

Curriculum Vitae

Richard N. Dalby

Personal Information

Qualifications

Ph.D. (University of Kentucky), M.R. Pharm. S. (Registered Pharmacist in UK, License # 78009), B. Pharm. (University of Nottingham).

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Educational Summary

Sept. 1984 to Oct. 1988

University of Kentucky College of Pharmacy. Ph.D. in Pharmaceutical Sciences supervised by Dr. Peter R. Byron.

Sept. 1980 to June 1983

Nottingham University School of Pharmacy, B. Pharm. (Honors).

Employment Summary

Jan 2010 to present

Associate Dean for Academic Affairs, School of Pharmacy, University of Maryland. Subsumed responsibilities of Associate Dean for Curricular and Instructional Resources in January 2012.

Jan. 2009 to Dec 2009

Graduate Program Director, Department of Pharmaceutical Sciences, University of Maryland.

July 2003 to present

Professor, Department of Pharmaceutical Sciences, University of Maryland (July 1996 to June 2003, Associate Professor; Sept. 1992 to June 1996, Assistant Professor).

Sept. 1992 to present

Affiliate Professor, School of Pharmacy, Medical College of Virginia / Virginia Commonwealth University (July 1996 to June 2003, Affiliate Associate Professor; Sept. 1992 to June 1996, Affiliate Assistant Professor).

May 1997 to July 2003

Vice Chair, Department of Pharmaceutical Sciences, University of Maryland.

Aug. 2001 to Jan. 2002

Acting Chair, Department of Pharmaceutical Sciences, University of Maryland.

May 1997 to Sept. 1999

Graduate Program Director, Department of Pharmaceutical Sciences, University of Maryland.

Dec. 1989 to Aug. 1992

Research Assistant Professor at Medical College of Virginia / Virginia Commonwealth University, Department of Pharmacy and Pharmaceutics.

Oct. 1988 to Nov. 1989

Development Scientist, Fisons Pharmaceuticals (now sanofi aventis). Responsible for development of MDIs & DPIs. Offered promotion to Section Leader in 1989.

Oct. 1984 to Sept. 1988

Teaching and research assistant at the University of Kentucky College of Pharmacy.

Sept. 1983 to Sept. 1984

Pharmaceutical industry pre-registration training at Roche Pharmaceuticals and hospital pre-registration training at University College Hospital.

Jun. to Sept. 1981 & 1982

Preregistration Pharmacy Student with the Boots Company (Community pharmacy).

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Membership of Professional Organizations

Fellow of the American Association of Pharmaceutical Scientists and member of the Royal Pharmaceutical Society of Great Britain.

Research Interests

Formulation and evaluation of pressurized metered dose inhaler, dry powder, nebulizer, and nasal spray products. Development and evaluation of existing and proposed test methods for inhalation products. Laboratory testing and patient evaluation of novel pulmonary and nasal delivery devices. Design of patient education aids. More details at: www.pharmacy.umaryland.edu/faculty/rdalby/ or http://www.experts.scival.com/maryland/expert.asp?n=Dalby%2C+Richard+N%2E&u_id=1797.

Papers

1. [Automated Actuation of Nasal Spray Products: Effect of Hand Related Variability on the In Vitro Performance of Flonase® Nasal Spray](#); Diane V. Doughty, Wenchi Hsu and Richard N. Dalby. Drug Development and Industrial Pharmacy, Vol. 40, No. 6, Pages 711-718, June 2014. DOI:10.3109/03639045.2013.777735.
2. [Methodology for the In Vitro Evaluation of the Delivery Efficiency from Valved Holding Chambers with Facemasks](#); Zhen Xu, Wenchi Hsu, Dirk von Hollen, Ashwin Viswanath, Kurt Nikander and Richard Dalby Journal of Aerosols in Medicine and Pulmonary Drug Delivery, Volume 27, Supplement 1, S44-54, 2013. DOI: 10.1089/jamp.2013.1074. PMID: 24219816.
3. [Development of Respimat and its Clinical Utility in Respiratory Disorders](#), R N Dalby, J Eicher and B Zierenberg, Medical Devices: Evidence and Research. Medical Devices: Vol 1, No 4, pages 145–155, 2011.
4. [Effect of Various Formulation and Administration Related Factors on Deposition Pattern of Nasal Spray Pumps](#). Vipra Kundoor and Richard N. Dalby. Pharmaceutical Research, Volume 28, Number 8, 1895-1904, 2011. PMID: 21499839.
5. [Automated Actuation of Nasal Spray Products: Determination and Comparison of Adult and Pediatric Settings](#). D. V. Doughty, C. Vibbert, M. E. Bollinger, A. Kewalramani and R. N. Dalby. Drug Development and Industrial Pharmacy. Vol. 37, No. 3, pages 359-366, 2010.
6. [Thousand Years of Pharmaceutical Aerosol's Conference Paper. Deposition, imaging and clearance: What remains to be done?](#) Aerosol Medicine and Pulmonary Drug Delivery, Volume 23, Suppl 2, pages 1-19, 2010.
7. [Assessment of Facial and Ocular Deposition of Nebulized Aerosol Using a Color Based Method](#). Vipra Kundoor and Richard N. Dalby. Drug Development and Industrial Pharmacy, Pages 1-5, June 2010. PMID: 20545511.
8. [Demonstrating Bioequivalence of Locally Acting Orally Inhaled Drug Products \(OIPs\)](#): Workshop Summary Report, Cosponsored by Product Quality Research Institute (PQRI) and Inhalation and Nasal Technology Focus Group (INTFG). Wallace P. Adams, Richard C. Ahrens, Mei-Ling Chen, David Christopher, Badrul A. Chowdhury, Dale P. Conner, Richard Dalby, Kevin Fitzgerald, Leslie Hendeles, Anthony J. Hickey, Günther Hochhaus, Beth L. Laube, Paul Lucas, Sau L. Lee, Svetlana Lyapustina, Bing Li, Dennis O'Connor, Neil Parikh, David A. Parkins, Prasad Peri, Gary R. Pitcairn, Michael Riebe, Partha Roy, Tushar Shah, Gur Jai Pal Singh, Sandra Suarez Sharp, Julie D. Suman, Marjolein Weda, Janet Woodcock and Lawrence Yu. J. Aerosol Medicine and Pulmonary Drug Delivery. Volume 23, Number 1, pp. 1–29, 2010.
9. [Assessment of Nasal Spray Deposition Pattern In A Silicone Human Nose Model Using A Color Based Method](#). Vipra Kundoor and Richard Dalby. Pharmaceutical Research, Volume 27, Number 1, Pages 30-36. January, 2010. DOI: 10.1007/s11095-009-0002-4.
10. [Effect of Flexible Dip-tubes and Shaking on Spray Weight Consistency in Nasal Sprays](#). Diane Doughty, Lei Li and Richard N. Dalby. J. Aerosol Medicine and Pulmonary Drug Delivery, Volume 23, Number 2, pages 69-75, 2010.
11. [Phospholipid Induced In Vivo Particle Migration to Enhance Pulmonary Deposition](#). Sudipta Ganguly, Vikas Moolchandani, Natalie Eddington, Joseph Roche, Paul S. Shapiro, Shailaja Somaraju and Richard N. Dalby. J. Aerosol Medicine and Pulmonary Drug Delivery, Vol. 21, No. 4: 343-350, Dec 2008.

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12. [Phase I Clinical Trial of Repeat Dose Terameprocol Vaginal Ointment in Healthy Female Volunteers](#). Niharika Khanna, Richard Dalby, Alyson Connor, Ann Church, Jennifer Stern and Neil Frazer. Sexually Transmitted Diseases. 35(6):577-582, 2008.
13. [Phase I/II Clinical Safety Studies of Terameprocol Vaginal Ointment](#). Niharika Khanna, Richard Dalby, Ming Tan, Stephanie Arnold, Jennifer Sternand & Neil Frazer. Gynecologic Oncology, Volume 107, Issue 3, 554-562, 2007.
14. The Analysis and Prediction of Functional Robustness of Inhaler Devices. Pallavi Nithyanandan, Stephen W. Hoag and Richard N. Dalby. Journal of Aerosol Medicine, 20 (1), 19-37, 2007.
15. Validity of In Vitro Tests on Aqueous Spray Pumps as Surrogates for Nasal Deposition, Absorption and Biologic Response. Julie D. Suman, Beth L. Laube and Richard Dalby, J. Aerosol Medicine, 19 (4), 510-521, 2006.
16. Positive Expiratory Pressure Changes Aerosol Distribution in Patients with Cystic Fibrosis. Beth L. Laube, David E. Geller, Ta-Chun Lin, Richard N. Dalby, Marie Diener-West and Pamela L. Zeitlin. Respiratory Care, 50 (11), 1438-1444, November 2005.
17. [The Effect of Formulation Variables and Breathing Patterns on the Site of Nasal Deposition in an Anatomically Correct Model](#). Yang Guo, Beth Laube and Richard Dalby. Pharmaceutical Research 22 (11), 1871-1878, November 2005.
18. Who Nose, Richard Dalby, Yang Guo and Julie Suman. European Pharmaceutical Review, 10 (1), 96-100, 2005.
19. [A Review of the Development of Respimat® Soft Mist Inhaler](#). Dalby, R, Spallek, M and Voshaar, T. International Journal of Pharmaceutics, Volume 283, Issues 1-2 , 1-9, 2004.
20. Drug Delivery to the Nasal Cavity: In Vitro And In Vivo Assessment. Stephen P. Newman, Gary R Pitcairn and Richard N. Dalby. Critical Reviews in Therapeutic Drug Carrier Systems, 21 (1), 21-66, 2004.
21. [Inhalation Therapy: Technical Milestones in Asthma Treatment](#), Richard Dalby and Julie Suman. Advanced Drug Delivery Reviews, 55 (7), 779-791, 2003.
22. Pulmonary Drug Delivery - What's Next, Richard Dalby. European Pharmaceutical Review, 2, 70-73, June 2003
23. Allergen Challenge and Deposition of Nedocromil Sodium in Asthma, B.L. Laube, T. Lin, A. Valleteau, R.N. Dalby, F.B. Diemer and A.G. Togias. Journal of Aerosol Medicine, 15(4), 415-426, 2002.
24. Predicting the Quality of Powders for Inhalation from Surface Energy, David P. Cline and Richard N. Dalby. Pharmaceutical Research, 9 (19), September 2002.
25. [Novel system to investigate the Effects Of Inhaled Volume And Rates Of Rise In Simulated Inspiratory Air Flow On Fine Particle Output From A Dry Powder Inhaler \(DPI\)](#). Varsha Chavan and Richard Dalby. AAPS PharmSci; 4 (2) article 6 (2002).
26. Relevance of In Vitro Tests of Nasal Solutions to Predict In Vivo Deposition., J.D. Suman, B.L. Laube, T. Lin, G. Brouet, and R. Dalby. Pharmaceutical Research, 19 (1) : 1-6 (2002).
27. [Targeting Aerosol Deposition In Patients With Cystic Fibrosis: Effects Of Alterations In Particle Size And Inspiratory Flow Rate](#), Beth L. Laube, Rajkumari Jashnani, Richard N. Dalby and Pamela Zeitlin. Chest ;118:1069 -1076 (2000).
28. [Effect Of Rise In Simulated Inspiratory Flow Rate And Carrier Particle Size On Powder Emptying From Dry Powder Inhalers](#), Varsha Chavan and Richard Dalby, American Association Of Pharmaceutical Scientists, AAPS PharmSci; 2 (2) article 10 (2000).
29. Inhaled ATP Causes Mucin Release From Goblet Cell Of Intact Rat, Chan Young Shim, K. Chul Kim, Mi-Jeong Jo, Kyu Hwan Park, Richard Dalby and Kwang Ho Ko. Journal of Experimental Lung Research, 26: 1-11 (2000).
30. Nasal Nebulizers Versus Nasal Spray Pumps: An Investigation Of Deposition And Mucociliary Clearance. Julie Suman, Beth L. Laube and Richard N. Dalby. Pharmaceutical Research, 16 (10): 1648-1652 (1999).
31. The Efficacy Of Slow Vs. Faster Inhalation Of Cromolyn Sodium In Protecting Against Allergen Challenge In Patients With Asthma, Beth L. Laube, Alan M. Edwards, Richard N. Dalby, Peter Creticos and Philip Norman. J. Allergy and Clinical Immunology, 101 (4) Part 1, 475-483 (1998).

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32. Evaluation Of Aerosol Drug Output From The Optichamber Spacer : Comparison To The Aerochamber In A Model System, Richard N. Dalby, Shailaja Somaraju, Varsha Chavan and Dayna Jarvis. *Journal of Asthma*, 35(2), 173-177 (1998).
33. Predicting In Vivo Lung Deposition Of Cromolyn Sodium From In Vitro Estimates, Beth L. Laube, Rajkumari Jashnani and Richard N. Dalby. *J. Aerosol Medicine*, 11 (Supplement 1), 35-42 (1998). Also presented at the international Society for Aerosols in Medicine Focus Symposium, Towards meaningful laboratory tests for evaluation of pharmaceutical aerosols, San Juan, PR, January, 1997.
34. Liquefied Propellant Density - Measurement And Utility, Shailaja Somaraju, Richard N. Dalby and Michael Pierpont. *Pharmaceutical Technology*, 21(10) (1997).
35. Semi-Automated Spray Pattern Testing Of Nasal Sprays, Shailaja Somaraju, Julie Suman, Richard Dalby and Walter Stridick. *Pharmaceutical Technology*, 21(5), 58-64 (1997).
36. Comparison Of A Respiratory Suspension Aerosolized By An Air Jet And Ultrasonic Nebulizer, Susan L. Tiano and Richard N. Dalby. *Pharmaceutical Development and Technology*, 1 (3), 261-268 (1996).
37. Testing Of Dry Powder Aerosol Formulations In Different Environmental Conditions, Rajkumari N. Jashnani, Peter R. Byron and Richard N. Dalby. *International Journal of Pharmaceutics*, 113, 123-130 (1994).
38. Pitfalls And Opportunities In The Inertial Sizing And Output Testing Of Nebulizers, Richard N. Dalby and Susan L. Tiano. *Pharmaceutical Technology*, 17 (9), 144-156 (1993).
39. Preparation, Characterization, And Dissolution Kinetics Of Two Novel Albuterol Salts; Rajkumari N. Jashnani, Peter R. Byron and Richard N. Dalby. *Journal of Pharmaceutical Science*, 82 (6), 613-616 (1993).
40. Validation Of An Improved Rotating Disk Dissolution Apparatus; Rajkumari N. Jashnani, Peter R. Byron and Richard N. Dalby. *Journal of Pharmaceutical Science*, 82 (6), 670-671 (1993).
41. Axial Ratio Measurement For Early Detection Of Crystal Growth In Suspension Type Metered Dose Inhalers; Elaine M. Phillips, Peter R. Byron and Richard N. Dalby. *Pharmaceutical Research*, 10 (3), 454-456 (1993).
42. Droplet Drying And Electrostatic Collection - A Novel Alternative To Conventional Comminution Techniques; Richard N. Dalby, Venkatesh Naini and Peter R. Byron. *Journal of Biopharmaceutical Sciences*, 3(1), 91-99 (1992).
43. Safety Assessment Of MDIs Containing Flammable Propellants; Richard N. Dalby. *Journal of Biopharmaceutical Sciences*, 3 (1), 49-57 (1992).
44. Prediction And Assessment Of Flammability Hazards Associated With Metered Dose Inhalers Containing Flammable Propellants; Richard N. Dalby. *Pharmaceutical Research*, 9 (5), 636-642 (1992).
45. Metered Dose Inhalers Containing Flammable Propellants: -Perspectives And Some Safety Evaluation Procedures; Richard N. Dalby and Peter R. Byron. *Pharmaceutical Technology*, 15 (10), 54-66 (1991).
46. Determination Of Drug Solubility In Aerosol Propellants; Richard N. Dalby, Elaine M. Phillips and Peter R. Byron. *Pharmaceutical Research*, 8(9), 1206-1209 (1991).
47. Possible Replacements For CFC-Propelled Metered-Dose Inhalers; Richard N. Dalby. *Medical Device Technology*, 21-25 (1991).
48. Special Considerations In The Formulation Of Suspension Type Metered Dose Inhalers; Richard N. Dalby. *Aerosol Age*, 22-89 (1990).
49. CFC Propellant Substitution: P-134a As A Potential Replacement For P-12 In MDIs; Richard N. Dalby, Peter R. Byron, H.R. Shepherd and Elaine Papadopoulos. *Pharmaceutical Technology*, 14,(3), 26-33 (1990).
50. Optimized Inhalation Aerosols. I. The Effect Of Spherical Baffle Size And Position Upon The Output Of Several Pressurized Nonaqueous Suspension Formulations; Peter R. Byron, Richard N. Dalby and Anthony J. Hickey. *Pharmaceutical Research*, 6 (3), 225-229 (1989).

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51. Effects Of Surfactants On Aerosol Powders In Suspension. Implications For Airborne Particle Size; Anthony J. Hickey, Richard N. Dalby and Peter R. Byron. International Journal of Pharmaceutics, 4, 267-270 (1988).
52. Comparison Of The Output Particle Size Distributions From Pressurized Aerosols Formulated As Solutions Or Suspensions, Richard N. Dalby and Peter R. Byron. Pharmaceutical Research, 5 (1), 36-39, January (1988).
53. Effects Of Heat Treatment On The Permeability Of Polyvinylalcohol Films To A Hydrophilic Solute; Peter R. Byron and Richard N. Dalby. Journal of Pharmaceutical Sciences, 76 (1), 65-67 (1987).

Miscellaneous (Unreviewed) Papers

1. Sparking Innovation in Drug Delivery. Richard N. Dalby. [The Medicine Maker](#) (Accepted, November 2015).
2. The Respiratory Drug Delivery (RDD[®]) Conferences. Richard Dalby and Pierre Carlotti. [Inhalation](#), 9(5), pages 6-8, October 2015.
3. [In vitro Bioequivalence Testing of Nasal Sprays](#), Diane V. Doughty, Vipra Kundoor, Feiyan Jin, Wenchi Hsu and Richard Dalby, [Inhalation](#), 3(1) 22-26, 2009.
4. How to Participate in Respiratory Drug Delivery Meetings, Richard N. Dalby, Joanne Peart and Peter R. Byron. [Inhalation](#), October 2007.
5. Letter to the Editor. J. Aerosol Med. Concerning "Validity of In Vitro Tests on Aqueous Spray Pumps as Surrogates for Nasal Deposition, Absorption and Biologic Response. Julie D. Suman, Beth L. Laube and Richard Dalby, J. Aerosol Medicine, 19 (4), 510-521, 2006.
6. Meeting Report. The Annual Respiratory Drug Delivery[®] Symposium, Richard Dalby. Touch Briefings, June 2007.
7. Meeting Report. Respiratory Drug Delivery Europe 2007. Peter R. Byron, Richard N. Dalby and Joanne Peart. Expert Reviews In Respiratory Medicine, 1(1), 2007.

Abstracts

1. Creating a Comprehensive Exam to Prepare Students for the PCOA. Andrew Coop, Lisa Lebovitz, Shannon R. Tucker, George Anagnostou, Christopher Klimas and Richard N. Dalby. AACP Annual Meeting, Anaheim, CA, (July 2016).
2. Potentially Bioactive or Toxic Metals in E-cigarette Materials of Construction. Sarah L. J. Michel, Maureen A. Kane, Abraham Schneider, Thao Vo, Geoffrey Shimberg and Richard N. Dalby. In Respiratory Drug Delivery 2016, Richard N. Dalby, Peter R. Byron, Joanne Peart, Julie Suman, Paul Young and Daniela Traini, Editors, Book 3, ISBN 1-933722-96-7, p583-586; Davis Healthcare International Publishing, River Grove, Illinois (April 2016).
3. Plume Geometry Evaluation of Solution-type Metered Dose Inhalers Formulated Using Effervescent Aerosol Technology. Mukul S. Kelkar and Richard N. Dalby. In Respiratory Drug Delivery 2016, Richard N. Dalby, Peter R. Byron, Joanne Peart, Julie Suman, Paul Young and Daniela Traini, Editors, Book 3, ISBN 1-933722-96-7, p579-582; Davis Healthcare International Publishing, River Grove, Illinois (April 2016).
4. [Pharmacy Curriculum Outcomes Assessment \(PCOA\). Love it or Hate it, It's Required!](#) Richard Dalby, Lisa Lebovitz, Shannon Tucker, Cherokee Layson Wolf, Andrew Coop, Joey Mattingly and Nicki Brandt. AACP Annual Meeting, National Harbor, DC (July 2015).
5. [How PharmD Students Perceive and Reflect on Direct and Sometimes Uncomfortable Conversations About Professionalism](#). Cherokee Layson-Wolf and Richard Dalby. AACP Annual Meeting, National Harbor, DC (July 2015).
6. Physics for Pre-pharmacy: Is a Spirometer Faster than a Racecar? Alexander Wong, Richard Dalby and Kathleen J Pincus. American Association of Physics Teachers (AAPT), College Park, Maryland (July 2015).
7. Formulation of Suspension-type Pressurized Metered Dose Inhalers Using Effervescent Aerosol Technology. Mukul S. Kelkar and Richard N. Dalby. In Respiratory Drug Delivery Europe 2015, Richard N. Dalby, Peter R. Byron, Joanne Peart, Julie Suman, Paul Young and Daniela Traini,

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