneca</p> <p>4. Crucial Protein: Discovery of CPTM Modulators Peter Doppmeier - Vertex Nick Meeuwel - Bristol-Myers Squibb</p> <p>II - Anti-infectives</p> <p>5. Anti-infectives: Rational Approaches to the Design and Optimization Jason Sells - Bristol University Catherine Ashton - University of Manchester</p> <p>6. Tuberculosis: An Introduction for Medicinal Chemists Christophor Bayle - Merck</p> <p>7. Viral Inhibitors: The Search for a Cure Mike Scola - AstraZeneca Stephen Mason - Cardion Corporation</p> <p>III - Immunology</p> <p>9. Peptoids: Treatment and Novel Approaches Paula Varde - AstraZeneca John Morrison - Bristol-Myers Squibb</p> <p>10. Lipid: Treatment and Novel Approaches Laurence Marnett - Bristol-Myers Squibb Mary Bruchers - Bristol-Myers Squibb</p>	<p>Jan 25. A New Strategy in Drug Discovery: Protein-Induced Protein Degradation Jan Churher - Biogen/IllBio Aaron Baig - Bristol-Myers Squibb</p> <p>Feb 22. Women in Drug Discovery and Development: How to Succeed as a Female in Academia and Industry Annette Sali - AstraZeneca Danna Murray - University of Pittsburgh Eric Aronow - Bristol-Myers Squibb Nurulain Zaman - AstraZeneca Therapeutics</p> <p>Mar 29. A Nanomedicine Overview for mRNA Delivery: Innovative Methods Using Lipid Nanoparticles Naravane Varde - AstraZeneca Dennis Luong - Genentech</p> <p>Apr 26. Nanomaterials for Fighting Antibiotic Resistant Bacteria Vincent Kassis - University of Massachusetts at Lowell Christopher England - American Chemical Society</p> <p>May 31. Advanced Nano-Delivery Systems: Facilitating Tumor Delivery and Mitigating Resistance Manoor Anji - Northeastern University Venkat Krishnamurthy - AstraZeneca</p> <p>Jun 28. Hydroids and Promotes of Central Nervous System Drug Discovery Vijayen Gopaloff - Veeva University Nicholas Meeuwel - Bristol-Myers Squibb</p> <p>Jul 26. How to Optimize Central Nervous System Therapeutics: Med Chem Strategies, Tactics, and Workflows Craig Lindsey - Vanderbilt Center for Neuroscience Drug Discovery Amy Newman - Johnson & Johnson Research Programs, Inc.</p> <p>Sept 18. A Novel Strategy for the Treatment of Chronic Pain: Antagonizing PAR2 with a Monoclonal Antibody Paul Thomson - AstraZeneca Nurulain Zaman - AstraZeneca Therapeutics</p> <p>Oct 18. Human Estrogen: An Ideal Vehicle for Delivery of Therapeutic Elizabeth de Lange - Leiden Academic Center for Drug Research Alexander Tropsha - University of North Carolina</p> <p>Nov 29. Human Estrogen: An Ideal Vehicle for Delivery of Therapeutic Bibi Kalk - University of Gothenburg Alexander Kapustin - AstraZeneca</p>

Co-Produced By

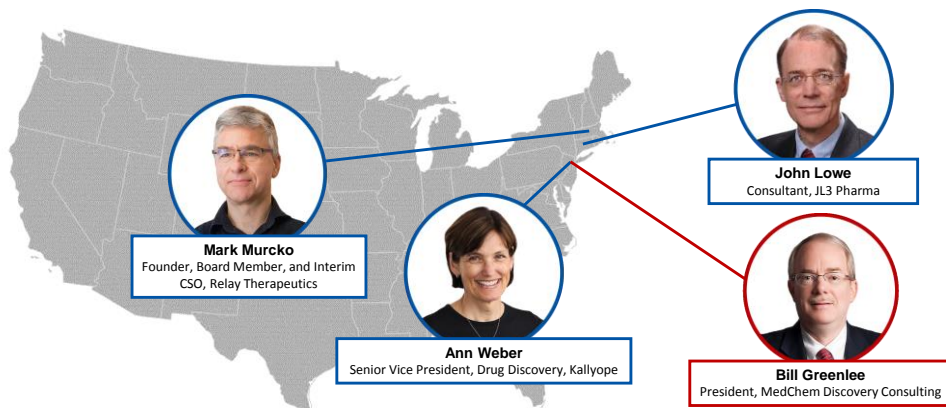


ACS Technical Division
Medical Chemistry (MED)



THIS ACS WEBINAR WILL BEGIN SHORTLY...

How to Succeed in Drug Discovery: Insight from Medicinal Chemists



Slides available now! Recordings are an exclusive ACS member benefit.

www.acs.org/acswebinars

This ACS Webinar is co-produced with the ACS Division of Medicinal Chemistry and the American Association of Pharmaceutical Scientists

15



Bill Greenlee

Today's Focus – How to Succeed in Medicinal Chemistry

- What **skills** are **required**
- What **behaviors** and **characteristics** are important
- What are the **best ways to acquire** these skills and characteristics
- **Advice** from our speakers, based on their successful careers



Mark Murcko

Ann Weber

John Lowe



MedChem Discovery Consulting, LLC

17

Moderator Background



– B.S. - **Ohio State**;



M.S./Ph.D. - **Harvard**;



Postdoc – **Columbia**

– **Merck** in Rahway, NJ (cardiovascular, metabolic, ID, inflammation) – *Sr. Director*

– **Schering-Plough**, Kenilworth, NJ (cardiovascular, CNS, high-throughput synthesis, external collaborations) – *Sr. Director/VP of Chemistry*

– **Merck**, post-merger; Kenilworth, Rahway



Schering-Plough

– **Consulting** since 2011



MedChem Discovery Consulting, LLC

18

Other Involvement in Medicinal Chemistry

Member of ACS since 1972



- Division of Medicinal Chemistry (MEDI), Program Chair, Division Chair, Councilor (2000 – present)

- Perspectives Editor for *Journal of Medicinal Chemistry* (2006-2017)

Journal of
Medicinal Chemistry

Co-organizer, Drew University Residential School on Medicinal Chemistry and Biology in Drug Discovery (2002 – present)



MedChem Discovery Consulting, LLC

19

How to Become a Great Medicinal Chemist?

Journal of
Medicinal Chemistry



Perspective

Cite This: *J. Med. Chem.* 2018, 61, 7419–7424

pubs.acs.org/jmc

What Makes a Great Medicinal Chemist? A Personal Perspective

Miniperspective

Mark A. Murcko*^{ORCID}

Relay Therapeutics Inc., 215 First Street, Cambridge, Massachusetts 02142-1213, United States

<https://pubs.acs.org/doi/abs/10.1021/acs.jmedchem.7b01445>

ACS AuthorChoice - This is an open access article published under an ACS AuthorChoice License, which permits copying and redistribution of the article or any adaptations for non-commercial purposes.

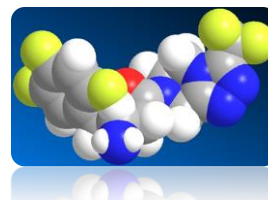


MedChem Discovery Consulting, LLC

20

Important Roles of Medicinal Chemists in Drug Discovery

- Help **set the objectives** for a drug discovery program and **define** the target candidate profile
- Select the very **best hit structures** to begin a medicinal chemistry program
- Design and synthesize **new drug-like molecules** to develop structure-activity relationships (SAR) for the program
- Deliver a **survivable drug candidate**, with optimized properties, for development
- Serve as a **project champion/problem solver** for the program



MedChem Discovery Consulting, LLC

21

Medicinal Chemists – Skills/Characteristics for Success

A deep and critical understanding of medicinal chemistry – including a sense of what is a drug-like molecule, and an intuition for what compound to make next in a program. A long-term commitment to medicinal chemistry is required to acquire these skills.

- Read **relevant medicinal chemistry papers** from the top journals
- Follow the **patent literature** for your project (*and related projects*)
- **Attend** (and present at) **medicinal chemistry meetings** (*ACS National Meetings, Medicinal Chemistry Gordon Conference, ACS National Medicinal Chemistry Symposium, Frontiers in Medicinal Chemistry*)
- Attend **seminars** at your organization and outside
- Publish your work (*if possible*)



Ten Simple Rules for Developing Good Reading Habits During Graduate School and Beyond,
M. Menendez, *PLOS Computational Biology* 2018.

<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1006467>



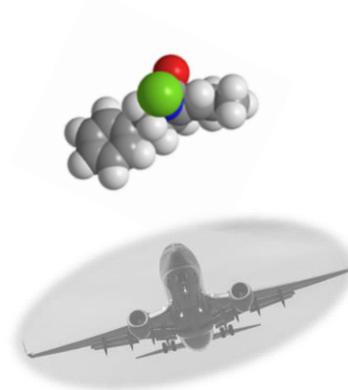
MedChem Discovery Consulting, LLC

22

Medicinal Chemists – Skills/Characteristics for Success

Experienced and innovative medicinal chemists are essential for successful drug discovery and development.

- All molecular and physical properties of a drug are determined by its structure, and are locked in when a development decision is made
- Changing a single atom in a drug molecule will affect every physical/chemical property of that molecule, along with its potency and selectivity



If we designed airplanes like we design drugs..., *J. Comput. Aided Mol. Des.*, 2012, **26**: 159-163.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3268976/>



MedChem Discovery Consulting, LLC

23

24

Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



What stage are you currently in concerning medicinal chemistry career?

- I am in graduate school or preparing to enter the field
- I am new to the field (*ex. two to three years into my career*)
- I am in the beginning stages (*ex. five years into my career*)
- I am well into my career (*ex. ten to fifteen years into my career*)
- I could be a panelist for this webinar (*ex. over twenty years into my career*)

** If your answer differs greatly from the choices above tell us in the chat!*

Drug Discovery: A Calling



Mark Murcko

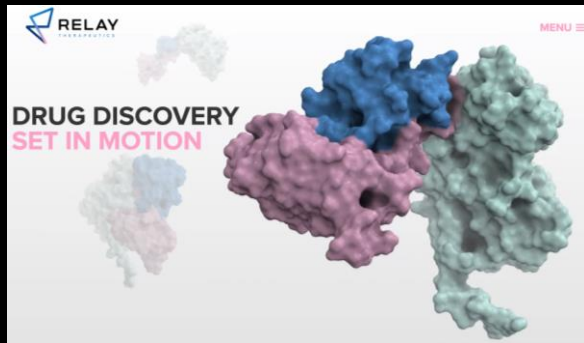
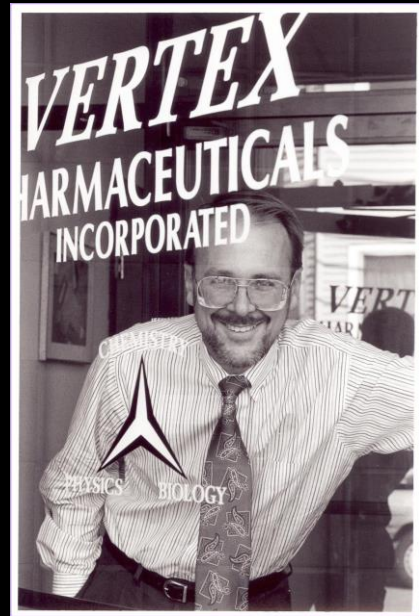
25



"Drug discovery: aiming for the moon?"
Drug Discovery Today, 20 Aug 2009



26




A Starting Point For A Discussion

Perspective

What Makes a Great Medicinal Chemist? A Personal Perspective

Miniperspective


Mark A. Murcko* 
 Relay Therapeutics Inc., 215 First Street, Cambridge, Massachusetts 02142-1213, United States

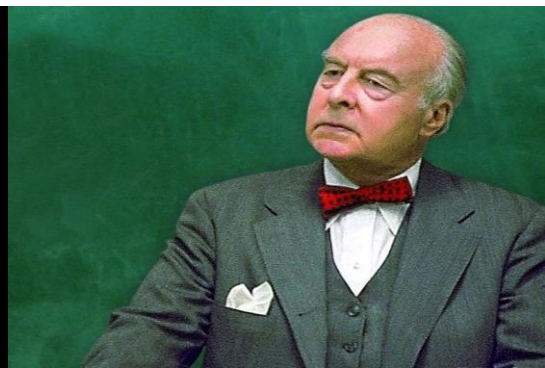
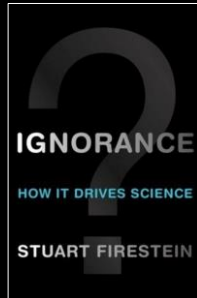
J. Med. Chem., 2018, 61 (17), pp 7419–7424
 DOI: 10.1021/acs.jmedchem.7b01445
 Publication Date (Web): May 10, 2018
 Copyright © 2018 American Chemical Society

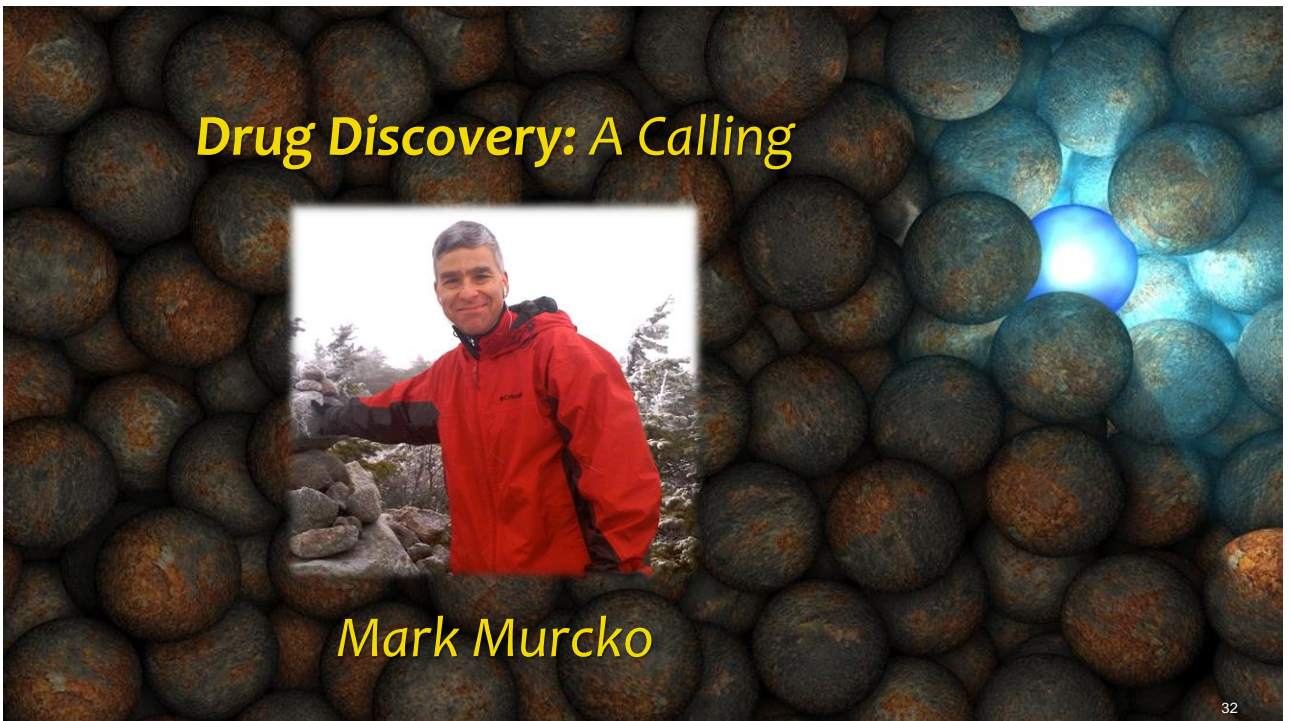
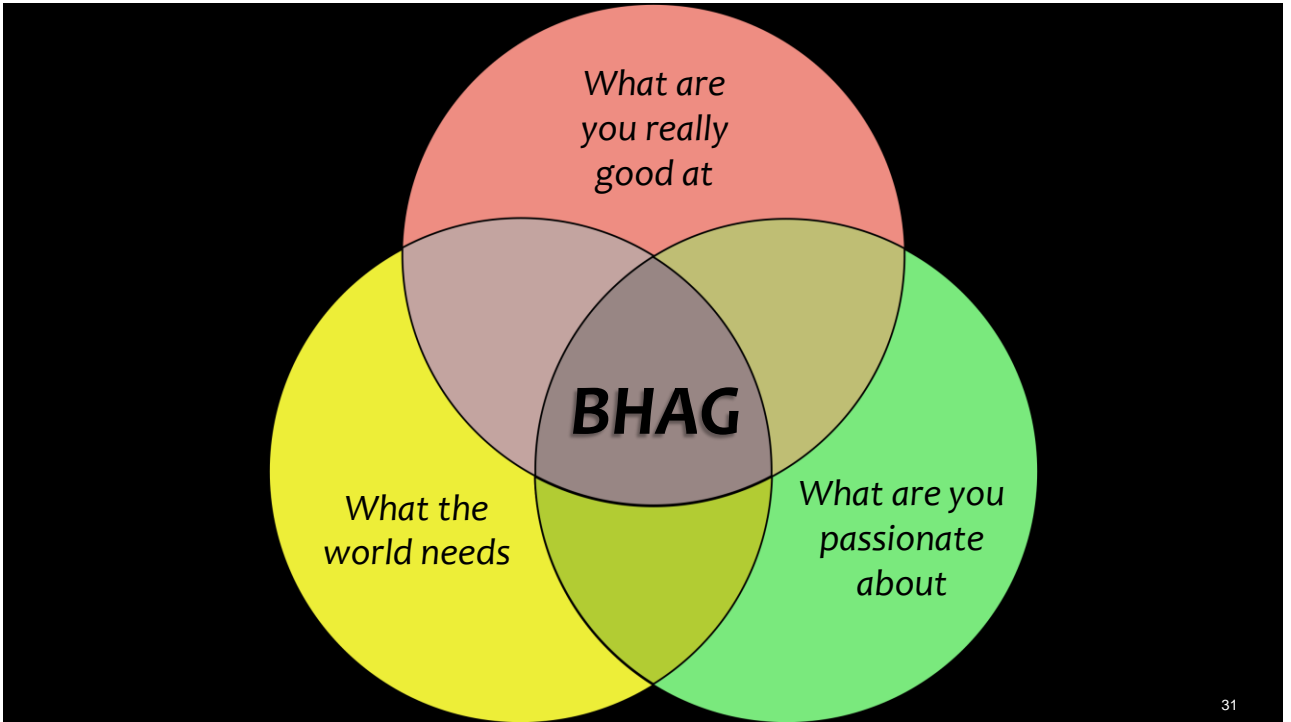
 Cite this: *J. Med. Chem.* 2018, 61, 17, 7419–7424

 RIS Citation 

*Phone: 508-282-6797. E-mail: mark.murcko@gmail.com.

 ACS AuthorChoice - This is an open access article published under an ACS AuthorChoice License, which permits copying and redistribution of the article or any adaptations for non-commercial purposes.





Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



How many employers have you worked for during your medicinal chemistry career?

- I have never worked for an employer in the field
- I have worked for one employer
- I have worked for several employers
- I have worked for three or four employers
- I have worked for over five employers

** If your answer differs greatly from the choices above tell us in the chat!*



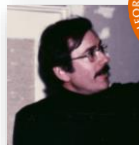
Ann E. Weber

Kallyope Inc.

My Career Path

Education

- BS, chemistry, University of Notre Dame
- PhD, synthetic organic chemistry, Harvard



Dave Evans



Merck

- From Sn Research Chemist in 1987
- To VP of Lead Optimization Chemistry in 2015

Life after Merck

- Ann Weber Pharma Consulting: Dec 2015
- Kallyope Inc: Oct 2016 – present



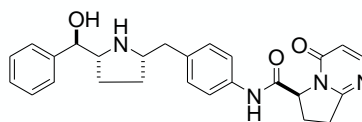
KALLYOPE

35

From Bench to Bedside

- β_3 adrenergic receptor agonists for obesity – and overactive bladder

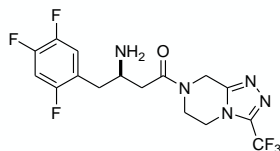
BEOVA® (vibegron)



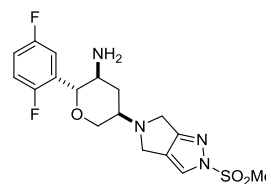
- DPP-4 inhibitors for type 2 diabetes



Nancy Thornberry



Januvia
(sitagliptin phosphate)



MARIZEV® (omarigliptin)

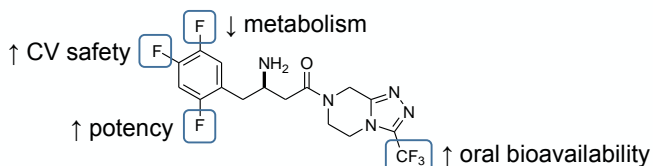
KALLYOPE

36

How to Succeed: What's Worked for Me



- Maintaining a healthy skepticism around new data, but being open to new ideas
- Doing the key Go / No Go experiments
- Killing compounds quickly and cheaply
- Making every atom count



- Learning drug development



KALLYOPE

37

Lessons Learned



- Actively seek out mentors and sponsors
- Ask lots of questions
- Don't be afraid to make mistakes
- If it isn't working, try something else (Plan B)
- Diversity matters: be the best version of yourself
- Trust your gut



KALLYOPE

38

Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



Do you work currently in teams as a medicinal chemist?

(Select all possible answers that apply.)

- I do not work on a team
- I work in a small interdepartmental team (*ex. less than five people*)
- I work in a large interdepartmental team (*ex. more than twenty people*)
- I work across multiple departments within my organization
- I work across multiple external organizational teams for my employer

** If your answer differ greatly from the choices above tell us in the chat!*



John Lowe

Background and Career Path



- Trained with Mike Jung at UCLA as a synthetic chemist
- Medicinal chemistry lab supervisor at Pfizer for 30 years



- Transitioned to consulting 10 years ago



JL3Pharma LLC

41

Reading the Literature

- **Discipline journals**

Journal of
Medicinal Chemistry
<https://pubs.acs.org/journal/jmcmar>

ACS **Medicinal
Chemistry Letters**
<https://pubs.acs.org/journal/amclct>

- **Read more broadly**

nature
<https://www.nature.com/>

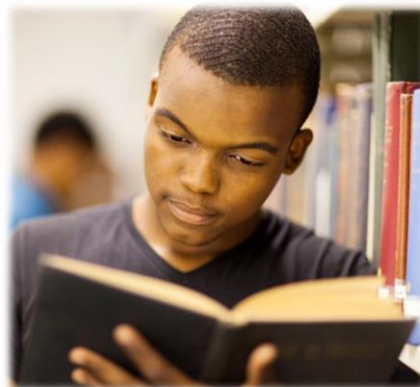
Science
JOURNALS
<https://www.sciencemag.org/>

nature
REVIEWS **DRUG
DISCOVERY**
<https://www.nature.com/nrd/>

PNAS Proceedings of the
National Academy of Sciences
of the United States of America
https://www.pnas.org/cell_biology

- **General reading**

- History of science
- Biographies of scientists



JL3Pharma LLC

42

Working in a Team



- Listening to others' ideas
- Respect your team members' needs and requests, so they will respect yours
- Learning from colleagues in other disciplines



JL3Pharma LLC

43

Backup Plans

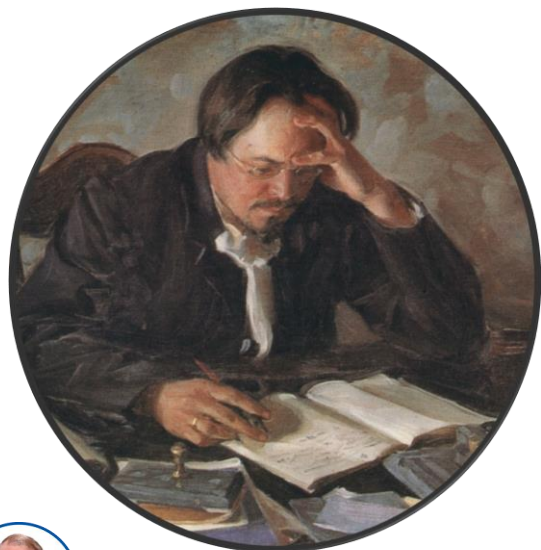
- Unanticipated failures are common
- You can never have too many backup options
- Don't be afraid to try something new



JL3Pharma LLC

44

Writing Well



- What do you know now that you wish you knew earlier in your career?
- I do not write well – many of my publications were spoiled because they were poorly written
- Taking a writing course would have helped me immensely

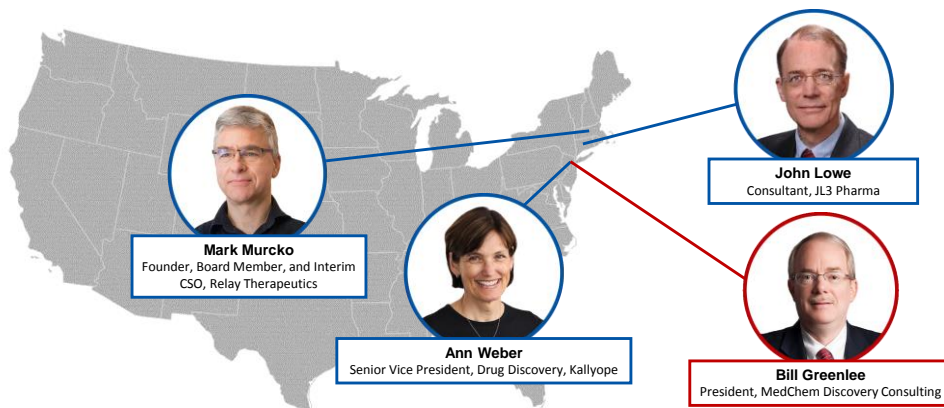


JL3Pharma LLC

45



How to Succeed in Drug Discovery: Insight from Medicinal Chemists



Slides available now! Recordings are an exclusive ACS member benefit.

www.acs.org/acswebinars

This ACS Webinar is co-produced with the ACS Division of Medicinal Chemistry and the American Association of Pharmaceutical Scientists

46

Celebrating 5 years & 50 Drug Discovery Webinars!

<http://bit.ly/acsDrugDiscoveryArchive>



2014	2015	2016	2017	2018
<p>Drug Discovery Series #1 - Current Drug Discovery and Development Process 2014 #1 Watch the overview of the drug discovery and development process to learn the stages and challenges in every step.</p> <p>Focus on Drug Target Classes 2014 #2 Listen in on a discussion on the big four: targeting kinase and the off-targets (neurotrophin) kinase and biopharmaceutical targets.</p> <p>Key Concepts in Identifying Drug Leads 2014 #3 Discover how drugmakers are decreasing costs, explore the Rule of Five, and show how insights from the past may guide the present.</p> <p>Lead Optimization - Building Efficacy & Safety 2014 #4 Learn strategies on how to effectively optimize small molecule hits and rapidly assess your findings.</p> <p>How to Find (N) and Test (your) Clinical Leads 2014 #5 What do you need to know when filing for Investigational New Drug submissions to the United States Food and Drug Administration?</p> <p>The Role of Chemistry in Clinical Trials: The Big Expense & Lessons Learned 2014 #6 Learn how the properties of the candidate impact decisions in the discovery process.</p> <p>Pharmacokinetics and IP Strategies in Drug Development 2014 #7 Review the basic principles of Pharmacokinetics in drug development strategies as well as its role in determining market insurance coverage of drug products.</p> <p>Future of Drug Discovery - Challenges, Risks and Rewards 2014 #8 Explore how you need and challenges will be met with the future and the key role you will play in future medicinal chemistry.</p>	<p>Designing Better Drug Candidates Design/learn-innovative factors that can be used to improve candidate quality from Dr. Paul Leeson.</p> <p>Strategies to Improve Solubility of Drug Candidates Primary causes a number of different strategies for improving drug solubility through structural modification.</p> <p>Program Based Drug Design Strategies Watch Filing the right drug target is becoming increasingly difficult, learn how focusing on the smaller protein can bring results.</p> <p>Screening Strategies How to determine the pros and cons of different screening strategies.</p> <p>Avoiding PKAD (pan-acyl interference compound) Risk (Similar Risk Areas come out on how to avoid the issue of drug discovery.</p> <p>Design of Deliverable Macrocycles Scott Lacey - UC Santa Cruz Nicholas Meemwell - AstraZeneca</p> <p>Designing Big and Thinking Small: Applying Medicinal Chemistry Strategy to Antibody Drug Conjugates L. Nathan Turner - Pfizer Peter Sarker - Seattle Genetics</p> <p>Nucleic Acids Therapeutics: Making Sense of Antisense Oligonucleotides Ruth Sesh - Inna Richard Olson - Inna</p> <p>Crystallography as a Drug Design and Delivery Tool (Special Topic) Robert Hancock - Crystal Pharmacia Vincent Sisti - Abbvie Andrew Smith - Merck</p> <p>Dealing with Reactive Drug Metabolites in Drug Discovery: Can We Predict Toxicon of Drug Candidates that form Reactive Metabolites? Deepak Datta - Pfizer Pradeep Patel - Guangzhou - Vanderbilt University</p> <p>Rational Design of Small Molecules Targeting RNA Muel Deryn - Scripps RI Florida Almudena Carrion - University of Michigan</p> <p>Cell Penetrating Peptides to Improve Cellular Drug Uptake Dehua Pei - The Ohio State University Sudeep Nath - Bristol-Myers Squibb</p>	<p>I - Time: The Fourth Dimension in Drug Discovery The Importance of Drug Target Kinetics in Drug Design Robert Copeland - Endocyte, Inc. Dan Enron - Carmot Therapeutics</p> <p>Long Acting Injectable Medications: Strategies and Mechanism Considerations Julie Rehner - Abbvie Andrea Bas - Merck</p> <p>Modified Release Formulations for Solubility Stained Compounds Margaret Hu - Merck John Morrison - BMS</p> <p>The Molecular Chemistry of Tamoxifen (Special Topic) Julie Baran - Activation Ravi Varadhan - Merck Misty Smith - Takeda/Castrol</p> <p>II - Beyond Traditional Small Molecules Designing Big and Thinking Small: Applying Medicinal Chemistry Strategy to Antibody Drug Conjugates L. Nathan Turner - Pfizer Peter Sarker - Seattle Genetics</p> <p>Nucleic Acids Therapeutics: Making Sense of Antisense Oligonucleotides Ruth Sesh - Inna Richard Olson - Inna</p> <p>Crystallography as a Drug Design and Delivery Tool (Special Topic) Robert Hancock - Crystal Pharmacia Vincent Sisti - Abbvie Andrew Smith - Merck</p> <p>III - Pharmacology Revisited Dealing with Reactive Drug Metabolites in Drug Discovery: Can We Predict Toxicon of Drug Candidates that form Reactive Metabolites? Deepak Datta - Pfizer Pradeep Patel - Guangzhou - Vanderbilt University</p> <p>Rational Design of Small Molecules Targeting RNA Muel Deryn - Scripps RI Florida Almudena Carrion - University of Michigan</p> <p>Cell Penetrating Peptides to Improve Cellular Drug Uptake Dehua Pei - The Ohio State University Sudeep Nath - Bristol-Myers Squibb</p>	<p>I - Fighting Cancer Fighting Cancer: Targeting CNS Malignancy with Kinase Inhibitors Timothy P. McElroy - Genentech Mark Williams - Bristol-Myers Squibb</p> <p>Fighting Cancer: Epigenetic targets for Oncology Suzett Conroy - Oxford Sharan Bagai - AstraZeneca</p> <p>Fighting Cancer: Allostery and Targeting Cancer Cell Metabolism Stefan Gross - Agos Scott Edmondson - AstraZeneca</p> <p>Special Broadcast: Cure Through Discovery of CFTR Modulators Peter Coppens - Vertex Nick Meemwell - Bristol-Myers Squibb</p> <p>II - Anti-infectives Anti-infectives: Rational Approaches to the Design and Optimization Jason Sells - Bristol University Courtney Adkin - University of Minnesota</p> <p>Tuberculosis: An Introduction for Medicinal Chemists Carl Nathan - Hoffmann-La Roche Christopher Bayle - Merck</p> <p>Viral Inhibitors: The Search for a Cure Mika Saha - AstraZeneca Stephan Mason - Cardion Corporation</p> <p>Special Broadcast: Small Molecule Antisense Kevin Rodgers - Harvard Medical School Alyson Westerman - ACS Publications</p> <p>III - Immunology Peptidic Treatment and Novel Approaches Ravi Varadhan - Merck John Morrison - Bristol-Myers Squibb</p> <p>Lipid Treatment and Novel Approaches Laurence Menard - Bristol-Myers Squibb Mary Bruchers - Bristol-Myers Squibb</p>	<p>A New Strategy in Drug Discovery: Protein-Induced Protein Degradation Jan Churher - Biogen/IdeC Aaron Bagg - Bristol-Myers Squibb</p> <p>Women in Drug Discovery and Development: How to Succeed as a Female in Academia and Industry Annette Siau - AstraZeneca Donna Murray - University of Pittsburgh Eric Aronow - Bristol-Myers Squibb NurJalim Zaman - AstraZeneca Therapeutics</p> <p>A Nanomedicine Overview for mRNA Delivery: Innovative Methods Using Lipid Nanoparticles Naravane Varde - AstraZeneca Dennis Luong - Genentech</p> <p>Nanomaterials for Fighting Antibiotic Resistant Bacteria Vincent Kabanis - University of Massachusetts Lowell Christopher Kowal - American Chemical Society</p> <p>Advanced Nano-Delivery Systems: Facilitating Tumor Delivery and Mitigating Resistance Manooq Anji - Northeastern University Venkat Krishnamurthy - AstraZeneca</p> <p>Pathways and Promises of Central Nervous System Drug Discovery Hyattson Goldberg - Vertex University Nicholas Meemwell - Bristol-Myers Squibb</p> <p>How to Optimize Central Nervous System Therapeutics: Med Chem Strategies, Tactics, and Workflows Craig Lindley - Vanderbilt Center for Neuroscience Drug Discovery Amy Newman - Hoffmann-La Roche Research Programs, Inc.</p> <p>A Novel Strategy for the Treatment of Chronic Pain: Antagonizing PAR2 with a Monoclonal Antibody Paul Thomson - AstraZeneca NurJalim Zaman - AstraZeneca Therapeutics</p> <p>How to Predict Human CNS PK/PD: Preclinical Experiments and Advanced Mathematical Modelling Elizabeth de Lange - Linden Academic Center for Drug Research Alexander Tropsha - University of North Carolina</p> <p>Human Exosome: An Ideal Vehicle for Delivery of Therapeutic RNA to Cells and Organs Hadi Valadi - University of Gothenburg Alexander Kapustin - AstraZeneca</p>

Co-Produced By



47

Upcoming ACS Webinars

www.acs.org/acswebinars



Experts

Thursday, February 7, 2019 @ 2-3pm ET

Startups 101: From Lab Scientist to Entrepreneur

Co-produced with ACS Graduate & Postdoctoral Scholars Office



Naresh Sunkara
Nosocom Solutions, Inc.



Corrie Kuniyoshi
ACS Graduate & Postdoctoral Scholars Office



Experts

Thursday, February 14, 2019 @ 2-3pm ET

The Chemistry of Chocolate and Desire

Co-produced with ACS Division of Agricultural & Food Chemistry



Michael Tunick
Drexel University

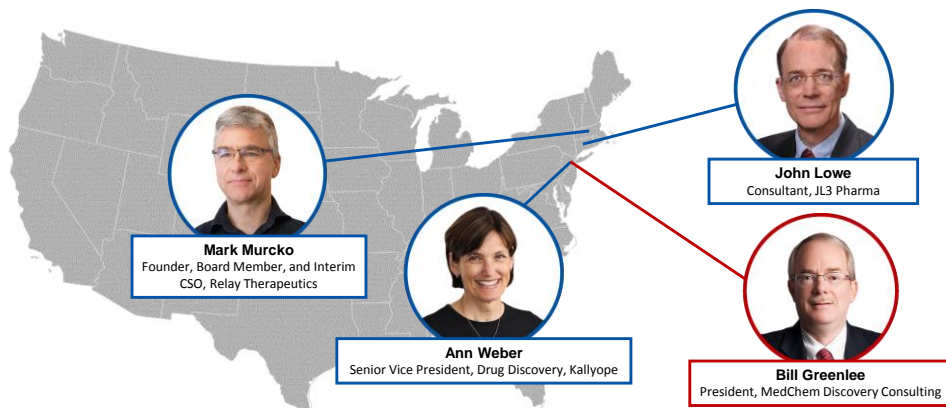


Brian Guthrie
Cargill

Contact ACS Webinars® at acswebinars@acs.org

48

How to Succeed in Drug Discovery: Insight from Medicinal Chemists



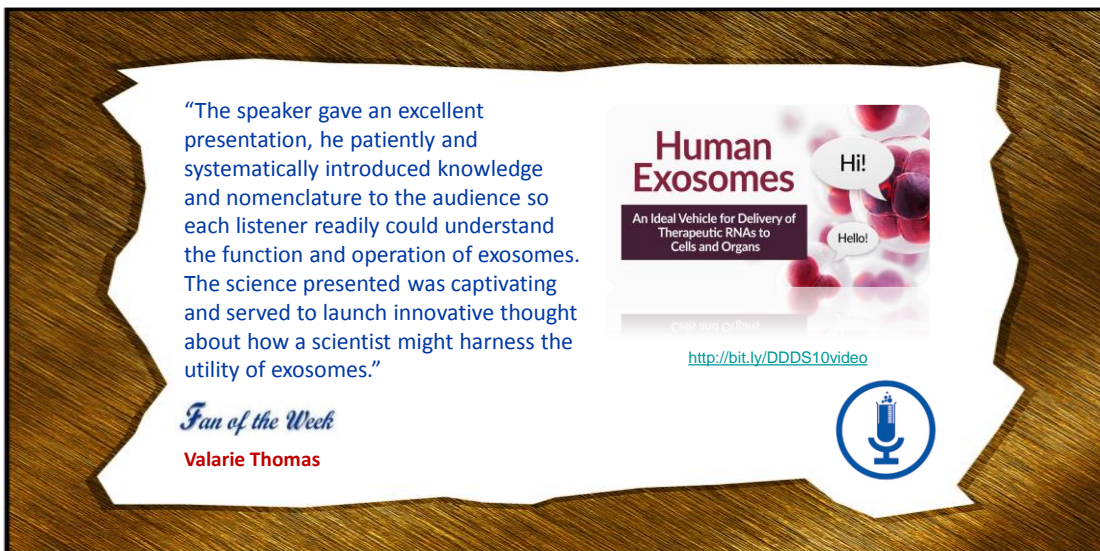
Slides available now! Recordings are an exclusive ACS member benefit.

www.acs.org/acswebinars

This ACS Webinar is co-produced with the ACS Division of Medicinal Chemistry and the American Association of Pharmaceutical Scientists

49

How has ACS Webinars benefited you?




“The speaker gave an excellent presentation, he patiently and systematically introduced knowledge and nomenclature to the audience so each listener readily could understand the function and operation of exosomes. The science presented was captivating and served to launch innovative thought about how a scientist might harness the utility of exosomes.”

Fan of the Week
Valarie Thomas

Human Exosomes
 An Ideal Vehicle for Delivery of Therapeutic RNAs to Cells and Organs

Hi!
 Hello!

View this webinar on YouTube
<http://bit.ly/DDDS10video>



Be a featured fan on an upcoming webinar! Write to us @ acswebinars@acs.org

50

Spring Workshop

NOVEL APPROACHES TARGETING BRAIN BARRIERS FOR EFFECTIVE DELIVERY OF THERAPEUTICS

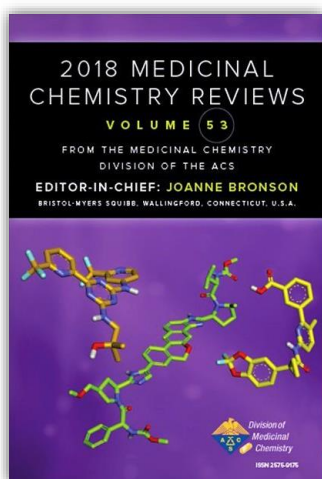
This program will focus on novel science, insights, tools, and approaches for targeting and bypassing the CNS barriers to achieve drug delivery to the brain and spinal cord.

Hyatt Dulles
Herndon, VA
April 29 – May 1, 2019

[READ MORE](#)
<https://www.aaps.org/education-and-research/workshops/brain-barriers>

51

Join the Division Today!



For \$25 (\$10 for students), You Will Receive:

- A free digital copy of our annual medicinal chemistry review volume (over 680 pages, \$160 retail price)
- Abstracts of MEDI programming at national meetings
- Access to student travel grants and fellowships

Find out more about the ACS MEDI Division! www.acsmedchem.org

52



@AmericanChemicalSociety



@AmerChemSociety



@AmerChemSociety



<https://www.linkedin.com/company/american-chemical-society>

Contact ACS Webinars® at acswebinars@acs.org

53



Benefits of ACS Membership



Chemical & Engineering News (C&EN)

The preeminent weekly digital and print news source.



NEW! ACS SciFinder

ACS Members receive 25 complimentary SciFinder® research activities per year.



NEW! ACS Career Navigator

Your source for leadership development, professional education, career services, and much more.

<http://bit.ly/ACSmembership>

54



ACS Webinars® does not endorse any products or services. The views expressed in this presentation are those of the presenter and do not necessarily reflect the views or policies of the American Chemical Society.



Contact ACS Webinars® at acswebinars@acs.org

55

Upcoming ACS Webinars

www.acs.org/acswebinars



Experts

Thursday, February 7, 2019 @ 2-3pm ET

Startups 101: From Lab Scientist to Entrepreneur

Co-produced with ACS Graduate & Postdoctoral Scholars Office



Naresh Sunkara
Nosocom Solutions, Inc.



Corrie Kuniyoshi
ACS Graduate & Postdoctoral Scholars Office



Experts

Thursday, February 14, 2019 @ 2-3pm ET

The Chemistry of Chocolate and Desire

Co-produced with ACS Division of Agricultural & Food Chemistry



Michael Tunick
Drexel University



Brian Guthrie
Cargill

Contact ACS Webinars® at acswebinars@acs.org

56