Robin Humcke Bogner
University of Connecticut
School of Pharmacy
Box U-3092
Storrs, CT 06269-3092
(860) 486-2136

I. Professional Experience

University of Connecticut School of Pharmacy, Storrs, CT

Professor	Aug. 23, 2016 – present
Associate Professor of Pharmaceutics	Sept. 1, 1995 – August 22, 2016
Member of the Institute of Material Science	Nov. 4, 1994 – present
Assistant Professor of Pharmaceutics	Sept. 1, 1990 – August 31, 1995
Instructor of Pharmaceutics	Sept. 1, 1989 – August 31, 1990

Pfizer Biopharma, Andover, MA

Sabbatical leave	Sept. 6, 2011 – Feb. 24, 2012

II. Education

Ph.D. in Pharmaceutics (1990) with minors in Physical Chemistry and Chemical Engineering
Rutgers University, College of Pharmacy, Piscataway, NJ

M.S. in Pharmaceutics (1983)
University of Iowa, College of Pharmacy, Iowa City, IA

B.S. in Pharmacy with honors (1981)
Rutgers University, College of Pharmacy, Piscataway, NJ

III. Awards & Honors

2018 NIPTE Michael J. Pikal Distinguished Scholar Award in Pharmaceutical Processing
2013 Fellow of the American Association of Pharmaceutical Scientists
2010 C&E News Top 10 Quotes of the Year (http://pubs.acs.org/cen/quotes/index.html)
2009 International Pharmaceutical Excipients Council (IPEC) Ralph Shangraw Award
2009 Merck Vanguard Leadership Award
2008 University of Connecticut Teaching Fellow
2007 AAiPS Distinguished Scientist
2007 Teacher of the Year (UConn School of Pharmacy)
2005 Advisor of the Year (Lambda Kappa Sigma Pharmacy)
1998 Fred Simon Award (paper of the year in PDA J. Pharm. Sci. Technol.)
Fellow of the American Foundation for Pharmaceutical Education
Phi Lambda Sigma Pharmacy Leadership Society
Sigma Xi Honor Society
Rho Chi Pharmacy Honor Society

IV. Research

1. Scientific Peer-Reviewed Publications

Underlined = senior or corresponding author

89. H. Stamato, M. Korang-Yeboah, J. Rangineni, X. Xu, R. Bogner, Advanced Manufacturing, Modeling And Analytical Tools In Injectable Products (doi.org/10.1007/s11095-025-03815-5) Pharmaceutical Research, 1-6, (early online 2025).

88. N. Dan, S Shelake, W-C Luo, M. Rahman, J. Lu, R.H. Bogner, X. Lu, Impact of controlled ice nucleation on intracellular dehydration, ice formation and their implications on T cell freeze–thaw viability (doi.org/10.1016/j.ijpharm.2024.124694), International Journal of Pharmaceutics 665, 124694 (early online 2024).

87. A. Manchanda, M. Bookwala, PLD Wildfong, **R.H. Bogner**, Effects of Structurally Related Compounds on Desupersaturation Kinetics of Indomethacin, (doi.org/10.1007/s11095-023-03587-w) Pharmaceutical Research, 40:2769-2778 (2023).

86. W-C Luo, W. Zhang, R. Kim, H. Chong, S.M. Patel, R.H. Bogner, X. Lu, Impact of controlled ice nucleation and lyoprotectants on nanoparticle stability during Freeze-drying and upon storage (doi: 10.1016/j.ijpharm.2023.123084) International Journal of Pharmaceutics, 641: Article 123084 (2023).

85. L. Fontana, C. Anderson, **R. Bogner**, M Pikal, Evaluation of a Raman Chemometric Method for Detecting Protein Structural Conformational Changes in Solution (doi.org/10.1016/j.xphs.2022.09.006) Journal of Pharmaceutical Sciences, 112(2):573-586 (2023).

84. B. Minatovicz, S. Sansare, T. Mehta, R.H. Bogner, B. Chaudhuri, Large-Scale Freeze-Thaw of Protein Solutions: Study of the Relative Contributions of Freeze-Concentration and Ice Surface Area on Stability of Lactate Dehydrogenase (doi.org/10.1016/j.xphs.2022.09.020) Journal of Pharmaceutical Sciences, 112(2):482-491 (2023).

83. J.Q. Li, M. Rahman, S.M. Patel, R.H. Bogner, T.H. Fan, Dendritic Morphology and Growth Inhibition of Ice Crystals in Sucrose Solutions (doi.org/10.1021/acs.cgd.2c00544), Crystal Growth & Design, 22(12):6917-6927 (2022).

82. P. Kazarin, W. Kessler, E. Gong, S Yoon, H. Liu, R. Marx, R. Bogner, A. Alexeenko, A Compact Model for Lyophilizer Equipment Capability Estimation, (doi.org/10.1208/s12249-021-02167-8), AAPS PharmSciTech, 23 (14): 1-15 (2022).

81. **R. Bogner**, E. Gong, W. Kessler, M. Hinds, A. Manchanda, S. Yoon, H. Liu, R. Marx, J. Zhao, P. Sharma, A. Bhambhani, J. Stanbro, A. Alexeenko, P. Kazarin, A Software Tool for Lyophilization Primary Drying Process Development and Scale-up Including Process Heterogeneity, I: Laboratory-Scale Model Testing, (doi.org/10.1208/s12249-021-02134-3), AAPS PharmSciTech, 22(8): 1-16 (2021).

80. W-C Luo, A.O. Beringhs, R. Kim, W. Zhang, S.M. Patel, R.H. Bogner, X. Lu, Impact of Formulation on the Quality and Stability of Freeze-dried Nanoparticles, (doi.org/10.1016/j.ejpb.2021.10.014), European Journal of Pharmaceutics and Biopharmaceutics, 169:256-267 (2021).

79. S.S. Kulkarni, S.M. Patel, R. Suryanarayanan, J.V. Rinella, Jr, **R.H. Bogner**, Key factors governing the reconstitution time of high concentration lyophilized protein formulations, (doi.org/10.1016/j.ejpb.2021.05.005), European Journal of Pharmaceutics and Biopharmaceutics, 165:361-373 (2021).

78. B. Minatovicz, R. Bogner, B. Chaudhuri, Use of Design of Experiments (DoE) Approach to Optimize Large-Scale Freeze-Thaw Process of Biologics, (doi.org/10.1208/s12249-021-02034-6), AAPS PharmSciTech, 22 (4), 1-15 (2021).

77. A. Manchanda, N. Li, **R.H. Bogner**, Mechanisms for the Slowing of Desupersaturation of a Weak Acid at Elevated pH, (doi.org/10.1021/acs.molpharmaceut.0c00539), Molecular Pharmaceutics, 17(10): 3759-3772 (2020).

76. R. Fang, W. Obeidat, M.J. Pikal, **R.H. Bogner**, Evaluation of Predictors of Protein Relative Stability Obtained by Solid-State Hydrogen-Deuterium Exchange Monitored by FTIR, (doi.org/10.1007/s11095-020-02897-7), Pharmaceutical Research, 37(9): 1-9 (2021).

75. S.S. Kulkarni, S.M. Patel, **R.H. Bogner**, Reconstitution Time for Highly Concentrated Lyophilized Proteins: Role of Formulation and Protein, (doi.org/10.1016/j.xphs.2020.05.029), Journal of Pharmaceutical Sciences, 109(10): 2975-2985 (2020).

74. R. Fang, R.H. Bogner, S.L. Nail, M.J. Pikal, Stability of Freeze-Dried Protein Formulations: Contributions of Ice Nucleation Temperature and Residence Time in the Freeze-Concentrate, (doi.org/10.1016/j.xphs.2020.02.014), Journal of Pharmaceutical Sciences, 109(6): 1896-1904 (2020).

73. P. Sane, R.H. Bogner, B. Bhatnagar, S. Tchessalov, Reconstitution of Highly-Concentrated Lyophilized Proteins: Part 1 Amorphous Formulations, (doi.org/10.1016/j.xphs.2020.02.006), Journal of Pharmaceutical Sciences, 109(5): 1681-1691 (2020).

72. A. Manchanda, M.S. Kleppe, **R.H. Bogner**, Nuances in the Calculation of Amorphous Solubility Enhancement Ratio (doi.org/10.1016/j.xphs.2019.06.020), Journal of Pharmaceutical Sciences, 108(11):3560-3574 (2019).

71. T-H Fan, J-Q Li, B. Minatovicz, E. Soha, L. Sun, S Patel, B. Chaudhuri, **R. Bogner**, Phase-Field Modeling of Freeze Concentration of Protein Solutions (doi.org/10.3390/polym11010010), Polymers, 11(1):10 (2019).

70. P. Sharma, W.J. Kessler, R. Bogner, M. Thakur, M.J. Pikal, Applications of the Tunable Diode Laser Absorption Spectroscopy: In-Process Estimation of Primary Drying Heterogeneity and Product Temperature During Lyophilization (doi.org/10.1016/j.xphs.2018.07.031), Journal of Pharmaceutical Sciences, 108(1):416-430 (2019).

69. M.J. Pikal, P. Pande, **R.H. Bogner**, P. Sane, V. Mudhivarthi, P. Sharma, Impact of Natural Variations in Freeze-Drying Parameters on Product Temperature History: Application of Quasi Steady-State Heat and Mass Transfer and Simple Statistics (doi.org/10.1208/s12249-018-1155-4), AAPS PharmSciTech, 19(7):2828-2842 (2018).

68. S.S. Kulkarni, R. Suryanarayanan, J.V. Rinella, Jr., **R. H. Bogner**, Mechanisms By Which Crystalline Mannitol Improves the Reconstitution Time of High Concentration Lyophilized Protein Formulations (doi.org/10.1016/j.ejpb.2018.07.022), European Journal of Pharmaceutics and Biopharmaceutics, 131: 70-81 (2018).

67. R. Fang, K. Tanaka, V. Mudhivarthi, **R.H. Bogner**, M.J. Pikal, Effect of Controlled Ice Nucleation on Stability of Lactate Dehydrogenase during Freeze-Drying (doi.org/10.1016/j.xphs.2017.10.020), Journal of Pharmaceutical Sciences, 107(3):824-830 (2018).

66. A. Manchanda, M. Laracy, T. Savji, **R.H. Bogner**, Stability of an Alcohol-free, Dye-free Hydrocortisone (2 mg/mL) Compounded Oral Suspension, International Journal of Pharmaceutical Compounding, 22(1): 66-75 (2018).

65. M.S. Kleppe, R.J. Haskell, **R.H. Bogner**, Biorelevant Media Slows the Solution-Mediated Phase Transformation of Amorphous Spironolactone (doi.org/10.1016/j.xphs.2017.10.041), Journal of Pharmaceutical Sciences, 107(1): 426-435 (2018).

64. S.E. Yohn, D. Gorka, A. Mistry, S. Collins, E. Qian, M. Correa, A. Manchanda, R.H. Bogner, J.D. Salamone, Oral Ingestion and Intraventricular Injection of Curcumin Attenuates the Effort-Related Effects of the VMAT-2 Inhibitor Tetrabenazine: Implications for Motivational Symptoms of Depression, Journal of Natural Products, 80(10): 2839-2844 (2017).

63. D. Ye, **R. Bogner**, J.Q. Li, T.H. Fan, Dissolution of a colloidal particle in an oscillatory flow (10.1016/j.ijheatmasstransfer.2016.11.066) International Journal of Heat and Mass Transfer, 107: 489-499 (2017).

62. P. Sane, N. Varma, A. Ganguly, M Pikal, A. Alexeenko, **R.H. Bogner**, Spatial variation of pressure in the lyophilization product chamber part 2: experimental measurements and implications for scale-up and batch uniformity (DOI: 10.1208/s12249-016-0502-6), AAPS PharmSciTech, 18(2):369-380 (2017).

61. A. Ganguly, N. Varma, P. Sane, R. Bogner, M. Pikal, A. Alexeenko, Spatial Variation of Pressure in the Lyophilization Product Chamber Part 1: Computational Modeling (DOI: 10.1208/s12249-016-0513-3), AAPS PharmSciTech, 18(3):577-585 (2017).

60. M.J. Pikal, R.H. Bogner, V. Mudhivarthi, P. Sane, Freeze-Drying Process Development and Scale-Up: Scale-Up of Edge Vial Versus Center Vial Heat Transfer Coefficients, Kv (DOI: 10.1016/j.xphs.2016.07.027) Journal of Pharmaceutical Sciences, 105(11) : 3333-3343 (2016).

59. R. Fang, P.J. Grobelny, R. H. Bogner, M.J. Pikal, Protein Internal Dynamics Associated With Pre–System Glass Transition Temperature Endothermic Events: Investigation of Insulin and

Human Growth Hormone by Solid State Hydrogen/Deuterium Exchange (DOI: 10.1016/j.xphs.2016.07.028) Journal of Pharmaceutical Sciences, 105 (11): 3290-3295 (2016).

58. K.M. Forney-Stevens, R.H. Bogner, M.J. Pikal, Addition of Amino Acids to Further Stabilize Lyophilized Sucrose-Based Protein Formulations: I. Screening of 15 Amino Acids in Two Model Proteins (DOI: 10.1002/jps.24655) Journal of Pharmaceutical Sciences, 105(2):697-704 (2016).

57. M.S. Kleppe, K.M. Forney-Stevens, R.J. Haskell, **R.H. Bogner**, Mathematical Models to Explore Potential Effects of Supersaturation and Precipitation on Oral Bioavailability of Poorly Soluble Drugs (DOI: 10.1208/s12248-015-9748-2) The AAPS Journal, 17(4):902-917 (2015).

56. P. Grobelny, I. Kazakevich, D. Zhang, **R. Bogner**, Amorphization of itraconazole by inorganic pharmaceutical excipients: comparison of excipients and processing methods (DOI:10.3109/10837450.2014.959181) Pharmaceutical Development and Technology, 20(1), 118-127 (2015)

55. K.M. Forney-Stevens, M.J. Pelletier, E.Y. Shalaev, M.J. Pikal, **R.H. Bogner**, Optimization of a Raman microscopy technique to efficiently detect amorphous-amorphous phase separation in freeze-dried protein formulations (DOI:10.1002/jps.23882) Journal of Pharmaceutical Sciences, 103(9):27499-2758 (2014).

54. D. Sugrue, R. Bogner, M.J. Ehret, Methylphenidate and dexmethylphenidate formulations for children with attention-deficit/hyperactivity disorder, (DOI: 10.2146/ajhp130638) American Journal of Health-System Pharmacy, 71(14):1163-1170 (2014).

53. E.K. Sahni, R.H. Bogner, Bodhisattwa Chaudhuri, Systematic investigation of parameters affecting the performance of an agitated filter-dryer, (DOI: 10.1002/jps.23572) Journal of Pharmaceutical Sciences, 102(7): 2198-2213 (2013).

52. K. Greco and **R.H. Bogner**, Solution-mediated phase transformation: Significance during dissolution and implications for bioavailability, (DOI: 10.1002/jps.23025) Journal of Pharmaceutical Sciences 101(9): 2996-3018 (2012). [in the top ten most downloaded papers in JPharmSci during July-September, 2012].

51. K.K. Qian, D.E. Wurster, **R.H. Bogner**, Spontaneous Crystalline-to-Amorphous Phase Transformation of Organic or Medicinal Compounds in the Presence of Porous Media, Part 3: Effect of Moisture (DOI: 10.1007/s11095-012-0734-4) Pharmaceutical Research 29:2698-2709 (2012).

50. K.K. Qian and **R.H. Bogner**. Application of mesoporous silicon dioxide and silicate in oral amorphous drug delivery systems. (DOI: 10.1002/jps.22779) Journal of Pharmaceutical Sciences. 101:444-463 (2012).

49. K. Greco, **R.H. Bogner**, Solution-Mediated Phase Transformation of Haloperidol Mesylate in the Presence of Sodium Lauryl Sulfate, (DOI: 10.1208/s12249-011-9656-4) AAPS PharmSciTech, 12(3):909-16 (2011).

48. S. B. Murdande, M.J. Pikal, R.M. Shanker, **R.H. Bogner**, Solubility Advantage of Amorphous Pharmaceuticals: III. Is Maximum Solubility Advantage Experimentally Attainable and Sustainable?, (DOI: 10.1002/jps.22643) Journal of Pharmaceutical Sciences 100(10): 4349-4356 (2011).

47. K. Qian, S. Suib and **R.H. Bogner**, Spontaneous Crystalline-to-Amorphous Phase Transformation of Organic or Medicinal Compounds in the Presence of Porous Media. 2. Mechanisms of Interaction (DOI 10.1002/jps.22657), Journal of Pharmaceutical Sciences 100(11):4674-4686 (2011).

46. K. Greco, D.P. McNamara, **R. Bogner**, Solution-Mediated Phase Transformation of Salts During Dissolution: Investigation Using Haloperidol as a Model Drug (DOI 10.1002/jps.22507), Journal of Pharmaceutical Sciences 100(7):2755-2768 (2011).

45. K. Qian, **R.H. Bogner**, Differential heat of adsorption of water vapor on silicified microcrystalline cellulose (SMCC): An investigation using isothermal microcalorimetry, (DOI: 10.3109/10837450.2010.508073) Pharmaceutical Development and Technology,16(6):616-626 (2011).

44. K.K. Qian and **R.H. Bogner**, Spontaneous crystalline-to-amorphous phase transformation of organic or medicinal compounds in the presence of porous media, Part 1: Thermodynamics of Spontaneous Amorphization, (DOI 10.1002/jps.22519), Journal of Pharmaceutical Sciences 100(7):2081-2815 (2011).

43. S. Hailu, **R. Bogner**, Complex Effects of Drug:Silicate Ratio, Solid-State pHeq and Moisture on Chemical Stability of Amorphous Quinapril Hydrochloride Coground with Silicates, (DOI 10.1002/jps.22387), Journal of Pharmaceutical Sciences, 100(4): 1503-1515 (2011).

42. S.B. Murdande, M.J. Pikal, R.M. Shanker, **R.H. Bogner**, Aqueous solubility of crystalline and amorphous drugs: Challenges in measurement (doi/pdf/10.3109/10837451003774377), Pharmaceutical Development and Technology, 16(3):187-200 (2011). [4th most downloaded paper in PDT in 2012].

41. K. Greco, T.L. Bergman, **R.H. Bogner**. Design and characterization of a laminar flow-through dissolution apparatus: Comparison of hydrodynamic conditions to those of common dissolution techniques. (doi/pdf/10.3109/10837450903499341) Pharmaceutical Development and Technology, 16(1):75-87 (2011).

40. A.M. Padilla, I. Ivanisevic, Y. Yang, D. Engers, **R.H. Bogner**, M.J. Pikal, The Study of Phase Separation in Amorphous Freeze-Dried Systems. Part 1: Raman Mapping and Computational Analysis of XRPD Data in Model Polymer Systems (DOI 10.1002/jps.22269), Journal of Pharmaceutical Sciences, 100(1):206-222 (2011).

39. S.B. Murdande, M.J. Pikal, R.M. Shanker, **R.H. Bogner**, Solubility Advantage of Amorphous Pharmaceuticals: II. Application of Quantitative Thermodynamic Relationships for Prediction of Solubility Enhancement in Structurally Diverse Insoluble Pharmaceuticals, (DOI 10.1007/s11095-010-0269-5), Pharmaceutical Research 27(12):2704-2714 (2010).

38. S. Goss, J. Prushko, **R. Bogner**. Factors affecting calcium precipitation during neutralisation in a simulated intestinal environment (DOI 10.1002/jps.22131), Journal of Pharmaceutical Sciences 99(10):4183-4191 (2010).

37. S. Bose, **R.H. Bogner**, Solventless visible light-curable coating: I. Critical formulation and processing parameters. (doi:10.1016/j.ijpharm.2010.01.041) International Journal of Pharmaceutics 393(1-2):32-40 (2010).

36. S. Bose, **R.H. Bogner**, Solventless visible light-curable coating: II. Drug release, mechanical strength and photostability (doi:10.1016/j.ijpharm. 2010.03.052) International Journal of Pharmaceutics 393(1-2):41-47 (2010).

35. K. Greco, **R.H. Bogner**, Crystallization of Amorphous Indomethacin During Dissolution: Effect of Processing and Annealing (DOI: 10.1021/mp1000197), Molecular Pharmaceutics 7(5):1406-1418 (2010).

34. S.A Hailu, **R.H. Bogner**, Solid-state Surface Acidity and pH-Stability Profiles of Amorphous Quinapril Hydrochloride and Silicate Formulations, Journal of Pharmaceutical Sciences. 99 (6): 2786-2799 (2010).

33. S.B. Murdande, M.J. Pikal, R.M. Shanker, **R.H. Bogner**. Solubility Advantage of Amorphous Pharmaceuticals: 1. A Thermodynamic Analysis, Journal of Pharmaceutical Sciences. 99(3): 1254-1264 (2010).

32. S. Hailu, **R. Bogner**. Effect of the pH Grade of Silicates on Chemical Stability of Co-Ground Amorphous Quinapril Hydrochloride and its Stabilization Using pH-Modifiers, Journal of Pharmaceutical Sciences 98(9): 3358-3372 (2009).

31. S.Goss, P. Rafferty, J. Prushko, E. Gorman, M. Taub and **R. Bogner**. Exploration of intestinal calcium precipitation as a barrier to absorption at high calcium doses, Pharmaceutical Research, 25(12); 2760-2768 (2008).

30. D. Bahl and **R. Bogner**. Amorphization Alone Does Not Account for the Enhancement of Solubility of Drug Co-ground with Silicate: The Case of Indomethacin.AAPS PharmSciTech. 9(1):146-53 (2008).

29. D. Bahl, J. Hudak, **R. Bogner**, Comparison of the Ability of Various Pharmaceutical Silicates to Amorphize and Enhance Dissolution of Indomethacin Upon Co-grinding, Pharmaceutical Development and Technology, 13(3):255-69 (2008).[10^{th} most cited paper in PDT in 2012; 5^{th} most cited paper in PDT 1995-2012].

28. BS Bhatnagar, MJ Pikal, **RH Bogner**, Study of the Individual Contributions of Ice Formation and Freeze-Concentration on Isothermal Stability of Lactate Dehydrogenase during Freezing, Journal of Pharmaceutical Sciences**,** Journal of Pharmaceutical Sciences, 97: 798-814 (2008).

27. S. Goss, **RH Bogner**, Determination of Calcium Salt Solubility with Changes in pH and pCO_2, Simulating Varying Gastrointestinal Environments, Journal of Pharmacy and Pharmacology, 59: 1485-1492 (2007).

26. BS Bhatnagar, **RH Bogner**, MJ Pikal, Protein Stability During Freezing: Separation of Stresses and Mechanisms of Protein Stabilization, Pharmaceutical Development and Technology, 12: 505-523 (2007).

25. S Bose, **RH Bogner**, Solventless Pharmaceutical Coating Processes: A Review, Pharmaceutical Development and Technology, 12(2): 115-131 (2007).

24. S. Bose, **R.H. Bogner**, Solventless Photocurable Film Coating: Evaluation of Drug Release, Mechanical Strength, and Photostability, AAPS PharmSciTech 8(3) Article 57 (http://www.aapspharmacitech.org) (2007).

23. A.M. Abdul-Fattah, K.M. Dellerman, **R.H. Bogner**, M.J. Pikal, The effect of annealing on the stability of amorphous solids: Chemical Stability of Freeze-Dried Moxalactam, J. Pharm. Sci., 96:1237-1250 (2007).

22. D. Bahl, **R.H. Bogner**, Amorphization of Indomethacin by Co-Grinding with Neusilin US2: Amorphization Kinetics, Physical Stability and Mechanism, Pharm. Res., 23:2317-2325 (2006).

21. S. Bose, B. Kelly, **R.H. Bogner**, Design Space for a Solventless Photocurable Pharmaceutical Coating, Journal of Pharmaceutical Innovation, 1:44-53 (2006).

20. B. Bhatnagar, S.J. Nehm, M.J. Pikal, **R.H. Bogner**, Post-Thaw Aging Affects Activity of Lactate Dehydrogenase, J. Pharm. Sci., 94:1382-1388 (2005).

19. B. Bhatnagar, S. Cardon, M.J. Pikal, **R.H. Bogner**, Reliable Determination of Freeze-Concentration Using DSC, Thermochimica Acta, 425:149-163 (2005).

18. M.K. Gupta, A. VanWert, **R.H. Bogner**, Formation of Physically Stable Amorphous Drugs by Milling with Neusilin, J. Pharm. Sci., 92:502 (2003).

17. M.K. Gupta, Y. Tseng, D. Goldman, **R. H. Bogner**, Hydrogen Bonding with Adsorbent During Storage Governs Drug Dissolution from Solid-Dispersion Granules Pharm. Res., 19: 1663 (2002).

16. A.I. Harianawala, **R.H. Bogner**, M. Bradley, Measurement of pH Near Dissolving Enteric Coatings, Int. J. Pharm., 247:139 (2002).

15. M.K. Gupta, **R.H. Bogner**, D. Goldman, Y. Tseng, Mechanism for Further Enhancement in Drug Dissolution from Solid-Dispersion Granules upon Storage, Pharmaceutical Development and Technology, 7:103 (2002).

14. M.K. Gupta, D. Goldman, **R.H. Bogner**, Y. Tseng, Enhanced Drug Dissolution and Bulk Properties of Solid Dispersions Granulated with a Surface Adsorbent, Pharmaceutical Development and Technology, 6:563 (2001).

13. **R.H. Bogner**, J. Szwejkowski, A. Houston, Release of Morphine Sulfate from Compounded Slow-Release Capsules: The Effect of Formulation on Release, International Journal of Pharmaceutical Compounding, 5:401 (2001).

12. A.I. Harianawala, **R.H. Bogner**, Correction for the Dielectric Constant of pH Values in Heterogeneous Solutions Obtained from Fluorescein Fluorescence, J. Luminescence, 79: 215 (1998).

11. A.I. Harianawala, **R.H. Bogner**, Sensitivity and Selectivity of p-(N-dimethylamino cinnamylidene) malononitrile, 6 -propionyl-2-(dimethylamino) naphthalene (PRODAN) and Fluorescein, J. Luminescence, 79:97(1998).

10. F. Jameel, F. Mauri, D.S. Kalonia, **R.H. Bogner**, Identification and Mass Spectrometric Sequence Studies of Fragments of L-Asparaginase Produced During Freeze/Thaw Cycling, PDA J. Pharm. Sci. Technol. 52(3): 113 (1998). [Paper of the year in PDA J.]

9. **R.H. Bogner**, G. Gianutsos, Development of a Course to Promote Research Awareness in Pharmacy Students, J. Pharm. Teaching, 6(4):65 (1998).

8. F. Jameel, F. Mauri, D.S. Kalonia, **R.H. Bogner**, Investigation of the Physicochemical Changes to L-Asparaginase During Freeze-Thaw Cycling, J. Pharm. Pharmacol, 49: 472 (1997).

7. **R.H. Bogner**, S.L. LaPorte, B.M. Hartz, D.L. Albanese, M. Bradley, Experimental Evidence for the Development of a Microviscous Layer Near the Surface of Polyethylene Glycol, Int. J. Pharm., 151: 155 (1997).

6. F.Jameel, D.S. Kalonia, **R.H. Bogner**, The Effect of Hetastarch on the Stability of L-Asparaginase During Freeze-Thaw Cycling, PDA J. Pharm. Sci. Technol., 49(3):127 (1995).

5. J.Z.Y. Wang, **R.H. Bogner**, Solvent-Free Film-Coating using a Novel Photocurable Polymer, Int. J. Pharm., 119:81 (1995).

4. S.L. LaPorte, A. Harianawala, **R.H. Bogner**, The Application of Malononitriles as Microviscosity Probes in Pharmaceutical Systems, Pharm. Res., 12:380 (1995).

3. J.Z.Y. Wang, **R.H. Bogner**, Techniques to Monitor the UV-Curing of Potential Solvent-Free Film-Coating Polymers, Int. J. Pharm., 113: 113 (1995).

2. **R.H. Bogner**, J.C. Liu, Y.W. Chien, Curing Kinetics and Physicomechanical Behavior of Silicone Membrane, J. Controlled Rel., 14: 11 (1990).

1. **R.H. Bogner**, J.C. Liu, Y.W. Chien, Methods for Determining Partial Solubility Parameters of Potential Film-Coating Polymers, Int. J. Pharm., 42: 199 (1988).

2. Lightly or Non Peer Reviewed Publications

14. **R.H. Bogner**, Factors that influence product resistance and methods to measure product resistance, SP Scientific Webinar Tech Note, 23rd March 2020.

13. **R.H. Bogner**, P. Kleinebudde, S. Nail, Pharmaceutical Review Articles: From Good to Great, Pharmaceutical Development and Technology, 15(5):439-441 (2010).

12. J.L. Young, **R.H. Bogner**, Lidocaine Mucoadhesive Buccal Tablets for Local Relief of Mouth Ulcers, International Journal of Pharmaceutical Compounding, 13(3):214-217 (2009).

11. M. Scagliarini, **R. Bogner**, Pharmacy Compounding at the University of Connecticut: Secundum Artem et Scientia, International Journal of Pharmaceutical Compounding, 12(3): 208-212 (2008).

10. **R. Bogner**, S.C. Porter, A.W. Brzeczko, What's Next In: Solid-Dosage Formulation, Pharmaceutical Technology, December 2, 2007.

9. V.F. Roche, M.C. Nahata, B.G. Wells, R. A. Kerr, J.R. Draugalis, L.L. Maine, M.A. Abate, R.W. Brueggemier, R.J. DiGate, J.K. Drennan, J.R. Mort, A.D. Roberts, S.M. Meyer, T. A. O'Sullivan, D.M. Angaran, C.P. Koh-Knox, C. Richey, P.D. Kroboth, J.C. Appleby, A.A. Flynn, R.L. Alkana, **R.H. Bogner**, P.J. McNamara, V.P. Torchilin, S. Oie, R.A. Blouin, H.S. White, K.W. Miller, Roadmap to 2015: Preparing Competent Pharmacists and Pharmacy Fauclty for the Future. Combined Report of the 2005-06 Argus Commission and the Academic Affairs, Professional Affairs, and Research and Graduate Education Committees, American Journal of Pharmaceutical Education, 50(5): S5, 1-27 (2006)

8. M.F. Wilkosz, **R.H. Bogner**, Transdermal Drug Delivery, Part 2. Upcoming Developments, U.S. Pharmacist, 28(5):65-72 (2003)

7. M.F. Wilkosz, **R.H. Bogner**, Transdermal Drug Delivery. Part 1: Current Status, U.S. Pharmacist, 28(4): 40-55 (2003)

6. G. Gianutsos, **R. H. Bogner**, Pharmacy Compounding: Practical and Regulatory Elements, Power-Pak C.E., June, 1, 2002, http://www.powerpak.com/ce/legal_comp/pharmacy, last accessed 1/21/03.

5. E. Jordan, **R. Bogner**, The History and Current Practices of Compounding: Part 1, Connecticut Pharmacist, Spring 2002: 16-18. Part II, Summer 2002: 19-21.

4. **R.H. Bogner**, M. Wilkosz, Fast-Dissolving Tablets: New Dosage Convenience for Patients, U.S. Pharmacist, March 2002, 34-43.

3. **R.H. Bogner**, Bioavailability & Bioequivalence: Selected Issues, U.S. Pharmacist, Aug., HS31 –HS40 (2001).

2. **R.H. Bogner**, Bioavailability and Bioequivalence of Extended Release Dosage Forms, U.S. Pharmacist, U.S. Pharmacist, Aug., S3-S12 (1997).

1. **R.H. Bogner**, A.K. Banga, Iontophoresis and Phonophoresis, U.S. Pharmacist, Aug. 1994, H10-H26.

Robin Bogner -- Google Scholar Citations
http://scholar.google.com/citations?user=lNzvWicAAAAJ&hl=en

3. Patent

R Bogner, K Greco, S Chawarski, T Bergman, D Michaels, Flow-Through Apparatus for Microscopic Investigation of Dissolution of Pharmaceutical Solids, US Patent #7,892,492 (February 22, 2011). Licensed to Mercury Scientific, Newtown, CT. http://www.mercuryscientific.com/

4. Grant Support (= current)*

*X. Lu (PI), **R. Bogner** (co-I), Understanding the Nanoparticle Structure Changes Post Lyophilization and Storage of mRNA Lipid Nanoparticles, Center for Pharmaceutical Processing Research, $200,000, 03/01/25-12/31/27.

***R. Bogner**, Improving our understanding of the structure hidden deep within a lyophilized "cake", Center for Pharmaceutical Processing Research, $99,993, 09/01/24-12/31/25.

X. Lu (PI), R. Bogner (co-I), Impact of Controlled Ice Nucleation and Cell Dehydration on Cryopreservation of T Cells, Center for Pharmaceutical Processing Research, $156,000, 01/01/25-12/31/26.

*E. Gong (PI), **R. Bogner** (co-I), C. Teschke, Stabilized, Freeze Dried Bacteriophage for Use in Austere Environments, Department of Defense Walter Reed Army Institute for Research, $538,070, 03/08/23-03/07/24.

*X. Lu (PI), **R. Bogner** (co-I), Impact of Lyoprotectants and Residual Moisture on Product Stability of Freeze-Dried mRNA-Lipid Nanoparticles, Center for Pharmaceutical Processing Research, $160,000, 01/23/23-01/22-25.

*W. Kessler (PI), E. Gong, **R. Bogner**, Development and Experimental Verification of Fundamental Models to Enable Implementation of Microwave-Assisted Freeze Drying, US Food and Drug Administration, $546,159, 01/01/23-12/13/25.

R.H. Bogner, Toward More Accurate Models for Heat Transfer during the Primary Drying Step in Lyophilization, Center for Pharmaceutical Processing Research $59,400, 09/01/22-08/31/23.

E. Gong (PI), **R. Bogner** (co-I), W. Kessler, C. Teschke, Stabilized, Freeze Dried Bacteriophage for use in Austere Environments, Department of Defense Walter Reed Army Institute for Research, $60,873 (to UConn), 03/01/22-09/30/22.

W. Kessler (PI), **R. Bogner** (co-I), S. Yoon (co-I), Thermostabilize Coronavirus Vaccines: Formulation and Process Development and Rapid Scale-up Through Modeling and QbD Experimentation, National Institute for Innovation of Manufacturing Biologics, $145,341 (to UConn), 02/1/2022-07/31/2023.

X. Lu (PI), **R. Bogner** (co-I), Cryopreservation of T-cells and Exploration of Cell Freeze-Drying, Janssen Pharmaceuticals, $218,431, 10/1/2020-9/30/2022.

X. Lu (PI), **R. Bogner** (co-I), B. Aneskievich (co-I), A New Investigation on Cell Cryopreservation for Cell-Based Therapies, Department of Pharmaceutical Sciences Interdisciplinary Research Incentive Award, $20,000, 6/1/2020-7/1/2021.

W. Kessler (PI), **R. Bogner** (co-I), Automated Process Control of Pharmaceutical Lyophilization: PAT Enabled Freeze-Dryer, National Institute for Innovation of Manufacturing Biologics, $84,880 (to UConn), 7/01/2020-02/28/2023 extended.

R. Bogner (PI), T-H Fan (co-PI), Identifying the Causes for Long Reconstitution Times: Phase III: Exploring the Effect of Freezing Protocol on the Porous Structure and Tg' of Lyophilized Formulations, AstraZeneca Biologics, $253,383, 10/1/2019-9/30/2022.

R. Bogner (PI), Comparison of Three Measurement Techniques for the Characterization of Porous Structure of Lyophilized Cakes, Center for Pharmaceutical Processing Research, $64,469, 09/01/2019-05/31/2022.

W. Kessler (PI), **R. Bogner** (co-I), Quality by Design Process Development Tools for Freeze Drying Co-solvent Pharmaceutical Formulations, $37,500, US FDA subcontract with Physical Sciences, Inc, 7/01/2019-06/30/2021

B. Kessler (PI), **R. Bogner** (co-I), A. Alexeenko (co-I), Software and Hardware Tools for Pharmaceutical Lyophilization Scale-up, National Institute for Innovation of Manufacturing of Biologics, $400,000, 06/01/2018-09/30/20.

R. Bogner (PI), Development of a Raman Spectroscopic Method to Detect Protein Conformation in Amorphous Solids: Application to Protein Formulation and Stability, Pharmaceutical Research and Manufacturers of America Foundation, $30,000, 01/01/2018-06/30/2019.

R. Bogner (PI), Identifying the Causes for Long Reconstitution Times: Phase II. Exploring a Multi-Factorial Prediction Method, MedImmune, $72,670, 02/15/2017-05/31/2019.

R. Suryanarayanan (PI), Development of NIPTE Industrial Training Program, Sun Pharma through National Institute of Pharmaceutical Technology and Education, $800,000, 10/01/2016-09/30/2017.

R. Bogner (PI), Does Reactive Diffusion Contribute to Limited De-supersaturation?, Center for Pharmaceutical Processing Research, $61,269, 08/23/16-05/22/18.

A. Winokur (PI), A Phase I Study of the Biomarker Response and Pharmacokinetic Profile of the TRH Administered as a Sublingual Tablet, SPARK Technology Commercialization Fund, $30,000, 07/01/16-06/30/17.

M. Pikal (PI), R. Bogner (co-I), Protein Conformation in Freeze-Dried Amorphous Solids: Implications for Product Stability, Kildsig Center for Pharmaceutical Processing Research, $44,031, 06/15/16-06/14/17.

M. Pikal (PI), R. Bogner (co-I), T. Seery (co-I), Effect of Formulation and Process Variations on Aggregation and Chemical Degradation in Model Therapeutic Proteins: Impact of Scale-Up, US Food and Drug Administration (FDA-5U01FD004275) through National Institute for Pharmaceutical Technology and Education, $250,000, 04/01/16-03/31/18.

M. Pikal (co-I), R. Bogner (co-I), The Impact of Freezing Variables on Product Quality: Investigation of Protein Stability and Cake Morphology, Kildsig Center for Pharmaceutical Processing Research, $84,107, 01/01/16-12/31/17.

V. Gurvich (PI), QbD Approach to Process Development: Defining Critical Quality Attributes, Evaluating Criticality Across Scales, and Relating Variation in CPPS/CQAS to Product Performance, FDA through NIPTE, $800,000, 06/15/15- 06/14/16.

R. Bogner (PI), Identifying the Causes for Long Reconstitution Times: Phase I. The Role of Wetting the Lyophilized Cake, MedImmune Inc., $21,845, 05/23/15-08/22/15.

R. Bogner (PI), Stabilization of Imipenem by Arginine, Proline, Isoleucine, and Human Serum Albumin, scPharmaceuticals, $25,855, 03/15/2015 – 06/30/2015.

R. Bogner (PI), Investigating the Effects of Hydrated Glass Transition Temperature and Degree of Supersaturation on Crystallization of Amorphous Drugs during Dissolution, Pharmaceutical Research and Manufacturers Foundation, $40,000, 01/01/15-12/31/16.

R. Bogner (PI), Evaluating Compounded Oral Drug Liquids, Medisca, Inc., $31,179, 08/01/14-03/30/15.

R. Bogner (PI), Millrock Revo™ Freeze Dryer with LyoPat™ equipment loan, Millrock Technology, Inc., $182,850 in kind, 07/14/2014-07/14/2015 renewable.

R. Bogner (PI), J. McCutcheon, R. Suryanaranan, Freeze-Drying of Highly Concentrated Proteins: Effect of the Freezing Step on Phase Composition, Porous Structure and Reconstitution Time, Center for Pharmaceutical Processing Research, $134,500, 01/23/14-10/31/16.

R. Bogner (PI), Development of a formulation to enhance sublingual permeability of a tripeptide, University of Connecticut Health Center, Department of Psychiatry, $31,000, 09/01/14-04/30/15.

R. Bogner (PI), Various small industrial projects, Mixed industrial sources, $12,000, 07/01/14-06/30/2015.

Winokur (PI), B. Aneskievich (co-PI), **R. Bogner (co-I)**, J. Kamath (co-I), Development and Assessment of a Sublingual Tablet Preparation of TRH to Enable New Therapeutic Applications, Connecticut Institute for Clinical and Translational Science, $48,000, 08/23/2013 – 08/22/2014.

R.Bogner (PI), B. Bolling, J. Salamone, J. Kamath, Toward realizing the promised mental health benefits of poorly-soluble food components by enhancing their oral absorption- using curcumin as a model compound, University of Connecticut Diet and Health Initiative, $50,000, 03/20/12-03/19/14.

R. Bogner (PI), Application of Inorganic Excipients for Producing Solid Dispersions with Enhanced Dissolution Profiles, Merck, $15,823, 08/01/2013-01/31/2014.

R. Bogner (PI), M. Pikal (co-I), A. Alexeenko (co-I), Variation in Pressure within the Drying Chamber and Impact on Freeze-Drying Design Space: A Combination Theoretical and Experimental Study, National Institute for Pharmaceutical Technology and Education, $90,000, 03/01/12-03/02/13.

R. Bogner (PI), Toward a More Complete Understanding of Stable Drug Amorphization by Milling with Pharmaceutical Excipients, Merck, $9,494, 03/01/12-03/30/13.

M. Pikal (PI), **R. Bogner (co-I),** Controlled Ice Nucleation in Freeze-Drying: Optimization of Nucleation Control and Implications for Quality by Design, Center for Pharmaceutical Processing Research, $75,000, 09/01/11-08/31/13.

R. Bogner (PI), Quantitative Probability Modeling of Bioavailability for Compounds that Precipitate in the Gastrointestinal Tract, $43,414, Center for Pharmaceutical Processing Research 09/01/11-08/31/12.

R. Bogner (PI), Development of an online "LyoCalculator", $6,000, SPScientific, 07/01/11-06/30/12.

R. Bogner (PI), Application of Quality by Design Principles to Freeze-Dried Injectable Pharmaceutical Products, $34,000, Baxter Pharmaceutical Solutions, 01/01/11 – 06/30/12.

R. Bogner (PI), Drug Amorphization by Mesoporous Pharmaceutical Silicates, $5,000, Merck, 05/23/11-09/01/11.

R. Bogner (PI) Comparison of Biorelevant Media and USP Compendial Media on Solution-Mediated Transformation of Amorphous Drugs during Dissolution, $25,000, United States Pharmacopeia Foundation, 09/01/10-11/30/11

M. Pikal (PI), **R. Bogner (co-PI)**, Critical Factors in Biopreservation of Freeze-Dried Protein Formulations, $40,000, Pharmaceutical Research and Manufacturers of America Foundation 01/01/10-12/31/11.

M. Pikal (PI), **R. Bogner (co-PI)**, Reviewer Education in State of the Art Pharmaceutical Manufacturing Technology, $21,100, US Food & Drug Administration, 4/1/11-09/30/11.

R. Bogner (PI), M. Pikal (co-I), Scale-up of Lyophilization Using Dimensionless Prediction, $44,532, US Food and Drug Administration, 11/01/09 – 6/30/11.

R. Bogner (PI), Adsorption of Drugs on Amorphous Magnesium Aluminosilicate, $6,000, Fuji Chemical Company, 09/01/09-8/31/10.

R. Bogner (PI), Establishing Best Practices in Dissolution Testing for Drug Salts that Undergo Solvent-Mediated Conversion: Effect of Biorelevant Media and Its Implications to Bioavailability, $25,000, US Pharmacopeia Foundation, 09/01/09-08/31/10.

R. Reklaitis (PI), **R. Bogner** (co-PI), et al, Development of Quality by Design (QbD) Guidance Elements on Design Space Specifications Across Scales with Stability Considerations, $1,198,154, US Food and Drug Administration, 09/01/08-08/30/10.

M. Pikal (PI), **R. Bogner** (co-I), Product Development Support and Characterization, $15,800, Various industrial sources, 07/01/08-06/30/10.

R. Bogner (PI), M. Pikal (co-PI), Protein Stability, $40,000, EnzymeRx, 01/01/09-03/31/10.

R. Bogner (PI), Interaction of crystalline compounds with porous excipients via vapor-phase mediated mass transfer, $57,478, Kildsig Center for Pharmaceutical Processing Research, 01/01/09-11/30/10.

R. Bogner (PI), Investigation of the Kinetics of Solution Mediated Conversion as a Function of Hydrodynamics during Dissolution, $25,000, United States Pharmacopeia Foundation, 01/01/08-12/31/08.

R. Bogner (PI), Chemical Stability of Amorphous Drugs Co-Ground with Silicates, $9,000, Parenteral Drug Association, 09/01/07-08/31/08.

R. Bogner (PI), M. Pikal (co-I), Freeze Drying Process Optimization from a Statistical Analysis of the Impact of Variations in Critical Drying Parameters, $55,830, Center for Pharmaceutical Processing Research, 01/01/08-12/31/08.

R. Bogner (PI), Chemical Stability of Amorphous Drugs in the Presence of Silicates, $20,000, United States Pharmacopeia, 9/01/06-8/31/07.

R. Bogner (PI), Investigation of the Kinetics of Solution Mediated Phase Transformation as a Function of Hydrodynamics during Dissolution, $6,000, Parenteral Drug Association, 09/01/06-08/31/07.

R. Bogner (PI), Unrestricted Support for the Study of Amorphous Magnesium Aluminosilicate, $2,200, Fuji Chemical Company, 09/01/07-12/31/07.

R. Bogner (PI), Effect of Processing on Solution-Mediated Conversion of Soluble Forms, Center for Pharmaceutical Processing Research, $30,690, 09/01/06 – 08/31/07.

M.J. Pikal (PI), **R. Bogner** (co-I), Solubility of Amorphous Drugs, Pfizer, $20,000, 05/01/07-12/31/07.

R. Bogner (PI), T. Bergman (co-I), Smart Salt Selection, $45,981.08, GlaxoSmithkline, 12/23/05-10/22/06.

R. Bogner (PI), Chemical Stability of Drugs Amorphized by Co-Grinding with Silicates, $57,100, Center for Pharmaceutical Processing Research, 09/01/05-08/31/06

R. Bogner (PI), Drug interactions with silicates, $18,000, JRS Pharma, 01/01/06-12/31/06.

R. Bogner (PI), A. Kenney (co-I), K. Aziz (co-I), Enhancing Calcium Absorption in Patients Taking Proton Pump Inihibitor Drugs, $31,700, UCHC Nutrition Research Competition funded by the Donaghue Foundation, 04/15/06-04/14/07.

R. Bogner (PI), The Role of Gastric pH and Bicarbonate Secretion in Calcium Absorption, Pharmaceutical Research and Manufacturers of America Foundation, $20,000, 01/01/05-12/31/05.

R. Bogner (PI), Amorphous Stability of Drugs Milled with Pharmaceutical Silicates, NSF I/U CRC for Pharmaceutical Processing, $67,296, 09/01/03 – 12/31/06.

R. Bogner (PI), Critical Evaluation of Granulation and Coating, Schwarz Pharma, $24,800, 6/01/03 – 5/31/04.

R. Bogner (PI), J. Kerstetter, The Role of Gastric pH in Calcium Absorption, University of Connecticut Research Foundation, $19,000, 1/03 – 12/03.

R. Bogner (PI), *In Vitro* Quantification of the Fraction of Soluble Calcium in a Simulated Upper Intestine, United States Pharmacopeial Foundation, $20,000, 5/02 – 6/03.

R. Bogner (PI), UV-Curable Tablet Film Coatings, NSF I/U CRC for Pharmaceutical Processing, $52,340, 01/02 -12/03

J. Tanzer (PI), **R. Bogner,** Sucrose-Specific Transport and Biofilm Behavior of Streptococcus mutans, Robert Leet & Clara Guthrie Patterson Trust, $50,000, 01/02 – 09/03.

R. Bogner (PI), *In Vitro* Quantification of the Fraction of Soluble Calcium in a Simulated Upper Intestine, University of Connecticut Research Foundation, $12,398, 9/01-8/02.

R. Bogner (PI), Feasibility of Preparing and Stabilizing Amorphous Drugs by Grinding with Neusilin, Fuji Chemicals, $10,285, 06/01-12/01

R. Bogner (PI), General Research Support, Johnson & Johnson, $4,000, 01/01-06/01.

R. Bogner (PI) and M. Pikal (co-PI), Critical Process and Formulation Factors in the Freezing of Labile Proteins, NSF I/U CRC for Pharmaceutical Processing, $32,900, 1/00 – 6/03.

R. Bogner (PI), Factors Influencing the Release of Drugs From Solid Dispersions, Bayer Pharmaceutical Division, $75,000, 7/99-6/02.

R. Bogner (PI), A Method to Quantitatively Measure the Concentration, pH, Microviscosity, and Dielectric Constant Profiles Above Dissolving Surfaces, NSF I/U CRC for Pharmaceutical Processing, $77,868, 7/99-6/01.

M. Pikal (PI), **R. Bogner** (co-PI), D. Burgess (co-PI), D. Kalonia (co-PI), Formation of a Joint Purdue/UCONN Center for Pharmaceutical Processing, National Science Foundation, $223,499, 9/98-8/05

R. Bogner (PI), Careers in Pharmaceutics: An Undergraduate Training Program, Pfizer Central Research, Boerhinger-Ingelheim, Bayer Pharmaceutical, $324,881, 9/93-9/07.

J. Kerstetter (PI), **R. Bogner** (co-PI), Calcium Glycerophosphate, Urinary pH and Micturition, AKPharma, Inc., $3,640, 3/98-2/99.

R. Bogner (PI), General Research Support, Johnson & Johnson Advanced Care Products, $10,000, 1/98-12/98.

R. Bogner (PI), Development of an Herbal Topical Formulation, W.F. Young, Inc., $4,000, 2/98-2/99.

M. Pikal (PI), **R. Bogner** (co-PI), Critical Process and Formulation Factors in the Freezing of Labile Proteins, Parenteral Drug Association Foundation, $29,600, 1/98-12/99.

R. Bogner (PI), Calcium Supplement Tablet Formulation, University of Connecticut Research Foundation, $1,000, 06/01/96-10/31/96.

R. Bogner (PI), Untenured Faculty Development Grant, 3M Corporation, $15,000, 6/1/95-8/31/96.

R. Bogner (PI), Feasibility of Determining the Mechanisms Underlying Drug Release Kinetics from Hydrogel Matrices, Timerx Corp., $13,640, 2/1/95-7/31/97.

R. Bogner (PI), Microviscosity, Mendell, $2,000, 5/1/95-6/30/96.

R. Bogner (PI), M. Bradley (co-PI), Probing Enteric Coating Dissolution Using Laser-Induced Fluorescence, Glaxo, Inc. $24,740, 9/1/93-6/30/95.

R. Bogner (PI), Mechanisms of Erosion of Poly(vinylmethylether-co-maleic anhydride)(PVME-MA), Pfizer Central Research, $5,000, 5/93-9/93.

R. Bogner (PI), Solventless Coating System for Controlled Release Tablets, American Cyanamid, $5,000, 1/1/93-12/31-93.

R. Bogner (PI), Mechanisms of Enteric Coating Dissolution, University of Connecticut Research Foundation, $10,131, 1/1/93-12/31/93.

R. Bogner (PI), Influence of the Surface Microenvironment on Enteric Coating Dissolution, Pharmaceutical Research and Manufacturers Association Foundation, $25,000, 1/1/93-12/31/94.

R. Bogner (PI), Feasibility of UV Curing a Solventless Film Coating in a Fluidized Bed Coater, American Association of Colleges of Pharmacy, $5,000, 1/1/93-12/31/93.

R. Bogner (PI), Microviscosity at the Surface of a Dissolving Polymer Film, Pfizer Central Research, $5,000, 5/31/92-9/1/92.

R. Bogner (PI), Microviscosity at the Surface of a Dissolving Polymer Film, Pharmaceutical Research and Manufacturers Association Foundation, $5,000, 1/1/92-12/31/92.

R. Bogner (PI), Determination of the Transport Mechanisms of Anionic Macromolecules during Transdermal Iontophoresis, University of Connecticut Research Foundation, $17,304, 1/1/91-12/31/91 and Biomedical Research Support Grant, $1,500, 3/1/91-3/1/92.

R. Bogner (PI), Synthesis and Characterization of an Ultraviolet Light Curable Silicone Tablet Film-Coating, University of Connecticut Research Foundation, $15,546, 1/1/90-8/31/91 and Biomedical Research Support Grant, $6,600, 3/1/90-3/1/91.

5. ***Poster Presentations and Published Abstracts*** *(Since 2010)*

97. Zixuan Zhen, Xinhao Lin, Nirnoy Dan, Mittal Darji, Jonathan Hu, Robin Bogner, Xiuling Lu. Lyoprotectants Affecting Product Stability of Lyophilized mRNA-Lipid Nanoparticles, AAPS PharmaSci 360, Salt Lake City, UT, Oct 31, Aug 15, 2024.

96. Zixuan Zhen, Xinhao Lin, Nirnoy Dan, Mittal Darji, Robin Bogner, Xiuling Lu. Impact of Lyoprotectants and Residual Moisture on Product Stability of Freeze-Dried mRNA-Lipid Nanoparticles, Michael J. Pikal Symposium. Storrs, CT, 2024.

95. Choudhary DA, Schindler J, Geiler M, Klancko AR, Harish S, Moerlein A, Mednick A, Gong E, Kessler W, Bogner RH, Role of Free Water in Freeze Concentration in Microwave Assisted Freeze-Drying, Michael J. Pikal Symposium, Storrs, CT, Aug 15, 2024

94. Choudhary DA, Klancko AR, Zhu, L, Bogner RH, A Correction for the Shift in Edge Vial Effect Due to Product Resistance, International Society of Lyophilization – Freeze Drying Midwest Chapter Annual Meeting, Rosemont, IL, April 18, 2024.

93. Zhen Z, Bogner RH, Lu, X, Impact of Lyoprotectants on Product Stability of Freeze-Dried mRNA Lipid Nanoparticles, International Society of Lyophilization – Freeze Drying Midwest Chapter Annual Meeting, Rosemont, IL, April 18, 2024.

92. Zhu L, Suleiman Y, Shabhazmohamadi S, Bogner R, Impact of Lyoprotectant Thermal Properties on Batch Heterogeneity through Various Processing Technologies: Annealing vs. Controlled Ice Nucleation, AAPS PharmSci360, Orlando, FL. October 22-26, 2023.

91. Gong E, Wang Z, Zhu L, Yu T, Morris C, Liang G, Kessler W, Yoon S, Bogner R, Stanbro J, Thermostabilize Coronavirus Vaccines: Formulation and Process Development, Freeze-Drying of Pharmaceuticals and Biologics Conference, Breckenridge, CO. August 1-4, 2023.

90. Choudhary DA, Klancko A, Bogner RH, Influence of Resistance and Product Temperature on Vial Heat Transfer Coefficient, Freeze-Drying of Pharmaceuticals and Biologics Conference, Breckenridge, CO. August 1-4, 2023.

89. Zhu L, Suleiman Y, Shahbazmodhamadi S, Bogner R, Comparative Analysis of Annealing and Controlled Ice Nucleation Techniques for Reducing Batch Heterogeneity in Lyophilized Cakes, Freeze-Drying of Pharmaceuticals and Biologics Conference, Breckenridge, CO. August 1-4, 2023.

88. Rahman M, Bogner RH, Patel SM, Characterization of Formulations to Optimize Annealing for Lyophilization, Freeze-Drying of Pharmaceuticals and Biologics Conference, Breckenridge, CO. August 1-4, 2023.

87. Choudhary DA, Klancko A, Bogner RH, A Model Describing Key Surface Temperatures in the Drying Chamber of Lyostar3 During Primary Drying, Freeze-Drying of Pharmaceuticals and Biologics Conference, Breckenridge, CO. August 1-4, 2023.

86. Gong E, Yu T, Kessler W, Yoon S, Wang Z, Morris C, Liang G, Bogner R, Zhu L, Stanbro J, ARP-20 Thermostabilize Coronavirus Vaccines: Formulation and Process Development and Rapid Scale-up Through Modeling and QbD Experiementation. 2023 NIIMBL National Meeting, Washington, DC, June 27-29, 2023.

85. Zhu L, Suleiman Y, Shahbazmohamadi S, Bogner RH, Comparison of Annealing and Controlled Ice Nucleation on Batch Heterogeneity and Lyophilized Cake Porous Structure, International Society of Lyophilization – Freeze Drying Midwest Chapter Annual Meeting, Rosemont, IL, April 20, 2023.

84. Rahman M, Choudhary D, Zhu L, Bogner RH, Impact of Start time of Primary Drying on Single Vial Rp Calculations, International Society of Lyophilization – Freeze Drying Midwest Chapter Annual Meeting, Rosemont, IL, April 20, 2023.

83. Rahman M, Bogner R, Patel S, Characterization of Protein Formulations to Optimize Freezing Parameters for Lyophilization, NIPTE Research Conference, online, November 29, 2022.

82. Dan N, Luo W-C, Bogner RH, Lu X, Impact of Freezing Process Parameters on Jurkat Cell Cryopreservation, AAPS PharmSci 360, Boston, MA, October 2022.

81. Zhu L, Suleiman Y, Shahbazmohamadi S, Bogner RH, Impact of Freezing Rate on Lyophilization Primary Drying Efficiency and Porous Structure: Comparison of Three Measurement Techniques, AAPS PharmSci 360, Boston, MA, October 2022.

80. Rahman M, Patel S, Bogner RH, Characterization of Protein Formulations to Optimize Annealing Parameters for Freeze-Drying, AAPS PharmSci 360, Boston, MA, October 2022.

79. Zhu L, Bogner R, Sensitivity of Primary Drying Rate and Porous Structure to Small Changes in Freezing, International Society of Lyophilization-Freezing Drying Annual Meeting, Rosemont, IL, April 2022.

78. Zhu L, Bogner R, Impact of Freezing Change on Primary Drying Efficiency and Porous Structure, AAPS Northeast Regional Discussion Group Annual Meeting, Bristol, CT, April 2022.

77. Luo W-C, Bogner R, Lu X, Impact of Lyoprotectants and Controlled Ice Nucleation on the Storage Stability of Freeze-Dried Nanoparticles, AAPS PharmSci 360, Philadelphia, PA, October 2021.

76. Zhu L, Bogner R, Sensitivity of Lyophilization Rate and Porous Structure to Freezing Rate, AAPS PharmSci 360, Philadelphia, PA, October 2021.

75. Gong E, Hinds M, Manchanda A, Kessler W, Bogner R, Software Tools for Pharmaceutical Lyophilization Process Development, AAPS PharmSci 360, Philadelphia, PA, October 2021.

74. Minatovicz B, Sansare S, Bogner R, Chaudhuri B, Design of Experiments Reveals Critical Parameters for Bulk Freeze-Thaw of Lactate Dehydrogenase, Annual Meeting of the American Institute of Chemical Engineers, Orlando, FL, November 2019.

73. Luo W-C, Beringhs AO, Bogner R, Lu X, The Impact of Lyoprotectants and Freeze-Drying Process on Stability of Nanoparticles, AAPS 360 – the annual meeting of the American Association of Pharmaceutical Scientists, San Antonio, TX, November 2019.

72. Kessler W, Gong E, Hinds M, Bogner R, Manchanda A, Yoon S, Liu H, Alexeenko A, Kazarin PS, Sharma P, Kumar L, Lim F, Bhambani A, and Stanbro J, Software and Hardware Tools for Pharmaceutical Lyophilization Scale-up, International Society of Lyophilization – Freeze Drying (ISL-FD), East Coast chapter meeting, September 2019.

71. Kazarin PS, Alexeenko A, Kessler W, Gong E, Hinds M, Bogner R, Manchanda A, Yoon S, Liu H, Sharma P, Kumar L, Lim F, Bhambani A, and Stanbro J, CFD Modeling and Analysis of Freeze Drying Process in the Context of Pharmaceutical Lyophilization Scale-up,

International Society of Lyophilization – Freeze Drying (ISL-FD), East Coast chapter meeting, September 2019.

70. Manchanda A, Bogner RH, Effect of Structurally Related Compounds on Desupersaturation Kinetics for Indomethacin, AAPS Northeast Regional Discussion Group Annual Meeting, Farmington, CT, 11 April 2019.

69. Kulkarni SS, Patel SM, Bogner RH. Implications of freezing characteristics of highly concentrated proteins on lyophilized cake porous structure, PepTalk, San Diego, January 2019.

68. Fontana LK, Bogner RH, Anderson C, and Pikal MJ. Principal Component Analysis of Raman Spectra for Exploring Lyophilized Protein Structural Changes. Freeze Drying of Pharmaceuticals & Biologicals, Garmish-Partenkirchen, Germany, September 2018.

67. Kulkarni SS, Patel SM, Bogner RH. Factors governing the reconstitution time of highly concentrated lyophilized proteins in amorphous formulations, Freeze Drying of Pharmaceuticals and Biologics, Garmisch-Partenkirchen, Germany, September 2018.

66. Fontana LK, Bogner RH, Anderson C and Pikal MJ. Detection of Tertiary Structural Changes in Solid State Proteins using Raman Spectroscopy: Implications for Protein Formulation and Stability. The Bioprocessing Summit, Boston, MA, August 2018.99.

65. Kulkarni SS, Suryanarayanan R, Rinella JV, Bogner RH. Freeze-drying of highly concentrated proteins: Effect of formulation and processing on phase composition, porous structure and reconstitution time, The Bioprocessing Summit, Boston, MA, August 2018.

64. Kulkarni SS, Patel SM, Bogner RH. Potential factors governing reconstitution time of high concentration lyophilized protein formulations, International Society of Lyophilization-Freeze Drying (ISL-FD), Regional Midwest Chapter Meeting, Chicago, IL, April 2018.

63. Fontana L, Bogner R and Pikal M., Exploration of Protein Tertiary Conformational Changes in Lyophilized Protein Samples using Raman Spectroscopy and Principal Components Analysis. International Society of Lyophilization – Freeze Drying (ISL-FD), Midwest chapter meeting, Chicago, IL, April 2018.

62. Kulkarni S, Suryanarayanan R, Rinella J, Bogner R, Effect of Processing Conditions on Reconstitution Time of High Concentration Lyophilized Protein Formulations Containing a Crystallizable Excipient, Annual Meeting of the American Association of Pharmaceutical Scientists, November 13, 2017

61. Fang R, Tanaka K, Mudhivarthi V, Bogner R, Pikal M, Improving the Quality of Freeze-Dried Protein Formulations: effect of ice nucleation temperature and residence time, International Society of Lyophilization – Freeze Drying (ISL-FD), East Coast chapter meeting, Cambridge, MA, September 12, 2017.

60. Kulkarni SS, Suryanarayanan S, Rinella JV, Bogner RH. Does crystalline mannitol always lower the reconstitution time of freeze-dried highly concentrated protein formulations? International Society of Lyophilization-Freeze Drying (ISL-FD), Regional East Coast Chapter Meeting, Cambridge, MA, September 12, 2017.

59. Fontana L, Bogner R and Pikal M., Can Raman Spectroscopy Detect Protein Tertiary Conformational Changes in Lyophilized Samples?, International Society of Lyophilization – Freeze Drying (ISL-FD), East Coast chapter meeting, Cambridge, MA, September 2017.

58. Kleppe MS, Bogner RH, Biorelevant Media Slows the Solution-Mediated Crystallization of Amorphous Spironolactone, Gordon Research Conference (GRC) on Preclinical Form and Formulation Drug Discovery, Stowe, VT, June 7, 2017.

57. Manchanda AA, Bogner RH, Measurement of the resistance to molecular incorporation during crystal growth, Gordon Research Conference (GRC) on Preclinical Form and Formulation Drug Discovery, Stowe, VT, June 7, 2017.

56. Kleppe MS, Bogner RH, The Effects of Temperature on Solubility and Solution-Mediated Crystallization of Amorphous Spironolactone, Gordon Research Conference (GRC) on Preclinical Form and Formulation Drug Discovery, Stowe, VT, June 7, 2017.

55. Kulkarni SS, Bogner RH, Why does crystallization of mannitol lower the reconstitution times of freeze-dried highly concentrated protein formulations?, Gordon Research Seminar on Preclinical Form and Formulation Drug Discovery, Stowe, VT, June 3, 2017.

54. Manchanda A., Kleppe M., Bogner, R.H., How Precise Is Amorphous Solubility Enhancement Predictions? UConn School of Pharmacy, SAPA-CT and UConn AAPS Student Chapter Joint Symposium, Storrs, CT, May 13, 2017.

53. Kulkarni SS, Bogner RH, Effect of formulation and processing on physical attributes of lyophilized cakes of highly concentrated proteins, Annual Meeting of the Northeast Regional Discussion Group of the American Association of Pharmaceutical Scientists, Farmington, CT, April 20, 2017.

52. Manchanda AA, Kleppe MS, Bogner RH, How precise is the amorphous solubility enhancement ratio?, Annual Meeting of the Northeast Regional Discussion Group of the American Association of Pharmaceutical Scientists, Farmington, CT, April 20, 2017.

51. Fang R, Bogner R, Pikal M, Impact of controlled ice nucleation on the quality of freeze-dried protein formulations, Annual Meeting of the Northeast Regional Discussion Group of the American Association of Pharmaceutical Scientists, Farmington, CT, April 20, 2017.

50. Manchanda AA, Kleppe MS, Bogner RH, Sensitivity of calculated value of amorphous solubility enhancement ratio on experimental conditions used to determine it, Global Pharmaceutics Education Network, Lawrence, KS, November 10, 2016.

49. Fontana L, Pikal M, Kalonia D, Bogner R, Challenges of Raman Spectroscopy Structural Analysis in Solid State Protein, Biannual Meeting of the Center for Pharmaceutical Processing Research, San Juan, PR, May 22-24, 2016.

48. Kulkarni SS, Suryanarayanan R, Bogner RH, Effect of freezing and drying conditions on reconstitution time for a high concentration lyophilized protein, Biannual Meeting of the Center for Pharmaceutical Processing Research, San Juan, PR, May 22-24, 2016.

47. Kulkarni SS, Rinella Jr JV, Suryanarayanan R, Bogner RH, Mannitol Crystallization Does Not Always Reduce Reconstitution Time for High Concentration Lyophilized Protein Formulations, AAPS National Biotechnology Conference, Boston, MA, May 15-18, 2016.

46. Kulkarni SS, Patel SM, Bogner RH, Causes for Long Reconstitution Times in High Concentration Lyophilized Protein Formulations: The Role of Cake Wetting, International society of Lyophilization-Freeze Drying (ISLFD), Northlake, IL. April 14, 2016.

45. Fang R, Obeidat W, Bogner RH, Pikal MJ, The Implication of Protein Internal Dynamics on Stability of Lyophilized Protein Formulations: Investigation of rHSA by Solid-State H/D Exchange, International society of Lyophilization-Freeze Drying (ISLFD), Northlake, IL. April 14, 2016.

44. Kleppe M, Bogner R, Effects of Dissolution Media on Solution-Mediated Phase Transformation (SMPT) of an Amorphous Drug, Annual Meeting of the AAPS Northeastern Regional Discussion Group, Farmington, CT, April 19, 2016.

43. Sane P, Pikal MJ, Bogner RH, Nuances and Pitfalls of Vial Heat Transfer Coefficient Measurement, SP Scientific LyoLearn Webinar Series, March 2016.

42. Sane P, Pikal MJ, Bogner RH, Predicting Vial-to-Vial Variation in Maximum Temperature and Drying Time within a Lyophilized Product Batch during Primary Drying, PepTalk, The Protein Science Week, Pipeline 3: Formulation & Stability, Lyophilization and Emerging Drying Technologies, San Diego, CA, January 18-22, 2016.

41. Manchanda A, Yohn S, Xie L, Bolling B, Salamone J, Bogner R, Physically Stable Amorphous Curcumin Degrades on Dissolution Reducing Curcumin Efficacy in Rodent Model of Depression, AAPS Annual Meeting, Orlando, FL, October 25-29, 2015.

40. Mudhivarthi V, Tanaka K, Sever R, Bogner R, Pikal M, Impact of controLyo and annealing on buffer crystallization and its effect on β-galactosidase stability towards process development and protein stability, Gordon Research Seminar and Conference on Preclinical Form & Formulation for Drug Discovery, Waterville Valley, NH, June 6-12, 2015.

39. Manchanda A, Kleppe M, Grobleny PJ, Bogner R, Comparison of Theoretical and Experimental Amorphous Solubility: The Case of Itraconazole, Gordon Research Seminar and Conference on Preclinical Form & Formulation for Drug Discovery, Waterville Valley, NH, June 6-12, 2015.

38. Kleppe MS, Bogner RH, Effects of Dissolution Media on Solution-Mediated Phase Transformation of an Amorphous Drug. New Jersey Pharmaceutical Association of Science and Technology Conference, Whippany, NJ, May 21, 2015. (MSK was awarded a NJPhast Graduate Scholarship based on the poster presentation.)

37. Manchanda A, Yohn S, Xie L, Bolling B, Salamone J, Bogner R, Physically Stable Amorphous Curcumin Degrades on Dissolution Reducing Curcumin Efficacy Against Rodent Model of Depression, Annual Meeting of the AAPS Northeast Regional Discussion Group, Farmington, CT, April 16, 2015

36. Sane P, Bogner RH, Pikal MJ, Nail SL, Determination of Variation in Vial Heat Transfer Coefficient as a Function of Chamber Pressures from a Single Sublimation Experiment – Ascending versus Descending Pressures, Annual Meeting of the Midwest Chapter of the International Society of Lyophilization and Freeze-Drying, Northlake, IL, April 9, 2015.

35. Mudhivarthi V, Tanaka K, Sever, R, Bogner, Pikal M, : Impact of controLyo and annealing on buffer crystallization and its effect on β-galactosidase stability, Annual Meeting of the Midwest Chapter of the International Society of Lyophilization and Freeze-Drying, Northlake, IL, April 9, 2015.

34. Kulkarni S, Thompson TN, Bogner RH, Monitoring heat flux during freezing and primary drying as a function of vial size, Annual Meeting of the Midwest Chapter of the International Society of Lyophilization and Freeze-Drying, Northlake, IL, April 9, 2015.

33. Sane P, Agarabi C, Pikal MJ, Bogner RH, Predicting Variation in Product Temperature and Drying Time within a Lyophilized Batch during Primary Drying, Annual Meeting of the Midwest Chapter of the International Society of Lyophilization and Freeze-Drying, Northlake, IL, April 9, 2015.

32. Fang R, Pikal MJ, Bogner RH, Nail, SL, Intra-Batch Variation in Product Resistance and Its Correlation with the Morphology of Freeze-dried Products, Annual Meeting of the Midwest Chapter of the International Society of Lyophilization and Freeze-Drying, Northlake, IL, April 9, 2015.

31. Sane P, Pikal MJ, Ganguly A, Alexeenko A, Bogner RH, Variation in Local Pressure within the Drying Chamber during Primary Drying: Comparison of Experimental Measurements with CFD Model Predictions, Annual Meeting of the Midwest Chapter of the International Society of Lyophilization and Freeze-Drying, Northlake, IL, April 9, 2015.

30. Yohn S, Mistry A, Errante E, Xie L, Manchanda A, Bogner R, Bolling B, Correa M, Salamone JD, The ability of orally ingested curcumin to attenuate shifts in effort-related choice behavior induced by the VMAT-2 inhibitor Tetrabenazine, Neuro Science, Washington, DC, November 15-19 2014.

29. Xie, L., Yohn, S., Salamone, J, Bogner, R., Bolling, B., Neusilin® influences curcumin bioavailability and anti-depressant efficacy in rats, Experimental Biology 2014, Joint meeting of ASPET and the Chinese Pharmacological Society, San Diego, CA, April 26, 2014.

28. P. Sane, M.J. Pikal, A. Ganghuly, A. Alexeenko, R.H. Bogner, Variation in Local Pressure within the Drying Chamber during Primary Drying: Comparison of Experimental Measurements with CFD Model Predictions, International Society of Lyophilization and Freeze-Drying, Chicago, IL, April 10, 2014.

27. P. Sane, R.H. Bogner, S. Nail, Vial Heat Transfer Coefficients: Combined Effects of Shelf Temperature, Chamber Pressure and Position in a Laboratory Freeze Dryer, International Society of Lyophilization and Freeze-Drying, Chicago, IL, April 10, 2014.

26. D. Ye, H. Song, R. Bogner, T-H Fan, Flow Dynamics on the Reconstitution of Lyophilized Products, American Physical Society Annual Meeting, Denver, CO, March 4, 2014.

25. K. Tanaka, V. Mudhivarthi, R. Bogner, M. Pikal, Effect of Controlled Ice Nucleation on Protein Product Quality, 7th Annual Lyophilization and Emerging Drying Technologies conference as part of 13th Annual PepTalk, Palm Springs, CA, January 16, 2014.

24. M. Kleppe, R. Bogner, Quantitative Probability Modeling of Bioavailability for Compounds that Precipitate in the Gastrointestinal Tract, AAPS Annual Meeting, San Antonio, TX, November 10-14, 2013.

23. M. Kleppe, K. Forney-Stevens, R. Bogner, Exploring the Effect of Precipitation of Poorly Soluble Compounds: A Model to Quickly Estimate Oral Absorption from a Limited Number of in Vitro Parameters, AAPS Annual Meeting, San Antonio, TX, November 10-14, 2013.

22. K. Forney-Stevens, R. Bogner, M. Pikal, Exploring Measures of Mobility to Understand the Enhanced Stabilization of Lyophilized Sucrose/rHSA Formulations by Amino Acids, AAPS Annual Meeting, San Antonio, TX, November 10-14, 2013.

21. P. Grobelny, I. Kazakevich, D. Zhang, R. Bogner, Amorphization of Itraconazole by Inorganic Pharmaceutical Excipients: Comparison of Excipients and Processing Methods, AAPS Annual Meeting, San Antonio, TX, November 10-14, 2013.

20. P. Sane, M. Pikal, A. Ganguly, A. Alexeenko, R. Bogner, Variation in Local Pressure within the Drying Chamber during Primary Drying: Comparison of Experimental Measurements with CFD Model Predictions, AAPS Annual Meeting, San Antonio, TX, November 10-14, 2013.

19. K. Forney-Stevens, R.H. Bogner and M.J. Pikal, Investigating Amino Acids as Stabilizing Additives in Lyophilized rHSA/Sucrose Formulations, PepTalk, Palm Springs, CA, January 23-24, 2013.

18. E.C. Lau, C. Kohn, R.H. Bogner, Ciprofloxacin Induced Occlusion of Feeding Tubes is Dependent on Tablet Brand and Suspension Preparation, 47th ASHP Midyear Clinical Meeting & Exhibition, Las Vegas, NV, December 2-6, 2012.

17. M.S. Kleppe, R.H. Bogner. Comparison of Biorelevant Media and USP Compendial Media on Solution-Mediated Transformation of Amorphous Drug during Dissolution. Presentation given by M.S.K. at Globalization of Pharmaceutical Education Network Meeting (GPEN),,

Melbourne, Australia on November 30th 2012. (Also presented by invitation at USP Challenges in Dissolution Workshop at USP headquarters in Rockville, MD on June 11th 2012).

16. K.M. Forney-Stevens, E. Shalaev, M. Pelletier, R. H. Bogner, M. J. Pikal, Optimization of a Raman Microscopy Technique to Efficiently Detect Amorphous-Amorphous Phase Separation in Freeze-Dried Protein Formulations. Globalization of Pharmaceutical Education Network Meeting (GPEN), Melbourne, Australia, November 2012.

15. K.M. Forney-Stevens, E. Shalaev, M. Pelletier, R. H. Bogner, M. J. Pikal, Optimization of a Raman Microscopy Technique to Efficiently Detect Amorphous-Amorphous Phase Separation in Freeze-Dried Protein Formulations. Freeze-Drying of Pharmaceuticals and Biologics, Breckenridge, CO, August 2012.

14. P. Sane, R.H. Bogner, S. Nail, Vial Heat Transfer Coefficient: Combined Effects of Shelf Temperature, Chamber Pressure and Position in a Lab Freeze Dryer, Conference on Freeze Drying of Pharmaceuticals and Biologicals, Breckenridge, CO, Aug 2012.

13. K. Forney-Stevens, R.H. Bogner and M.J. Pikal, Effect of Plasticizers on the Storage Stability of Lyophilized Proteins, PepTalk, January 9-13, 2012.

12. C. Kohn, R.H. Bogner, Variable Incidence of Feeding Tube Occlusions: Examination of Carbamazepine Suspensions, 46th ASHP Midyear Clinical Meeting & Exhibition, New Orleans, LA, December 4-8, 2011.

11. B.J. Baranowski, M.J. Pikal, P. Sane, R.H. Bogner, Variation in Product Temperature and Drying Time within a Lyophilized Batch During Primary Drying, AAPS National Biotechnology Conference, May 16-20, 2011.

10. K. Greco, R.H. Bogner, Evaluation of Drug Salts that Undergo Solvent-Mediated Transformation: Linking Dissolution with Bioavailability, Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, LA, Nov 14-18, 2010.

9. K. Greco, R.H. Bogner, Crystallization of Amorphous Indomethacin during Dissolution: Effect of Processing and Annealing, Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, LA, Nov 14-18, 2010.

8. K. Greco, R.H. Bogner, Evaluation of Drug Salts that Undergo Solvent-Mediated Transformation: Effect of Surfactant and its Implications to Bioavailability, Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, LA, Nov 14-18, 2010.

7. M. Kleppe, K.M. Forney, R.H. Bogner, Quantitative Probability Modeling of Bioavailability for Compounds that Precipitate in the Gastrointestinal Tract, Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, LA, Nov 14-18, 2010.

6. K. K. Qian, R. H. Bogner, Spontaneous crystalline-to-amorphous phase transformation of medicinal compounds in the presence of porous pharmaceutical excipients. 2. Effect of relative humidity, Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, LA, Nov 14-18, 2010.

5. K. K. Qian, R. H. Bogner, Spontaneous crystalline-to-amorphous phase transformation of medicinal compounds in the presence of porous pharmaceutical excipients. 1. Experimental evidence and thermodynamics of amorphization, Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, LA, Nov 14-18, 2010.

4. K.M. Forney, S. Yoshioka, R.H. Bogner, M.J. Pikal, Effects of Sugars on Molecular Dynamics of Freeze-Dried Protein Formulations as Determined by ^{13}C NMR Relaxation Times, Freeze-Drying of Pharmaceuticals and Biologicals Conference, Garmisch-Partenkirchen, Germany, September 28- October 1, 2010.

3. VJ Gurvich, SR Byrn, M Wells, SW Hoag, PK Basu, RH Bogner, NIPTE: A Multi-University Partnership Supporting Drug Development, Translational Pre-Clinical and Clinical Research in Academia, Clinical and Translational Science Awards Industry Forum, Bethesda, MD, February 17, 2010

2. K. Qian, R. Bogner, Spontaneous crystalline-to-amorphous phase transformation of organic molecules in the presence of porous media. 1. Experimental evidence and thermodynamics of amorphization, AAPS-NERDG 13th Annual Meeting, April 23, 2010, Rocky Hill, CT.

1. K. Qian, R. Bogner, Establishing good practice in using isothermal microcalorimetry in studying the interaction of water vapor with pharmaceutical solids AAPS-NERDG 13th Annual Meeting, April 23, 2010, Rocky Hill, CT.

*6. **Keynote and Other Invited Presentations** (Since 2000)*

95. Bogner, RH, Dependence of Annealing Kinetics on Formulation Characteristics, International Society of Lyophilization – Freeze Drying Midwest Chapter Annual Meeting, Rosemont, IL, April 9, 2025.

94. Bogner, RH, Are Compounded GLP-1s Safe for Your Patients?, Annual Meeting of the Connecticut Pharmacists Association, September 18, 2024

93. Bogner, RH, Reconstitution of Lyophiles: Mechanisms, Challenges, and Solutions, Eli Lilly & Co., Indianapolis, IN (remotely), February 13, 2024.

92. Bogner, RH, Untangling the Influence of the Product on Heat Transfer During Freeze-Drying, Sanofi, Framingham, MA, August 17, 2023.

91. Bogner, RH, Design of the Freezing Step to Minimize Primary Drying Time, Freeze-Drying of Pharmaceuticals and Biologics Conference, Breckenridge, CO, August 3, 2023.

90. Bogner, RH, Nuances of Freezing and Their Effects on a Better Measurement of Cake Resistance, International Society of Lyophilization – Freeze Drying Midwest Chapter Annual Meeting, Rosemont, IL, April 20, 2023.

89. Bogner, RH, Slow is Fast: Designing a Freezing Step to Reduce Primary Drying Time by as Much as 70%, ATS Life Sciences (formerly SP Scientific) Webinar, February 28, 2023.

88. Bogner, RH, Design of the Freezing Step Can Reduce Freeze-drying Cycle Time by 50% or More, NIPTE Research Conference (held virtually), November 29, 2022.

87. Bogner, RH, Improved Understanding of How Freezing Conditions Impact Lyophilization Cycle Time and Cake Structure, AstraZeneca Biologics, Gaithersburg, MD, October 27, 2022.

86. Bogner, RH, Formulation for Lyophilization, COMSER Lyophilization Workshop, Barcelona, Spain (remotely), April 6, 2022.

85. Bogner RH, Evolution in Our Understanding of Excipients in the Formulation of Biologics, AAPS PharmSci 360, Philadelphia, PA, October 20, 2021.

84. Bogner, RH, Formulation for Lyophilization, COMSER Lyophilization Workshop, Barcelona, Spain (remotely), October 6, 2021.

83. Bogner R and Kessler W, Pharmaceutical Lyophilization PAT Tools and Process Control Strategies, U.S. FDA, (remotely), October 1, 2021.

82. Bogner RH, Transitions that Occur During the Freezing Step and Their Impact on the Freeze-Drying Process, SP Scientific Webinar Series, June 30, 2021.

81. Bogner RH, Development of a New Tool for Lyophilization Process Design that Accounts for Batch Heterogeneity, LyoSymposium, Merck (remotely), October 15, 2020.

80. Bogner RH, USP <800>: Highlights and Answers to Lingering Questions, 5th Annual Connecticut Compounding Conference, held virtually, April 21, 2020.

79. Bogner RH, Factors that Influence Product Resistance and Methods to Measure Product Resistance, SP Scientific Webinar, available globally, March 23, 2020.

78. Bogner, RH, Understanding and Reducing Long and Variable Reconstitution Time for Highly Concentrated Therapeutic Protein Formulations, Regeneron, Tarrytown, NY, November 11, 2019.

77. Bogner, RH, Understanding and Reducing Long and Variable Reconstitution Time for Highly Concentrated Therapeutic Protein Formulations, AstraZeneca, Gaithersburg, MD, October 2, 2019.

76. Bogner RH, Intricacies of Freeze-Drying Biologics, Pharmaceutical Sciences Special Seminar, University of Michigan, Ann Arbor, MI, September 11, 2019.

75. Bogner RH, Understanding and Reducing Long and Variable Reconstitution Time for Highly Concentrated Therapeutic Protein Formulations, Novartis, Cambridge, MA, June 20, 2019.

74. Bogner RH, Modelling Inter-Vial Intra-Batch Variation of Primary Drying Time from the Natural Variation in Freeze Drying Process Variables, SP Scientific Webinar, May 29, 2019.

73. **Bogner RH**, The Impact of Compounding on the Profession of Pharmacy, 4th Annual Connecticut Compounding Conference, Cromwell, CT, April 24, 2019.

72. Bogner RH, Understanding and Reducing Long and Variable Reconstitution Time for Highly Concentrated Therapeutic Protein Formulations, New Jersey Pharmaceutical Association of Science and Technology, Parsippany, NJ, April 18, 2019.

71. Bogner RH, Fontana LK, Detection of Protein Tertiary Conformational Changes in Lyophilized Protein in the Solid State, PepTalk, San Diego, CA, January 15, 2019.

70. Bogner RH, Kulkarni SS, Factors Governing the Reconstitution Time of High-Concentration Lyophilized Protein Formulations, The Bioprocessing Summit, August 15, 2018.

69. **Bogner RH**, Insights into Slow Reconstitution of Lyophilized Protein Formulations and Practical Methods to Increase Reconstitution Rates, Midwest Chapter Annual Meeting of the International Society of Lyophilization – Freeze Drying, Northlake, IL, April 12, 2018

68. Bogner RH and Fontana L, Can Raman Spectroscopy Detect Protein Tertiary Conformational Changes in Lyophilized Samples? Eli Lilly & Co., Indianapolis, Indiana, October 11, 2017.

67. Bogner RH, Mesoporous Phases as Supports for Amorphous Material, Webinar sponsored by Crystal Pharmatech, January 10, 2017.

66. Bogner RH, Development of a Risk-Based Design Space for Freeze Drying, Scientific Design of Pharmaceutical Formulations, October 3, 2016.

65. Bogner RH, Strategies for Overcoming Long Reconstitution Times of Lyophilized Highly Concentrated Protein Formulations, The BioProcessing Summit, Boston, MA, August 19, 2016.

64. Bogner RH, "LyoModelling Calculator for Advanced Users – A new Cycle Modelling Tool", Webinar for SP Scientific, http://www.spscientific.com/LyoCalc-Advanced/, July 12, 2016.

63. Bogner RH, "LyoModelling Calculator Introduction – A New Tool to Assist in Freeze-Drying Process Design", Webinar for SP Scientific, http://www.spscientific.com/LyoCalc-Webinar/, June 30, 2016.

62. Bogner RH, "Predicting Amorphous Solubility and Maximizing the Supersaturated Drug Concentration", David W. Grant Symposium, Minneapolis, MN, June 20-22, 2016.

61. Bogner RH, "Mesoporous Phases as Supports for Amorphous Material", 2016 June Land O'Lakes Conference: 58th Annual International Industrial Pharmaceutical Research & Development Conference, Madison, WI, June 6-9, 2016.

60. Bogner RH, "Quality in Compounded Preparations: Building Quality in versus Testing for Quality", Connecticut Compounding Conference, Cromwell, CT, May 20, 2016.

59. Bogner RH, "Amorphization of Drug in Mesoporous Silicates to Improve Oral Bioavailability", Annual Meeting of the AAPS Northeastern Regional Discussion Group, Farmington, CT, April 19, 2016.

58. Bogner RH, "Variation in Heat Flow to Vials within a Batch is a Complex Function of Shelf Temperature and Chamber Pressure in a Laboratory Freeze-Dryer", PepTalk, The Protein Science Week, Pipeline 3: Formulation & Stability, Lyophilization and Emerging Drying Technologies, San Diego, CA, January 18-22, 2016.

57. Bogner R, "Variation in Pressure Within the Drying Chamber and Impact on Freeze-Drying Design Space", NIPTE Research Conference on Pharmaceutical Critical Path Manufacturing, Rockville, MD, April 30 – May 1, 2015.

56. Bogner RH, "Measurement of Vial Heat Transfer Coefficients: Nuances and Pitfalls", PepTalk, The Protein Science Week, Pipeline 3: Formulation & Stability, Lyophilization and Emerging Drying Technologies, San Diego, CA, January 22, 2015.

55. Sane P, Bogner RH, Pikal MJ, "Investigating the Impact of Solute on Vial Heat Transfer Coefficients", PepTalk, The Protein Science Week, Pipeline 3: Formulation & Stability, Lyophilization and Emerging Drying Technologies, San Diego, CA, January 22, 2015. (PS, graduate student, was invited to present.)

54. Bogner R, Alexeenko, A, "Pressure Variation in the Drying Chamber: Measurements, Simulations and Consequences of Scale-up on Batch Uniformity", Freeze Drying of Pharmaceuticals & Biologicals, Garmisch-Partenkirchen, Germany, September 23-26, 2014.

53. P. Sane, R.H. Bogner, Bhatnagar, B, "Challenges in Reconstitution of Lyophilized High-Concentration Protein Formulations: Case Study of a Monoclonal Antibody (mAb)", Bioprocessing Summit, Boston, MA, August 18-22, 2014. (PS, graduate student, was invited to present.)

52. R. Bogner, "Amino Acids as Stabilizers for Lyophilized Protein Formulations", AMORPH 2014, July 14-16, 2014, Cambridge, UK.

51. R. Bogner, "Sources of Variation in Heat Transfer during Primary Drying: Implications for Defect Level and Design Space", 6th Annual Meeting of the MidWest Chapter of the International Society of Lyophilization and Freeze-Drying, Chicago, IL, April 10, 2014.

50. R. Bogner, "Improving Solubility and Dissolution of Poorly Water-Soluble Drugs" Seminar series of the Department of Chemical, Biological and Pharmaceutical Engineering at New Jersey Institute of Technology, March 31, 2014.

49. R. Bogner, "The Effect of Natural Variation on Freeze-Drying Design Space: Determining the Variation in Heat Transfer and Ice Nucleation Temperature on the Distribution of Product Temperatures and Drying Times within Batch" 7th Annual

Lyophilization and Emerging Drying Technologies conference as part of 13th Annual PepTalk, Palm Springs, CA, January 16, 2014.

48. R. Bogner, "Amorphous Forms and the Potential Effect of their Solution-Mediated Phase Transformation on Oral Bioavailability", Gordon Research Conference: Preclinical Form & Formulation for Drug Discovery, Waterville Valley, NH, June 3, 2013.

47. R. Bogner, "Amorphous Drugs and Solution-Mediated Phase Transformation – Effects on Bioavailability", University of Iowa Division of Pharmaceutics and Translational Therapeutics, Iowa City, IA, March 28, 2013.

46. R. Bogner, "UConn Flow-Through Dissolution Apparatus," Merck Research, Webinar to multiple sites, December 14, 2012.

45. R. Bogner, "Altering Solid State Properties to Enhance Dissolution of Poorly Water-Soluble Drug Molecules," Global Pharmaceutics Education Network (GPEN) Meeting, Melbourne, Australia, November 28-30, 2012.

44. **R. Bogner**, A Series of 17 Lecture Hours on Pharmaceutical Solids and Their Dissolution (funded by a grant through the Civilian Defense Research Foundation written by Dr. Elena Boldyreva), Novosibirsk State University, Novosibirsk, Russia, September 3-7, 2012.

43. R. Bogner, "Exploring the Underlying Factors that Contribute to Long Reconstitution Times of Highly Concentrated Protein Pharmaceuticals," The BioProcessing Sumit, Boston, MA, August 22-23, 2012.

42. R. Bogner, "Mechanisms of Reconstitution of Concentrated Freeze Dried Proteins," 2012 CPPR Freeze Drying of Pharmaceuticals & Biologics Conference, Breckenridge, CO, August 7-10, 2012.

41. R. Bogner, "Enhancing the Dissolution of Poorly-Soluble Drugs Using Pharmaceutical Silicates," University of Kentucky, Lexington, KY, April 18, 2012.

40. R. Bogner, "Reconstitution of Highly Concentrated Proteins: New Methods, Improved Understanding, and Lingering Questions," Pfizer BioPharma, Andover, MA, February 23, 2012.

39. R. Bogner, "Vial-to-Vial Variation for Freeze-Dried Products during Primary Drying: A New Way to Approach Design Space," PepTalk, San Diego, CA, January 13, 2012.

38. R. Bogner, "Pharmaceutical Amorphous Formulations using Nanoporous Materials," National Institute of Standards and Technology, Gaithersburg, MD, October 25, 2011.

37. R. Bogner, "Reconstitution of Lyophilized Proteins: Current Knowledge, Gap Analysis, and Next Steps" Pfizer Biopharma, Andover, MA, April 28, 2011.

36. R. Bogner, "Spontaneous Amorphization in the Presence of Pharmaceutical Silicates" Merck, Summit, NJ, April 1, 2011.

35. R. Bogner, “Bioavailability Predictions for Drugs that Precipitate in the G.I. Tract” Albany College of Pharmacy, Albany, NY, March 31, 2011.

34. **R. Bogner** “Recent Innovations in Solid Oral Dosage Forms” Pharmaceutical Technology Webinar on The Future of Solid Dosage Manufacturing, March 1, 2011. https://event.on24.com/eventRegistration/EventLobbyServlet?target=registration.jsp&eventid=281548&sessionid=1&key=D85225848C9DD77DE85D0C352BCC1ADD&sourcepage=register (available for view until March 2012; ~ 200 attendees)

33. R.H. Bogner, “The role of pharmaceutical silicates in improving the solubility of poorly-soluble drugs”, Virginia Commonwealth University, Oct. 12, 2010.

32. R.H. Bogner, M.J. Pikal, “The Incredible Shrinking Design Space: Using Risk Tolerance to Define Design Space for Primary Drying” Freeze-Drying of Pharmaceuticals and Biologicals Conference, Garmisch-Partenkirchen, Germany, September 28- October 1, 2010.

31. **R.H. Bogner,** “Bioavailability enhancement for poorly soluble compounds”, New Jersey Pharmaceutical Association for Science and Technology, May 20, 2010, Whippany, NJ. (~100-150 attendees)

30. R.H. Bogner, M. Lettmoden, “Compounding: Custom Dosage Forms for Long-term Care Patients” ASCP Senior Symposium, April 9, 2010, Foxwoods, CT.

29. R.H. Bogner, “Predicting Oral Absorption Of Amorphous Compounds That Precipitate In The GI Tract” 4th Annual Conference on Improving Solubility, March 31, 2010, Philadelphia, PA.

28. R.H. Bogner, “The Future of Compounding”, Contemporary Issues in Laboratory Instruction, AACP Annual Meeting, July 21, 2009, Boston, MA.

27. R.H. Bogner, "Dissolution Rate vs Solubility as a Predictor for Bioavailability Enhancement of High-Energy Solid Forms and Formulation for Oral Delivery", Patheon, December 5, 2008,Toronto, ON

26. R.H. Bogner, "Taking Advantage of the Amorphous State to Improve Solubility: Promises and Pitfalls", Patheon, December 5, 2008,Toronto, ON

25. R. Bogner, K. Qian, M. Pikal, “Freeze Drying Process Optimization from a Statistical Analysis of the Impact of Variation in Critical Drying parameters,” Freeze Drying of Pharmaceuticals and Biologicals, August 8, 2008, Breckenridge, CO.

24. **R. Bogner**, “Case-Presentations in the Pharmaceutics Curriculum,” Annual Meeting of the American Association of Colleges of Pharmacy, July 20, 2008, Chicago, IL. (~ 100 attendees)

23. R Bogner, “Current State of Pharmaceutical Technology Education in Pharmacy Schools”, NIPTE Stakeholders Meeting: Transforming Pharmaceutical Technology Education, April 8, 2008, Des Plaines, IL.

22. R Bogner, F. Muzzio, L. Kirsch, "An Innovative Graduate Program Balancing Science and Engineering: Meeting the Needs of Industry for Ph.D. Entry-level Scientists in Pharmaceutical Technology", Annual Meeting of the American Association of Pharmaceutical Scientists, November 12, 2007, San Diego, CA.

21. **R Bogner**, "Amorphous Drug Forms for Potentially Improved Bioavailability: Promises and Pitfalls", Northeast Regional Discussion Group of the American Association of Pharmaceutical Scientists", April 20, 2007, Rocky Hill, CT. (~ 150-200 attendees)

20. **R Bogner**, "A Comparison of Using Dissolution Rate or Solubility as a Predictor for Bioavailability Enhancement of Solid Forms and Formulations", Eastern Pharmaceutical Technology Meeting, September 22, 2006, Bridgewater, NJ. (~200 attendees)

19. R. Bogner, I. Lagadic, "Drug Interactions with Pharmaceutical Silicates", Annual Meeting of the American Association of Pharmaceutical Scientists, November 9, 2005.

18. R. Bogner, "Fundamentals of Mechanochemistry" University of Kentucky, Lexington, KY, March 25, 2005.

17. **R. Bogner**, "The Relationship Between the Pharmaceutical Industry and Academe: Changes, Challenges and Opportunities" New Jersey Pharmaceutical Association for Science and Technology, March 17, 2005. (~ 75-150 attendees)

16. R. Bogner, "Funademental s of Mechanochemistry: Its Successful Use in Other Industries and Implication s for theParmaceutical Industry" International Symposium on Recent Advances in Drug Design and Delivery Systems, Pilani, India, February 26, 2005 (presented by live webcast).

15. R. Bogner, "Bioavailability of Calcium Supplements" GSK Consumer Products, Parsippany, NJ, January 14, 2005.

14. R. Bogner, "New Applications in Hot Melt Technology Using Semi-Solid Lipids" Annual Meeting of the American Association of Pharmaceutical Scientists, Baltimore, MD, November 10, 2004.

13. R. Bogner, "Stable Amorphization of Pharmaceuticals – A Promising Approach for Improving Bioavailability of Some Problematic Therapeutic Agents" University of Wisconsin, Madison, WI, October 25, 2004.

12. R. Bogner, "Factors Influencing the Release of Poorly Water-Soluble Drugs from Solid Dispersion Granules During Storage" Sanofi-Aventis, Great Valley, PA, October 14, 2004.

11. R. Bogner, "Fundamentals of Mechanochemistry and its Successful Use in Other Industries", AAPS Pharmaceutics and Drug Delivery Conference, Philadelphia, PA, June 8, 2004.

10. R. Bogner, "Enhancing Drug Dissolution Rates by Co-Grinding", Salt Selection & Formulation/Pre-Formulation Strategies Conference, Philadelphia, PA, March 2, 2004.

9. R. Bogner, “An Assessment of Pharmacist Compounded Formulations”, Hewitt Symposium, Storrs, CT, November 18, 2003.

8. R. Bogner, “Academic and Funding Pressures on Graduate Education in Pharmaceutics: Future Trends”, AAPS Annual Meeting, Salt Lake City, UT, October 30, 2003.

7. R. Bogner, “Interaction of Drugs with Pharmaceutical Silicates”, AstraZeneca, Wilmington, DE, August 13, 2003.

6. R. Bogner, “Photocurable Coating: AnOverview and Case Study”, AAPS Conference on Advances in Pharmaceutical Processing, Parsippany, NJ, June 19-20, 2003.

5. R. Bogner, “Formation of Physically Stable Amorphous Drugs by Co-Grinding”, AAPS Conference on Advances in Pharmaceutical Processing, Parsippany, NJ, June 19-20, 2003.

4. R. Bogner, “Use of Neusilin and Other Silicates to Improve the Pharmaceutical Performance of Poorly Water-Soluble Drugs”, Fuji Chemical Company, Toyama, Japan, May 24, 2004.

3. R. Bogner, “Measurement of pH Near Dissolving Enteric Coatings”, St. Johns University, Nov. 29, 2000.

2. R. Bogner, “Measurement of pH Near Dissolving Surfaces Using Confocal Scanning Laser Microscopy”, Pfizer Central Research, May 12, 2000.

1. R. Bogner, “Determination of the pH Near the Surface of Dissolving Enteric Coatings Using Confocal Laser Scanning Microscopy”, 33rd Annual Higuchi Research Seminar, Lake Ozark, MO, March 12-15, 2000.

7. Short Courses

8. Hands-on Basic Lyophilization Short Course, 8 hour course, Storrs, CT, August 13-14, 2024.

7. Pharmaceutical Freeze-Drying, 10 hour course (8 hours lecture and 2 hours lab), Gilead Sciences, Foster City, CA, December 11-15, 2023.

6. Your Pathway to Astounding Sterile Compounding Certificate, 9.5 hours online and 7 hours hands-on active learning (with co-presenter, Laura Nolan), in person portion held on, August 26, 2021 and January 11, 2022.

5. Industrial Lyophilization Training, 5 hours of the three day course (virtual), University of Massachusetts at Lowell, Lowell, MA, February 8-10, 2021.

4. Hands-on Aseptic Technique and Sterile Compounding, 7 hours (with co-presenter, Laura Nolan), Storrs, CT, January 15, 2020.

3. Hands-on Aseptic Technique and Sterile Compounding, 7 hours (with co-presenter, Laura Nolan), Springfield, MA, June 7, 2019.

2. NIPTE Workshop on Freeze-Drying/Lyophilization Fundamentals, 5 hours, Iselin, NJ, November 15, 2018.

1. Fundamentals of Sterile Compounding, 5 hours, Plantsville, CT, March 29, 2018.

V. Teaching

1. Graduate Students Supervised

Jean Wang (Ph. D., 1994)

- Dissertation Title: Development and critical evaluation of solvent-free photocured coatings for pharmaceutical application
- Awarded for the Best Graduate Podium Presentation for her seminar at the Eastern Regional Meeting of the American Association of Pharmaceutical Scientists in June 93.
- One of six students chosen nationally to participate in the American Association of Pharmaceutical Scientists Graduate Symposium in November, 1994

Mayur Dudhedia (M.S., Fall, 1995)

Feroz Jameel (Ph.D., Spring 1997)

- Dissertation Title: Investigation of hetastarch as a cryoprotectant for l-asparaginase
- Awarded the 1998 Fred Simon Award for the Best Paper published in the PDA Journal of Pharmaceutical Sciences and Technology

Abizer Harianawala (Ph.D., Summer 1998)

- Dissertation Title: Investigation of viscosity, pH and dielectric constant of the microenvironment surrounding a dissolving enteric polymer film
- Awarded for his Outstanding Poster Presentation at the Eastern Regional Meeting of the American Association of Pharmaceutical Scientists.
- One of six students chosen nationally to participate in the American Association of Pharmaceutical Scientists Graduate Symposium

Manish Gupta (Ph.D., Spring 2003)

- Dissertation Title: Factors influencing the release of poorly water-soluble drugs from solid-dispersion granules during storage
- Awarded for his Outstanding Podium Presentation at the Eastern Regional Meeting of the American Association of Pharmaceutical Scientists.

Sagarika Bose (Ph.D., Spring 2006)

- Dissertation Title: Development and evaluation of solventless photocureable pharmaceutical film coating
- One of six students chosen internationally to participate in the American Association of Pharmaceutical Scientists Graduate Symposium on Pharmaceutical Technology

Bakul Bhatnagar (Ph.D., Summer 2006) co-advised with M.J. Pikal

- Dissertation Title: Critical process and formulation factors in the freezing of lactate dehydrogenase
- One of four students chosen nationally to participate in the American Association of Pharmaceutical Scientists Graduate Symposium on Biotechnology

Deepak Bahl (Ph.D., Spring 2007)

- Dissertation Title: Physical stabilization of amorphous drugs by co-grinding silicates

Sandra Goss (Ph.D., Fall 2008)

- Dissertation Title: The role of gastric pH and bicarbonate secretion in intestinal absorption of calcium from supplements
- Fellow of the American Foundation of Pharmaceutical Education
- Awarded one of six fellowships by the United States Pharmacopeia Foundation
- Awarded pre-doctoral fellowship by the Pharmaceutical Research and Manufacturers of America Foundation

Sharad Murdande (Ph.D., Spring 2009) co-advised with M.J. Pikal

- Dissertation Title: Theoretical and experimental assessment of the solubility advantage of glassy pharmaceuticals over their corresponding crystalline counterparts
- Published 3 papers (with an additional paper in review) from his dissertation
- Current position: Principal Scientist, Lifecycle Management, Pfizer Global R&D

Shumet Hailu (Ph.D., Summer 2009)

- Dissertation Title: Chemical stability of amorphous pharmaceuticals prepared with silicates
- Fellow of the American Foundation of Pharmaceutical Education
- Awarded one of four fellowships by the Parenteral Drug Association

- Awarded one of six fellowships by the United States Pharmacopeia Foundation

Kristyn Greco (Ph.D., Summer 2010)

- Dissertation Title: Solution mediated phase transformation : investigation using a novel flow-through dissolution apparatus
- Twice awarded one of six fellowships by the United States Pharmacopeia Foundation
- Connecticut Technology Council's Connecticut Women of Innovation Award 2007
- US Patent granted on dissolution measurement device developed during doctoral work

Ken Qian (Ph.D., Summer 2011)

- Dissertation Title: Spontaneous crystalline-to-amorphous phase transformation of medicinal compounds in the presence of porous media
- One of three students chosen to participate in the American Association of Pharmaceutical Scientists Graduate Student Symposium in Physical Pharmacy and Biopharmaceutics
- Awarded a Graduate Student Travel Scholarship by International Pharmaceutical Excipients Council
- Awarded for his Outstanding Poster Presentation at the New Jersey Pharmaceutical Association for Science and Technology (NJPhAST).
- Awarded for his Outstanding Poster Presentation at the Annual Meeting of the AAPS Northeast Regional Discussion Group

Kelly Forney (Ph.D., Fall 2013)

- Dissertation Title: Extending the Shelf-Life of Lyophilized Protein Formulations: Amino Acids as Stabilizers and Early Detection of Amorphous Phase Separation
- Awarded pre-doctoral fellowship by Pharmaceutical Research and Manufacturers of America Foundation
- Awarded for her Outstanding Poster Presentation at the Annual Meeting of the AAPS Northeast Regional Discussion Group

Pooja Sane (Ph.D., Spring 2016)

- Dissertation Title: Identification and Quantification of Heterogeneity in Freezing and Primary Drying Steps of Lyophilization
- AAPS Graduate Student Award in Manufacturing Science and Engineering 2015
- Awarded for outstanding poster at the 4th Annual UConn Student Chapter of the American Association of Pharmaceutical Scientists.

Mary Kleppe (Ph.D., Spring 2018)

- Awarded one of five fellowships by the United States Pharmacopeia Foundation
- Awarded second place for her Outstanding Poster Presentation at the Annual Meeting of the AAPS Northeast Regional Discussion Group
- Awarded pre-doctoral fellowship by Pharmaceutical Research and Manufacturers of America (PhRMA) Foundation.
- Awarded American Foundation for Pharmaceutical Education's Lynn VanCampen Fellowship in physical pharmacy.
- Oustanding poster award at conference of New Jersey Pharmaceutical Association for Science and Technology (NJPhAST).

Rui Fang (Ph.D., Spring 2018)

- Served as Chair of 2017 Gordon Research Seminar on Preclinical Form and Formulation for Drug Discovery.
- Received a Baxter Young Investigator Award.
- Awarded for her presentation at the Annual Meeting of the AAPS Northeast Regional Discussion Group
- Awarded for her poster at a meeting of the International Society of Lyophilization-Freeze Drying.
- Awarded for her oral presentation at another meeting of the International Society of Lyophilization-Freeze Drying.

Shreya Kulkarni (Ph.D., Spring 2019)

- Received a Tier 1 Baxter Young Investigator Award.
- Awarded for her research by the AAPS Manufacturing Science and Engineering section of AAPS.
- Awarded for her research by the International Pharmaceutical Excipients Council.
- Awarded for her research by the American Association of Indian Pharmaceutical Scientists.
- Awarded for her poster at a meeting of the International Society of Lyophilization-Freeze Drying.

- Awarded for her oral presentation at the Gordon Research Seminar on Preclinical Form and Formulation for Drug Discovery.

Arushi Manchanda (Ph.D., Spring 2019)
- Elected as Vice President for the AAPS Student Chapter at UConn

Lauren Fontana (Ph.D., Summer 2019)
- Awarded pre-doctoral fellowship by Pharmaceutical Research and Manufacturers of America (PhRMA) Foundation.
- Awarded American Foundation for Pharmaceutical Education Fellowship.

Mohsina Rahman
- Joined the program August 2019
- Awarded 2nd Runner up for Best Poster at Freeze-Drying of Pharmaceuticals and Biologics Conference (2023).

Ling Zhu
- Joined the program August 2019
- Awarded best poster at meeting of International Society of Lyophilization-Freeze Drying (2022)
- Awarded 2nd for presentation at AAPS NorthEast Regional Discussion Group meeting (2022)
- Received Graduate Student award at International Pharmaceutical Excipients Council annual dinner (2023)

Dinesh Chaudhary
- Joined the program August 2021
- Awarded CPPR Steve Nail Emerging Researcher Award (May 2023)

Iheanacho Theopholus Enyum
- Joined the program August 2023

2. Post-doctoral Fellows

Sudhakar Garad (1999-2001)
Piyush Gupta (2006-2007)
Pawel Grobelny (2011-2015)

3. Honors Students (who completed their thesis under my direction)

Kellie Sweet (B.S., 1992)
Sherry LaPorte (B.S., 1993)
Victoria Wellner (B.S., 1994)
Ethan Stier (B.S., 1997)
Donna Albanese (B.S., 1996)
Meghan Wilkosz (Pharm.D., 2003)
Pauline Rafferty (Pharm.D., 2005)
Jennifer Prushko (B.S., 2007)
Christine Kohn (Pharm.D., 2012)
Emily Lau (Pharm.D., 2013)
Daniel Fitzgerald (B.S., 2016)
Melissa Laracy (Pharm.D., 2017)

4. Courses Taught

1. Since May 2012

PHRX 3031 Foundations of Pharmaceutics I (4 cr; Spring) 2009-2013, 2016, 2018-
A team-taught course which combines physicochemical principles with dosage form technology.

PHRX 3032 Non-sterile Pharmaceutical Compounding (1 cr; Spring) 2009-
Formerly Dosage Forms Preparation Lab I; Solo taught (2009-2018) and co-teach (2019-) course on techniques relating to compounding non-sterile preparations.

PHRX 4031 Sterile Pharmaceutical Compounding (1 cr; Fall) 2016-
Formerly Dosage Forms Preparation Laboratory II: Solo taught (2016-2017) and co-teach (2018-) course on aseptic processing of sterile preparations.

PHRX 4001W Current Topics in Pharmacy [W=focus on writing] (3cr; alt Spring) 2013
An alternate form *PHRX 4052* Advanced Compounding with more focus on an "elements of writing in the major" component to fulfill the university's W-requirement.

PHRX 4052 Advanced Compounding (2 cr; Spring) alternate years 1999-2017, yearly 2018-
Developed and solo teach a laboratory emphasizing techniques to extemporaneously compound nonsterile dosage forms.

PHRX 5153 – Professional Experience in Academia (4 cr; periodically) 2007-
Mentor senior pharmacy students on an "academic rotation" to explore their interest and develop their skills for teaching. 1-4 students each year.

PHAR 6286 Transport Processes (3 cr) alternate Spring 1991-2017, alternate Fall 2019-
Graduate course in primarily mass transport processes related to drug delivery. Sole instructor.

PHAR 6234 – Freeze Drying of Pharmaceuticals, alternate Spring since 2024.
Graduate course with lab on the basics of freeze-drying.

ME 4972 Senior Design Project I (3 cr.; Fall) 2005-2007, 2012, 2015, 2016, 2023
Co-taught with a mechanical engineering professor. Worked with a team of 2-3 senior mechanical engineering students to develop, plan, and complete a challenging project in the area of pharmaceutical engineering, with focus on innovation and improvements in current pharmaceutical processes.

ME 4973W Senior Design Project II (3 cr.: Spring) 2006-2008, 2013, 2016, 2017
Continuation of ME 272 (described above), with an additional writing component.

2. Previous Years

Pharmacy 201 -- Pharmacy Research Seminar (1cr.; Spring) 1995-2006
Developed and directed an elective seminar course geared toward Honors students and others who wish to become involved in research.

Pharmacy 207 -- Physicochemical Principles of Drugs I (4 cr; Fall) 1989-96
A team-taught course which includes topics in thermodynamics, solution theory, ionic equilibria, and interfacial phenomena. Course coordinator.Instructor for 1/2 of the course.

Pharmacy 209 -- Physicochemical Principles of Drugs III (1 cr; Fall) 1989-96
Laboratory to complement PCP I and PCP II. I had primary responsibility for 2 labs and secondary for 1-2 labs.

Pharmacy 242 Solution and Solid Dosage Forms (4 cr; Fall) 1998-2008
A team-taught course which combines physicochemical principles with dosage form technology. I am responsible for 37% of solid dosage forms and dissolution/drug release.

Pharmacy 246 – Dispersed Systems (3 cr; Spring) 1999-2004
A team-taught course which combines physicochemical principles with dosage form technology. I was responsible for 15% of the course – in particular, topicals and transdermals.

Pharmacy 299 -- Undergraduate Research (3 cr; Fall and Spring)1990-
Individualized independent laboratory research course.

Supervisor for 1-3 students each semester.

Pharmacy 339 – Current Literature in Pharmaceutics (1 cr; Spring) 2005-2010
Graduate course reviewing current journal articles and patents. Sole instructor.

Pharmacy 390 -- Interfacial Phenomena (3 cr; Spring 1991)
Graduate course in surface chemistry, micellar solubilization and emulsion stabilization.

VI. **Service** (current service and selected past service)

1. Editorial Boards

AAPS Open
    Theme Issue: Freeze Drying Technology: Recent Advances, Innovations and Applications (2024-2025)
Journal of Pharmaceutical Sciences (2011-
Pharmaceutical Research (2005-
Pharmaceutical Development and Technology (2000-
    Mini-review Editor (2004- 2013)
AAPS PharmSci Tech (2013-) and
    Theme Issue: Quality by Design, Lead Guest Editor (2010-2012)
    Theme Issue: Transforming Pharmaceutical Manufacturing, Co-Guest Editor (2006)
Pharmaceutical Formulation and Quality (2009-2011)
American Journal of Pharmaceutical Education (2000-2007)

2. Pharmaceutical Science Organizations

Kildsig Center for Pharmaceutical Processing Research
    Director, 2018-
National Institute for the Innovation in Manufacturing of Biologics
    Workforce Activities Committee, Member, 2019-2021
    Technical Activities Committee, Member, 2018-2019
LyoHUB
    Scientific Advisory Committee, Member, 2019-
American Association of Pharmaceutical Scientists
    Fellows Communications Task Force, 2023-2024
    Northeast Regional Discussion Group Planning Cmte, 2006-2013
    Student Post-Doc Outreach Development Committee 2006-2007
    Pharmaceutical Technology Section, Chair, 2004-2005
    New Investigator Award Selection Committee, 2004
    Annual Meeting Program Coordination Committee, 2003-2004
    Arden House Conference Planning Committee, 2003-2005
    Advances in Pharmaceutical Processing Meeting, General Chair, 2003
    Eastern Regional Meeting, General Chair, 1998-99
    Finance Committee, 1994-97
National Institute of Pharmaceutical Technology and Education
    Faculty Cmte Chair-Elect 2007-08, Chair 2008-09, Past Chair 2009-10
    UConn Representative to the Faculty Committee, 2018-2019

3. Standards and Review Panels

US Food and Drug Administration
Pharmacy Compounding Advisory Committee, 2017-
United States Pharmacopeia
Pharmacy Compounding Expert Committee, 2005-2010
University of Connecticut representative to the Convention, 2020-
National Institutes of Health
SBIR/STTR *ad hoc* review panel, 2013
National Institute of Drug Abuse
SBIR *ad hoc* review panels, 2007, 2009

4. Pharmacy Education

Pharmaceutical Research and Manufacturers of America Foundation
Drug Delivery Review Panel, Member, 2020-
Chair, 2022-
Pharmaceutics Advisory Committee, Member, 2018-2019
American Foundation for Pharmaceutical Education
Board of Grants, member 2013-2020
American Association of Colleges of Pharmacy
Graduate Education and Research Committee 2005-2006
Lyman Award Selection Committee 2003-2004
Teachers of Pharmaceutics Section, Chair, 1996-98
National Association of Boards of Pharmacy
Foreign Pharmacy Graduate Equivalency Exam Review Committee, 2003-2007

5. Pharmacy

Lambda Kappa Sigma, International Women's Pharmacy Organization
Nominating Committee, 2015-2016
Educational Trust Committee, 2010-2015
Educational Grant Selection Committee, Chair, 1992-96
Grand Treasurer, 1998-2002

6. University of Connecticut

University Senate, Senator representing School of Pharmacy, 2021-2023
Centers & Institutes Review Committee, 2020-2023
Chair, 2021-2023
Lab/Performance Course Working Group, 2020-2021
Search Committee for Provost, 2019-2020
Chemical Hygiene Committee, Chair, 2014-2018
Research Compliance Advisory Committee, 2014
Search Committee for Dean of the Graduate School, 2010-2011
Graduate Faculty Council, 2010-2011

Institute for Teaching & Learning,
Teaching Scholar Selection Committee 2014-2015
Adjunct Faculty Award Selection Cmte, 2010-2012
UConn Upward Bound, Student Supervisor, 2008-2015
Year of Science Planning Committee, 2007-2009
Laboratory Safety Committee, 2001-2005
Honors Program Board of Directors 2000-2002
UConn Mentor Connection, Pharmacy Experience Supervisor, 2003-2015
Chancellor's Commission on the Status of Women, 1998-2003
University Commencement, School of Pharmacy Marshal, 1993-2007
Research Foundation Life Sciences Review Panel, 1991-93, 2012-2013,
Chair 1993

7. School of Pharmacy

Dean's ad hoc Advisory Council on Promotion to Full Professor, 2019-, Chair 2021
Admissions Committee, 2008-
Interprofessional Education Committee, 2015-2019
Alumni Association, Board Member, 2014-
Dean's Advisory Council on Promotion Tenure and Reappointment, 2013-2015, Chair 2014
Gaining Early Awareness and Readiness for Undergraduate Program Day, 2007-2014
Faculty/Staff Development Committee, 2006-2009
Professionalism Task Force, 2004, 2008-2011
School of Pharmacy Advisory Board, 2003-2007
Honors and Undergraduate Research Cmte, 1993-2001, Chair 1995-2001
Pharmacy Dean Search Committee, 1992-93
Arthur E. Schwarting C.E. Symposium, Chair, 1991-92
Self-Study Steering Committee, 1991-93, 2005-2006
Lambda Kappa Sigma, Faculty Advisor, 1989-

8. Department of Pharmaceutical Science

Department Head Search Committee, 2019
Promotion, Tenure and Reappointment Committee 1998-2011, 2019
Faculty Search Committee, 1992, 1995, 1998, 2005, 2016-2017, 2018-2019
Pfizer Distinguished Chair Search Committee, Chair 2003-2004
Graduate Affairs Committee, Chair 2002-2005
Pharmaceutics Program Coordinator 2002-2005
Undergrad Summer Research Fellowship, Program Director, 1990-2008

Revised March 2025