

## Curriculum Vitae

**Maureen D. Donovan, Ph.D.**

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**Education:** University of Minnesota College of Pharmacy  
Minneapolis, Minnesota  
Bachelor of Science in Pharmacy, 1983

University of Michigan College of Pharmacy  
Horace H. Rackham School of Graduate Studies  
Ann Arbor, Michigan  
Ph.D. (Pharmaceutics), 1989

### PROFESSIONAL EXPERIENCE

*2008-present*     **Professor**  
Department of Pharmaceutical Sciences and Experimental Therapeutics  
University of Iowa College of Pharmacy  
Iowa City, IA

2016-2018     Department of Health and Human Physiology  
College of Liberal Arts and Sciences  
University of Iowa (2019-2020)

*2013-2019*     **Associate Dean for Undergraduate Education**  
College of Pharmacy  
University of Iowa  
Iowa City, IA

*2008-2013*     **Division Head**  
Division of Pharmaceutics and Translational Therapeutics  
University of Iowa College of Pharmacy  
Iowa City, IA

*1996-2008*     **Associate Professor**  
University of Iowa College of Pharmacy  
Division of Pharmaceutics  
Iowa City, IA

*1989-1996*     **Assistant Professor**  
University of Iowa College of Pharmacy  
Division of Pharmaceutics  
Iowa City, IA

1991            **Visiting Scholar**  
SmithKline Beecham Pharmaceuticals  
King of Prussia, PA

1986-88        **Staff Pharmacist**  
Clark Professional Pharmacy  
Ypsilanti, MI

#### **ADDITIONAL POSITIONS AND MEMBERSHIPS**

2011-2020     Honorary Visiting Professor, Tongji School of Pharmacy, Tongji Medical  
University, Wuhan, China

2010-present    Member, Environmental Health Sciences Research Center, University of Iowa

2009-10        Member, Nanoscience and Nanotechnology Institute at the University of Iowa.

#### **PUBLICATIONS**

##### Thesis

Donovan, Maureen D. The Molecular Weight Permeability Dependence of the Absorption of Polyethylene Glycols in the Nasal and Gastrointestinal Mucosa and Its Correlation to Size Dependent Diffusion. Ph.D. Thesis, The University of Michigan, 1989.

##### Publications

1. Miller SC and Donovan MD. Effect of Poloxamer Gels on the Miotic Activity of Pilocarpine Nitrate in Rabbits. *Int. J. Pharm.* 12, 147-152, 1982.
2. Donovan MD, Flynn GL, Amidon GL. The Molecular Weight Dependence of Nasal Absorption: The Effect of Absorption Enhancers. *Pharm. Res.* 7, 808-815, 1990. PMID 2235878. doi:10.1023/a:1015904730599.
3. Donovan MD, Flynn GL, Amidon GL. Absorption of Polyethylene Glycols 600 through 2000: The Molecular Weight Dependence of Gastrointestinal and Nasal Absorption. *Pharm. Res.* 7, 863-868, 1990. PMID 2235883. doi: 10.1023/a:1015921101465.
4. Donovan MD and Zhou M. Drug Effects on *In Vivo* Nasal Clearance in Rats. *Int. J. Pharm.* 116, 77-86, 1995.
5. Chung FY and Donovan MD. Pre-systemic Bradykinin Metabolism in Rat and Sheep Nasal Homogenates. *J. Pharm. Sci.* 84, 794-798, 1995. PMID: 7562426. doi:10.1002/jps.2600840703.
6. Chung FY and Donovan MD. Bradykinin Metabolism in Rat and Sheep Nasal Secretions. *J. Pharm. Sci.* 84, 829-834, 1995. PMID: 7562432. doi: 10.1002/jps.2600840709.
7. Bhat PG, Flanagan DR, Donovan MD. The Limiting Role of Mucus in Drug Absorption: Drug Permeation through Mucus Solution. *Int. J. Pharm.* 126, 179-187, 1995.
8. Huang Y and Donovan MD. Microsphere Transport Pathways in the Rabbit Nasal Mucosa. *Int. J. Pharm. Adv.* 1, 298-309, 1996.
9. Chung FY and Donovan MD. Nasal Pre-systemic Metabolism of Peptide Drugs: Substance P Metabolism in the Sheep Nasal Cavity. *Int. J. Pharm.* 128, 229-237, 1996.

10. Zhou M and Donovan MD. Recovery of the Nasal Epithelium following Laureth-9 Induced Damage. *Int. J. Pharm.* 130, 93-102, 1996.
11. Bhat PG, Flanagan DR, Donovan MD. Drug Diffusion through Cystic Fibrotic Mucus: Steady-State Permeation, Rheologic Properties, and Glycoprotein Morphology. *J. Pharm. Sci.* 85, 624-630, 1996. PMID: 8773960. doi: 10.1021/js950381s.
12. Bhat PG, Flanagan DR, Donovan MD. Drug Binding to Gastric Mucus Glycoproteins. *Int. J. Pharm.* 134, 15-25, 1996.
13. Zhou M and Donovan MD. Intranasal Mucociliary Clearance of Bioadhesive Polymer Gels. *Int. J. Pharm.* 135, 115-125, 1996.
14. Nardviriyakul N, Wurster DE, Donovan MD. Determination of Diffusion Coefficients of Sodium p-Aminosalicylate in Sheep Nasal Membranes and Dialysis Membranes by Fourier Transform Infrared Horizontal Attenuated Total Reflectance Spectroscopy. *J. Pharm. Sci.* 86, 19-25, 1997. PMID: 9002454. doi: 10.1021/js960314d.
15. Chou K-J and Donovan MD. Distribution of Antihistamines into the CSF following Intranasal Delivery. *Biopharm. Drug Disp.* 18, 335-346, 1997. PMID: 9158881. doi: 10.1002/(sici)1099-081x(199705)18:4<335::aid-bdd22>3.0.co;2-w.
16. Donovan MD and Huang Y. Large Molecule and Particulate Uptake in the Nasal Cavity: The Effect of Size on Nasal Absorption. *Adv. Drug Deliv. Rev.* 29, 147-155, 1998. PMID: 10837585. doi: 10.1016/s0169-409x(97)00066-5.
17. Chou K-J and Donovan MD. Distribution of Local Anesthetics into the CNS following Intranasal Administration. *Int. J. Pharm.* 168, 137-145, 1998.
18. Chou K-J and Donovan MD. Lidocaine Distribution into the CNS following Nasal and Arterial Delivery: A Comparison of Local Sampling and Microdialysis Techniques. *Int. J. Pharm.* 171, 53-61, 1998.
19. Khanvilkar K, Donovan MD, Flanagan DR. Drug Transfer through Mucus. *Adv. Drug Deliv. Rev.* 48, 173-193, 2001. PMID: 11369081. doi: 10.1016/s0169-409x(01)00115-6.
20. Donovan MD Sex and Racial Differences in Pharmacologic Response: Effect of Route of Administration and Drug Delivery System on Pharmacokinetics. *J. Womens Health* 14(1), 30-37, 2005. PMID: 15692275. doi: 10.1089/jwh.2005.14.30.
21. Kandimalla K. and Donovan M.D. Carrier Mediated Transport of Chlorpheniramine and Chlorcyclizine across Bovine Olfactory Mucosa: Implications on Nose-to-Brain Transport. *J. Pharm. Sci.* 94, 613-624, 2005. PMID: 15666293. doi: 10.1002/jps.20284.
22. Sinn PL, McCray PB, Donovan MD, Shah AJ. Viscoelastic Gel Formulations Enhance Airway Epithelial Gene Transfer with Viral Vectors. *Am. J. Resp. Cell. Mol. Biol.* 32, 404-410, 2005. PMID: 15695737. doi: 10.1165/rcmb.2004-0410OC.
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24. Kandimalla K. and Donovan M.D. Localization and Differential Activity of P-glycoprotein in the Bovine Olfactory and Nasal Respiratory Mucosae. *Pharm. Res.* 22, 1121-1128, 2005.. PMID:16028013. doi:[10.1007/s11095-005-5420-3](https://doi.org/10.1007/s11095-005-5420-3).

25. Kandimalla K. and Donovan M.D. Transport of Hydroxyzine and Triprolidine Across Bovine Olfactory Mucosa: Role of Passive Diffusion in the Direct Nose-to-Brain Uptake of Small Molecules. *Int.J. Pharm.* 302, 133-144, 2005. PMID: 16105724. doi: 10.1016/j.ijpharm.2005.06.012.
26. Chemuturi NV and Donovan MD. Metabolism of Dopamine Hydrochloride by the Nasal Mucosa. *J. Pharm. Sci.* 95, 2507-2515, 2006. PMID: 16917843. doi:10.1002/jps.20724.
27. Chemuturi NV, Haraldsson JE, Prisinzano TP, and Donovan MD. Role of Dopamine Transporter (DAT) in Dopamine Transport Across the Nasal Mucosa. *Life Sci.* 79, 1391-1398, 2006. PMID:16733058. doi: 10.1016/j.lfs.2006.04.021.
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29. Shah AJ and Donovan MD. Rheological Characterization of Bioadhesive Polysaccharide Polymers with Reduced Mucociliary Clearance for Intranasal Delivery. *AAPS PharmSciTech*, 8(2): E40-E47, 2007. doi: 10.1208/pt0802032
30. Shah AJ and Donovan MD. Formulating Gels for Decreased Mucociliary Transport Using Rheologic Properties: Polyacrylic Acids. *AAPS PharmSciTech*, E48-E53, 2007. doi: 10.1208/pt0802033
31. Foo M-Y, Cheng Y-S, Su W-C, and Donovan MD. The Influence of Spray Geometry on Intranasal Deposition and Distribution. *J. Aerosol Med.* 20 (4), 495-508, 2007. PMID:31809854. doi: 10.1089/jam.2007.0638.
32. Chemuturi NV and Donovan MD. The Role of Organic Cation Transporters in Dopamine Transport Across Olfactory and Nasal Respiratory Tissues. *Mol. Pharmaceutics.* 4(6), 936-942, 2007. PMID: 17892261. doi:10.1021/mp070032u.
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40. Xu J, Li G, Wang Z, Si L, Huang J, Donovan MD. The Role of L-type Amino Acid Transporters in the Uptake of Glyphosate across Mammalian Epithelial Tissues. *Chemosphere.* 145, 487-494, 2016. PMID: 26701683. doi: 10.1016/j.chemosphere.2015.11.062.
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43. Ponto LLB, Huang J, Walsh S, Acevedo MR, Mundt C, Sunderland J, Donovan MD. Demonstration of Nucleoside Transporter Activity in the Nose-to-Brain Distribution of [<sup>18</sup>F]fluorothymidine Using PET Imaging. *AAPS J.* 20(1):16, 2017. PMID: 29218445. PMCID: PMC5814119. doi: 10.1208/s12248-017-0158-5.
44. Sawant N and Donovan MD. In Vitro Assessment of Spray Deposition Patterns in a Pediatric (12 Year-Old) Nasal Cavity Model. *Pharm. Res.* 35, Article 108, 2018. PMID: [29582159](#). doi: 10.1007/s11095-018-2385-6.
45. Awasthi R, An Guohua, Donovan MD, Ponto LB. Relating Observed Psychoactive Effects to the Plasma Concentration of  $\Delta^9$ -tetrahydrocannabinol (THC) and Active Metabolite: An Effect-Compartment Modeling Approach. *J. Pharm. Sci.* 107, 745-755, 2018. PMID: [28942005](#). doi: 10.1016/j.xphs.2017.09.009.
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48. Meruva S and Donovan MD. Effects of Drug-Polymer Interactions on Tablet Properties During the Development of Abuse-Deterrent Dosage Forms. *AAPS PharmSciTech*, Jan 28, 20(3):93, 2019. PMID 30690657. doi: 10.1208/s12249-018-1221-y.
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50. Meruva S, Rezaei L, Thool P, Donovan MD. Use of Drug Release Testing to Evaluate the Retention of Abuse-Deterrent Properties of Polyethylene Oxide Matrix Tablets. *AAPS PharmSciTech.* Oct 6;21(7):270, 2020. PMID: 33025237. doi: 10.1208/s12249-020-01804-y.

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