

# 3rd FDA/PQRI Conference on Advancing Product Quality

March 22-24, 2017

Hilton Washington DC/Rockville Hotel & Executive Meeting Center  
1750 Rockville Pike, Rockville, MD 20852



Use this color guide as a reference:

Track #1 Drug Classification, Release, and Modeling for Setting Clinically Relevant Specifications

Track #2 Achieving Drug Product Quality: Novel Approaches and Applications

Track #3 Enhancing Product Quality Through Continuous Manufacturing

## 3RD FDA/PQRI CONFERENCE ON PRODUCT QUALITY

### DAY 1 – WEDNESDAY, MARCH 22, 2017

**7:30 – 8:15 AM REGISTRATION**

**8:15 – 10:00 AM Plenary Session**

- **OPENING** (15 minutes) 8:15 – 8:30 AM *Conference Organizing Committee Co-Chairs: Ganapathy Mohan, Merck; Tony DeStefano, PQRI; Lawrence Yu, FDA*
- **OFFICE OF PHARMACEUTICAL QUALITY PROGRESS UPDATE** – *Michael Kopcha, Food & Drug Administration (FDA)* (8:30 -9:00 AM)
- **ICH Q12 : A Unique Opportunity to Realize 21st Century Quality Vision**– *Moheb Nasr, GlaxoSmithKline* (9:00 – 9:30 AM)
- **Clinical Relevance: Connection, Context and Collaboration**– *Sarah Pope Miksinski, Food & Drug Administration (FDA)* (9:30-10:00 AM)

**10:00 -10:30 AM Coffee Break**

	TRACK #1: <b>DRUG CLASSIFICATION, RELEASE, AND MODELING FOR SETTING CLINICALLY RELEVANT SPECIFICATIONS</b>	TRACK #2: <b>ACHIEVING DRUG PRODUCT QUALITY: NOVEL APPROACHES AND APPLICATIONS</b>	TRACK #3: <b>ENHANCING PRODUCT QUALITY THROUGH CONTINUOUS MANUFACTURING</b>
<b>10:30 AM – 12:15 PM</b>	<p><b>Session 1. Biowaivers and Harmonization Guidelines for Class 1 and 3 Drugs</b>  <i>Moderator: Mehran Yazdanian, Teva</i></p> <ul style="list-style-type: none"> <li>• Where are we on the latest draft Guidance on BA/BE waivers for Class 1 and Class 3 Drugs                             <ul style="list-style-type: none"> <li>○ <i>Mehul Mehta, FDA</i></li> </ul> </li> <li>• BCS Biowaiver Case Studies                             <ul style="list-style-type: none"> <li>○ <i>Barbara Davit, Merck &amp; Co., Inc.</i></li> </ul> </li> <li>• The BCS and Biowaivers – A Global Overview                             <ul style="list-style-type: none"> <li>○ <i>Raimar Löbenberg, University of Alberta</i></li> </ul> </li> <li>• Q&amp;A Discussion</li> </ul>	<p><b>Session 1. Oligonucleotide Therapeutics: Quality, Standards, and Regulation</b>  <i>Moderator: Larisa Wu, FDA and Mohan Sapru, FDA</i></p> <ul style="list-style-type: none"> <li>• Challenges and Approaches Used in Current Process Development of Oligonucleotide Therapeutic APIs                             <ul style="list-style-type: none"> <li>○ <i>Joe Guiles, Agilent</i></li> </ul> </li> <li>• A High-Throughput Process for the Solid-Phase Purification of Synthetic DNA Sequences                             <ul style="list-style-type: none"> <li>○ <i>Serge Beaucage, FDA</i></li> </ul> </li> <li>• CMC Regulatory Considerations for Oligonucleotide Drug Products: FDA Perspective                             <ul style="list-style-type: none"> <li>○ <i>Mohan Sapru, FDA</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>	<p><b>Session 1: Where Are We Now</b>  <i>Moderator: Stephen Tyler, AbbVie</i></p> <ul style="list-style-type: none"> <li>• Perspectives on Continuous Manufacturing: Where Are We Now, Where Are We Going                             <ul style="list-style-type: none"> <li>○ <i>Michael Thien, Merck</i></li> </ul> </li> <li>• Continuous Manufacturing as an Emerging Technology                             <ul style="list-style-type: none"> <li>○ <i>Celia Cruz, FDA</i></li> </ul> </li> <li>• Continuous Manufacturing: An Industry View                             <ul style="list-style-type: none"> <li>○ <i>Diane Zezza, Novartis</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>

**12:15 –1:15 PM Lunch**

### 3RD FDA/PQRI CONFERENCE ON PRODUCT QUALITY

	TRACK #1: DRUG CLASSIFICATION, RELEASE, AND MODELING FOR SETTING CLINICALLY RELEVANT SPECIFICATIONS	TRACK #2: ACHIEVING DRUG PRODUCT QUALITY: NOVEL APPROACHES AND APPLICATIONS	TRACK #3: ENHANCING PRODUCT QUALITY THROUGH CONTINUOUS MANUFACTURING
<b>1:15 – 3:00 PM</b>	<p><b>Session 2: Dissolution Challenges for BCS Class 2/4 Drugs</b>            Moderator: <i>Allen Templeton, Merck &amp; Co., Inc.</i></p> <ul style="list-style-type: none"> <li>• BCS Class 2 Immediate Release (IR) Dissolution in Two-Phase Media               <ul style="list-style-type: none"> <li>○ <i>Rik Lostritto, FDA</i></li> </ul> </li> <li>• FDA Experience in the Application of IVIVC/IVIVR for Setting Clinically Relevant Drug Product Specifications               <ul style="list-style-type: none"> <li>○ <i>Sandra Suarez-Sharp, FDA</i></li> </ul> </li> <li>• Development of Dissolution Methods for Class 2/4 Drugs – A USP Perspective               <ul style="list-style-type: none"> <li>○ <i>Erika Stipler, USP</i></li> </ul> </li> <li>• Q&amp;A Discussion</li> </ul>	<p><b>Session 2: PQRI PODP Working Group Recommendations on Extractables and Leachables</b>            Moderator: <i>Diane Paskiet, West</i></p> <ul style="list-style-type: none"> <li>• General Recommendations on PODP Extractables &amp; Leachables               <ul style="list-style-type: none"> <li>○ <i>Diane Paskiet, West</i></li> </ul> </li> <li>• Parenteral Drug Products Best Practices               <ul style="list-style-type: none"> <li>○ <i>Dennis Jenke, Triad Scientific Solutions, LLC</i></li> </ul> </li> <li>• Ophthalmic Drug Products Best Practices               <ul style="list-style-type: none"> <li>○ <i>Christopher Houston, iuvo BioScience</i></li> </ul> </li> <li>• Q&amp;A and Panel Discussion</li> </ul>	<p><b>Session 2: API Focus</b>            Moderator: <i>Robert Meyer, Merck &amp; Co., Inc.</i></p> <ul style="list-style-type: none"> <li>• Development and Implementation of Continuous Manufacturing Processes for API               <ul style="list-style-type: none"> <li>○ <i>Paul Collins, Eli Lilly and Company</i></li> </ul> </li> <li>• Scientific Considerations for Continuous API Manufacturing               <ul style="list-style-type: none"> <li>○ <i>Thomas O'Connor, FDA</i></li> </ul> </li> <li>• Exploring the Drug Substance/Drug Product Interface—Opportunities to Innovate Toward Enhanced Performance and Efficiency               <ul style="list-style-type: none"> <li>○ <i>Aaron Côté, Merck &amp; Co., Inc.</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>
<b>3:00 – 3:30 PM Coffee Break</b>			
<b>3:30 – 5:15 PM</b>	<p><b>Session 3. In-Vivo Predictive Dissolution Methods and Modeling</b>            Moderator: <i>Greg Amidon, University of Michigan</i></p> <ul style="list-style-type: none"> <li>• Building an Enhanced Analytical Toolbox for In-Vivo Predictive Dissolution               <ul style="list-style-type: none"> <li>○ <i>Justin Pennington, Merck&amp; Co., Inc.</i></li> </ul> </li> <li>• Development of Biorelevant Dissolution Methods               <ul style="list-style-type: none"> <li>○ <i>Nikoletta Fotaki, University of Bath</i></li> </ul> </li> <li>• Dissolution Coupled with Oral Absorption Modeling to Predict Clinically Relevant Performance               <ul style="list-style-type: none"> <li>○ <i>David Sperry, Eli Lilly and Company</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>	<p><b>Session 3. Extractables and Leachables: The Future</b>            Moderator: <i>Reggie Saraceno, Boehringer Ingelheim</i></p> <ul style="list-style-type: none"> <li>• Application of ICHQ9 Risk Management Principles to Assess the Risk of Leachables Adversely Impacting the Quality and/or Safety of Complex Biopharmaceuticals               <ul style="list-style-type: none"> <li>○ <i>Michael Hodgson, Baxter</i></li> </ul> </li> <li>• Novel Delivery Systems/Future Delivery Systems; Implantable Medical Devices – Landscape, Current Challenges/Issues               <ul style="list-style-type: none"> <li>○ <i>John Iannone, AMRI</i></li> </ul> </li> <li>• Dealing with Extractables and Leachables from a Regulatory Perspective               <ul style="list-style-type: none"> <li>○ <i>Timothy Robison, FDA</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>	<p><b>3. Drug Product Focus</b>            Moderator: <i>Sharmista Chatterjee, FDA</i></p> <ul style="list-style-type: none"> <li>• Overview of the session (3:30 – 3:35 PM)</li> <li>• Considerations for CM Implementation for a New Molecule (3:35 – 4:00 PM)               <ul style="list-style-type: none"> <li>○ <i>Eleni Dokou, Vertex</i></li> </ul> </li> <li>• Considerations for CM Implementation in a Legacy Product (4:00 – 4:40 PM)               <ul style="list-style-type: none"> <li>○ <i>Eric Sanchez and Gilfredo Navarro, Janssen</i></li> </ul> </li> <li>• Excipient Considerations for CM Implementation (4:40 – 5:05 PM)               <ul style="list-style-type: none"> <li>○ <i>Dave Schoneker, Colorcon</i></li> </ul> </li> <li>• Scientific Considerations for Continuous Manufacturing Implementation for Drug Product (5:05 – 5:30 PM)               <ul style="list-style-type: none"> <li>○ <i>Arwa El Hagrasy, FDA</i></li> </ul> </li> </ul>
<b>5:30 – 7:00 PM Reception</b>			

## 3RD FDA/PQRI CONFERENCE ON PRODUCT QUALITY

**DAY 2 – THURSDAY, MARCH 23, 2017**

**8:00- 8:30 AM Continental Breakfast**

**8:30 – 10:00 AM Plenary Session**

- **PQRI: A STRONG FOUNDATION TO EMBRACE AND ENGAGE CHANGE** - *Stephen Tyler, AbbVie; PQRI Steering Committee Chair* 8:30 – 9:00 AM
- **OPPORTUNITIES FOR STANDARDIZATION IN CONTINUOUS MANUFACTURING-** *Robert Femia, United States Pharmacopeia (USP)* 9:00 – 9:30 AM
- **FUTURE OF PHARMACEUTICAL QUALITY AND THE PATH TO GET THERE** - *Lawrence Yu, Food & Drug Administration (FDA)* 9:30 – 10:00 AM

**10:00 AM – 10:30 AM Coffee Break**

**TRACK #1: DRUG CLASSIFICATION, RELEASE, AND MODELING FOR SETTING CLINICALLY RELEVANT SPECIFICATIONS**

**TRACK #2: ACHIEVING DRUG PRODUCT QUALITY: NOVEL APPROACHES AND APPLICATIONS**

**TRACK #3: ENHANCING PRODUCT QUALITY THROUGH CONTINUOUS MANUFACTURING**

**10:30 AM – 12:15 PM**

- Session 4. Drug Release from Non-Oral Routes**  
 Moderator: *Wenlei Jiang, FDA*
- An *In Vitro* Approach to Model Specific Events Occurring at Injection Sites
    - *Randy Mrsny, University of Bath*
  - Drug Release from Liposomes: Role of Mechanism-Based Models
    - *Bradley Anderson, University of Kentucky*
  - Setting Size Specifications for PRINT® Particles
    - *Douglas Mar, Liquidia Technologies, Inc.*
  - Panel Discussion

- Session 4. Elemental Impurities**  
 Moderator: *Tony DeStefano, PQRI*
- Implementing ICH Q3D and USP 232/233 for Drug Products – Challenges and Opportunities
    - *Nancy Lewen, Bristol-Myers Squibb*
  - PQRI/USP Workshop on Implementation Status and Progress Report on Collaborative Studies
    - *Donna Seibert, Perrigo*
  - A Reviewer's Perspective on the Monitoring of Elemental Impurities
    - *Danae Christodoulou, FDA*
  - Q&A Panel Discussion

- Session 4. Strategies to Support Continuous Manufacturing**  
 Moderator: *Linda Evans O'Connor, Lachman Consultant Services, Inc.*
- cGMP and Regulatory Considerations of Continuous Manufacturing Processes
    - *LCDR Patric C. Klotzbuecher, FDA*
  - Integrated Product-Process Design to Minimize Expense, Time, and Material
    - *Fernando Muzzio, Rutgers University*
  - Enhancing Product Quality through CM – An Industry Perspective for Transitioning CM from Technology Evaluation to a Default Manufacturing Platform
    - *Ahmad Almaya, Eli Lilly and Company*
  - Q&A Panel Discussion

**12:15 – 1:15 PM Lunch**

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<b>1:15 – 3:00 PM</b>	<p><b>Session 5. Modeling for Oral and Non-Oral Routes</b>  Moderator: <i>Filippos Kesisoglou, Merck &amp; Co., Inc.</i></p> <ul style="list-style-type: none"> <li>• Modeling Long Acting Injectable Administrations <ul style="list-style-type: none"> <li>○ <i>Roberto Gomeni, Pharmacometrica</i></li> </ul> </li> <li>• Modeling Deposition in the Respiratory Tract: What Can We Learn That Impactors Don't Tell Us ? <ul style="list-style-type: none"> <li>○ <i>Maureen Donovan, University of Iowa</i></li> </ul> </li> <li>• Model Based Approaches to Target Special Populations with Rational Formulation and Clinical Design Strategies <ul style="list-style-type: none"> <li>○ <i>David Good, Bristol-Myers Squibb</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>	<p><b>Session 5. Drug/Device combination products: Quality</b>  Moderator: <i>Nina Cauchon, Amgen &amp; Laura O'Brien, Boehringer Ingelheim</i></p> <ul style="list-style-type: none"> <li>• Introduction of Sessions 5 and 6 (1:15 – 1:20 PM)</li> <li>• Regulatory Perspectives on CQAs, CPPs, and Risk Analyses for Combination Products (1:20 – 1:50 PM) <ul style="list-style-type: none"> <li>○ <i>Doug Mead, Janssen</i></li> </ul> </li> <li>• Life Testing for Device Combination Products: Approaches and Challenges for Integrating Devices into a Comprehensive Stability Program (1:50 – 2:20 PM) <ul style="list-style-type: none"> <li>○ <i>Clint Judd, Amgen</i></li> </ul> </li> <li>• Ensuring the Quality of Some Drug-Device Combination Products - FDA Perspective (2:20 – 2:50 PM) <ul style="list-style-type: none"> <li>○ <i>Ramesh Raghavachari, FDA</i></li> </ul> </li> </ul>	<p><b>Session 5: Challenges to Implementing Continuous Manufacturing</b>  Moderators: <i>Larry Lee, FDA &amp; Ganapathy Mohan, Merck</i></p> <ul style="list-style-type: none"> <li>• Regulatory Challenges to Implementing Continuous Manufacturing <ul style="list-style-type: none"> <li>○ <i>Roger Nosal, Pfizer</i></li> </ul> </li> <li>• Enabling Continuous Manufacturing: An FDA Perspective <ul style="list-style-type: none"> <li>○ <i>Rapti Madurawe, FDA</i></li> </ul> </li> <li>• Continuous Manufacturing: Challenges and Opportunities – EMA Perspective <ul style="list-style-type: none"> <li>○ <i>Dolores Hernán Pérez de la Ossa, EMA</i></li> </ul> </li> <li>• PMDA's Perspectives on Continuous Manufacturing <ul style="list-style-type: none"> <li>○ <i>Yoshihiro Matsuda, PMDA</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>
<b>3:00 – 3:30 PM Coffee Break</b>			
	<b>Break early 2:50 – 3:20 PM Track 2 only</b>		
<b>3:30 – 5:15 PM</b>	<p><b>Session 6. Topical Classification System</b>  Moderator: <i>Kailas Thakker, Tergus Pharma</i></p> <ul style="list-style-type: none"> <li>• The Science of Topical Drug Classification System <ul style="list-style-type: none"> <li>○ <i>Vinod Shah, PQRI</i></li> </ul> </li> <li>• Physiochemical Characterization of Acyclovir Topical Semisolid Dosage Forms Towards TCS Validation <ul style="list-style-type: none"> <li>○ <i>Flavian Rădulescu, University of Medicine and Pharmacy Carol Davila</i></li> </ul> </li> <li>• In Vitro Characterization of Topical Semisolid Dosage Forms <ul style="list-style-type: none"> <li>○ <i>Sam Raney, FDA</i></li> </ul> </li> <li>• Panel Discussion</li> </ul>	<p><b>Session 6. Drug/Device Combination Products: Bioequivalence</b>  Moderator: <i>Bing Li, FDA and Andrew LeBoeuf, FDA</i></p> <ul style="list-style-type: none"> <li>• Bioequivalence of Locally Acting Orally Inhaled and Nasal Drug Products: Regulatory Histories and Milestones (3:20 – 3:50 PM) <ul style="list-style-type: none"> <li>○ <i>Bing Li, FDA</i></li> </ul> </li> <li>• Understanding BE Requirements for Combination Products—A Focus on Auto Injectors (3:50 – 4:20 PM) <ul style="list-style-type: none"> <li>○ <i>Andrea Redd, Fresenius-Kabi</i></li> </ul> </li> <li>• User Interface Considerations for Drug-Device Combination Products Submitted in an ANDA (4:20 – 4:50 PM) <ul style="list-style-type: none"> <li>○ <i>Irene Chan, FDA</i></li> </ul> </li> <li>• Joint Panel Discussion (Session 5 and 6) (4:50 – 5:15 PM)</li> </ul>	<p><b>Session 6. Where Are We Heading in Continuous Manufacturing?</b>  Moderator: <i>Rich Levy, PDA</i></p> <ul style="list-style-type: none"> <li>• Introduction (5 minutes) <i>Rich Levy, PDA</i></li> <li>• How are you getting ready? Future Vision <ul style="list-style-type: none"> <li>○ <i>FDA CDER Perspective – Larry Lee, FDA</i></li> </ul> </li> <li>• Timescales for Change – A Look at Innovation in the Pharmaceutical Industry <ul style="list-style-type: none"> <li>○ <i>Robert Meyer, Merck &amp; Co., Inc.</i></li> </ul> </li> <li>• Navigating the Challenges of Integrated Continuous Bioprocessing <ul style="list-style-type: none"> <li>○ <i>Charles Cooney, Massachusetts Institute of Technology</i></li> </ul> </li> <li>• Panel Discussion: <ul style="list-style-type: none"> <li>• Above speakers, plus: <ul style="list-style-type: none"> <li>○ <i>Yoshihiro Matsuda, PMDA</i></li> <li>○ <i>LCDR Patric C. Klotzbuecher, FDA</i></li> </ul> </li> </ul> </li> </ul>

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DAY 3 – FRIDAY, MARCH 24, 2017

**7:30 – 8:00 AM Continental Breakfast**

**8:00 – 10:15 AM Topic Summaries** (45 minutes per theme)

8:00 – 8:45 AM	Track #1 Summary
8:45 – 9:30 AM	Track #2 Summary
9:30 – 10:15 AM	Track #3 Summary

**10:15 – 10:45 AM Coffee Break**

**10:45 AM – 12:00 PM Global Harmonization? Conversation with FDA, EMA, PMDA and Industry Leaders**

**Moderator:** Louis Yu, Valeant

**Panelists:**

- Ashley Boam, FDA
- Dolores Hernán, EMA
- Robert Iser, FDA
- Yoshihiro Matsuda, PMDA
- Christine Moore, Merck
- Keith Webber, Perrigo

**12:00 PM Closing Remarks**

### **FACULTY** Speakers and Moderators

**Ahmad Almaya**, Ph.D., Research Advisor, Eli Lilly and Company

**Gregory E. Amidon**, Ph.D., Research Professor of Pharmaceutical Sciences, University of Michigan

**Brad Anderson**, Ph.D., Professor-Pharmaceutical Sciences, College of Pharmacy, University of Kentucky

**Serge Beaucage**, Ph.D., Research Chemist, Food and Drug Administration

**Ashley Boam**, Director (Acting) Office of Policy for Pharmaceutical Quality, OPQ, FDA

**Nina S. Cauchon**, Ph.D., Global Regulatory Affairs CMC Lead, Amgen Inc.

**Irene Z. Chan**, Pharm.D., BCPS, CDR, U.S. Public Health Service, Deputy Director, Division of Medication Error Prevention & Analysis, CDER, OSE, OMEPRM, DMEPA, FDA

**Sharmista Chatterjee**, Ph.D., Division Director, Division of Process Assessment II/OPF/CDER/FDA

**Danae Christodoulou**, Ph.D., Acting Branch Chief, Office of New Drug Products/OPQ/CDER, FDA

**Paul Collins**, Ph.D., Senior Director in Small Molecule Design, Eli Lilly and Company

**Charles L. Cooney**, Ph.D., Robert T. Haslam (1911) Professor of Chemical Engineering, Emeritus, Massachusetts Institute of Technology

**Aaron Côté**, Ph.D., Distinguished Scientist, Merck & Co., Inc.

**Celia Cruz**, Ph.D., Director, Division of Product Quality Research, Office of Testing and Research, FDA

**Barbara M. Davit**, Ph.D., JD, FAAPS, Executive Director, Biopharmaceutics Group, Translational Medicine Department, Merck Research Laboratories

**Anthony J. DeStefano**, Ph.D., Consultant, PQRI

**Eleni Dokou**, Ph.D., Senior Director, Head of Formulation Development, Vertex Pharmaceuticals Incorporated

**Maureen D. Donovan**, Ph.D., Associate Dean and Professor, College of Pharmacy, University of Iowa

**Arwa El Hagrasy**, Ph.D., Acting Quality Assessment Lead, Office of Process and Facilities, FDA

**Robert Femia**, Ph.D., Senior Vice President, Chemical Medicines, USP

**Nikoletta Fotaki**, Pharmacist, MSc, Ph.D., Associate Professor, University of Bath

**Roberto Gomeni**, Ph.D., Founder, Pharmacometrica

**David Good**, Ph.D., Senior Research Investigator, Bristol-Myers Squibb

**Joe Guiles**, Head of Development, Agilent Technologies

**Dolores Hernán Pérez de la Ossa**, Ph.D., Quality Specialist, European Medicines Agency (EMA)

(Continued below)

### 3RD FDA/PQRI CONFERENCE ON PRODUCT QUALITY

**Michael Hodgson**, Ph.D., Global Extractables & Leachables Senior Manager, Baxter International Inc.

**Christopher Houston**, Ph.D., Director, Analytical Chemistry, iuvo BioScience

**John Iannone**, Director, Extractables/Leachables & Impurities, Albany Molecular Research Inc. (AMRI)

**Robert Iser**, M.S., Director, Office of Process and Facilities, OPQ/CDER/FDA

**Dennis Jenke**, Ph.D., Chief Executive Scientist, Triad Scientific Solutions, LLC

**Wenlei Jiang**, Ph.D., Senior Science Advisor, Office of Research and Standards/OGD/CDER, FDA

**Clint Judd**, Principal Quality Engineer, Amgen Inc.

**Filippos Kesisoglou**, Ph.D., Senior Principal Scientist, Merck & Co., Inc.

**LCDR Patric Klotzbuecher**, Investigator (Drug Specialist), U.S. Department of Health and Human Services, FDA, Office of Regulatory Affairs

**Michael Kopcha**, Ph.D., R.Ph., Director, Office of Pharmaceutical Quality (OPQ), FDA

**Andrew LeBoeuf**, Regulatory Counsel, Office of Generic Drug Policy, OGD, CDER, FDA

**Sau (Larry) Lee**, Ph.D., Deputy Director, Office of Testing and Research, OPQ, FDA

**Richard V. Levy**, Ph.D., Senior Vice President, Scientific & Regulatory Affairs, Parenteral Drug Association (PDA)

**Nancy Lewen**, Research Fellow and Supervisor – Atomic Spectroscopy Laboratory, Bristol-Myers Squibb

**Bing Li**, Ph.D., Director, Division of Bioequivalence I, Office of Bioequivalence, OGD, CDER, FDA

**Raimar Löbenberg**, Ph.D., Professor and Director, University of Alberta, DDIC

**Richard (Rik) Lostritto**, Ph.D., Acting Associate Director for Science, Office of Policy for Pharmaceutical Quality, FDA

**Rapti Madurawe**, Ph.D., Division Director, Office of Process and Facilities, FDA

**Douglas Mar**, Ph.D., Principal Scientist, Liquidia Technologies, Inc.

**Yoshihiro Matsuda**, Ph.D., Pharmacist and Senior Scientist, Pharmaceuticals and Medical Devices Agency (PMDA)

**Douglass Mead**, MSBME, RAC, Senior Director, Global Regulatory Affairs - CMC, Medical Devices and Combination Products, Janssen Research and Development, LLC

**Mehul Mehta**, Ph.D., Director, Division of Clinical Pharmacology I, FDA

**Robert Meyer**, Ph.D., Principal Scientist, Merck & Co., Inc.

**Sarah Pope Miksinski**, Ph.D., Director, Office of New Drug Products, Acting Director, Office of Surveillance, OPQ, FDA

**Ganapathy Mohan**, Ph.D., Head of Small Molecule Development Quality, Merck, Sharp and Dohme corp.

**Christine Moore**, Ph.D., Executive Director and Global Head, CMC Policy, Merck, Sharp and Dohme

**Randy Mrsny**, Professor, Epithelial Cell Biology, University of Bath

**Fernando Muzzio**, Ph.D., Distinguished Professor of Chemical Engineering, Rutgers University

**Moheb Nasr**, Ph.D., Vice President, CMC Regulatory Strategy, GlaxoSmithKline

**Gilfredo Navarro**, Associate Director, CMC Regulatory Affairs, Janssen Research and Development

**Roger Nosal**, Vice President and Head of Global Chemistry, Manufacturing & Controls, Pfizer

**Laura O'Brien**, Ph.D., Senior Research Fellow, Boehringer Ingelheim

**Linda Evans O'Connor**, M.B.A., Head of Business Processes & Regulatory, Lachman Consultant Services, Inc.

**Thomas O'Connor**, Ph.D., Chemical Engineer, Office of Pharmaceutical Quality, CDER, FDA

**Diane Paskiet**, Director, Scientific Affairs, West

**Justin Pennington**, Ph.D., Director w/in PSCS Analytical Sciences Department, Merck & Co., Inc.

**Dr. Flavian Ștefan Rădulescu**, Associate Professor, Center for Drug Sciences, Faculty of Pharmacy University of Medicine and Pharmacy Carol Davila

**Ramesh Raghavachari**, Ph.D., Chief, Branch I, Division of Post Marketing Assessment I, Office of Life Cycle Drug Products/OPQ/CDER, FDA

**Sam Raney**, Ph.D., Scientific Lead, Topical and Transdermal Drug Products, Office of Generic Drugs, FDA

**Andrea C. Redd**, Director, Regulatory Affairs Combination Products, Fresenius Kabi USA, LLC

**Timothy W. Robison**, Ph.D., D.A.B.T., Pharmacology and Toxicology Team Leader, Division of Pulmonary, Allergy Products and Rheumatology Products, FDA

**Eric J. Sanchez**, MS, Director, Janssen Supply Chain Global Technical Services, a division of Johnson and Johnson

**Mohan Sapru**, M.S., Ph.D., CMC Lead for Cardiovascular and Renal Products, Office of New Drug Products, FDA

**Reggie Saraceno**, Ph.D., Director, Chemical Analysis, Boehringer Ingelheim

**David R. Schoneker**, Director of Global Regulatory Affairs, Colorcon

**Donna Seibert**, Ph.D., Senior Manager, Analytical Research and Development, Consumer Healthcare, Perrigo Company

**Vinod P. Shah**, Ph. D., Consultant, PQRI

**David C. Sperry**, Ph.D., Research Advisor, Eli Lilly and Company

**Erika Stippler**, Ph.D., Director of the Dosage Form Performance Laboratory, USP

**Sandra Suarez-Sharp**, Ph.D., Master Biopharmaceutics Reviewer/Biopharmaceutics Lead (acting) , Office of New Drug Products/OPQ, FDA

**Allen C. Templeton**, Ph.D., Associate Vice President, Merck & Co., Inc.

**Kailas Thakker**, Ph.D., Co-Founder and Chief Operating Officer, Tergus Pharma

**Michael P. Thien**, Sc.D., SVP, Global Science, Technology & Commercialization, Merck & Co., Inc.

**Stephen Tyler**, Director, Quality Assurance, AbbVie

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The Product Quality Research Institute (PQRI) is a non-profit consortium of organizations working together to generate and share timely, relevant, and impactful information that advances drug product quality, manufacturing, and regulation. To learn more or to join, contact us at [PQRIsecretariat@pqri.org](mailto:PQRIsecretariat@pqri.org), call +1(202) 230-5199 or visit [www.pqri.org](http://www.pqri.org).