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Education:

1999-2004: Post-Doc., Pharmaceutics, University of North Carolina at Chapel Hill

1995-1999: Ph.D., Pharmaceutics, University of Georgia

1993-1995: Order to M.S., Pharmaceutics, University of Georgia

1985-1990: B.S. (Honors), Pharmacy, Universidad Nacional Autónoma de México (UNAM)

Academic Appointments:

1990-1993: Professor, Departments of Pharmaceutics and Analytical Chemistry FES Cuautitlán, Universidad Nacional Autónoma de México

1992-1992: Quality Control Chemist, Lakeside Pharmaceuticals, México (A Division of Boehringer Mannheim, Inc.)

1992-1993: Quality Control/Quality Assurance Chemist, Bristol Myers Squibb, México

1994-1999: Graduate Teaching Assistant, Department of Pharmaceutical and Biomedical Sciences, College of Pharmacy, University of Georgia

1996-1999: Laboratory Safety Officer, Department of Pharmaceutical and Biomedical Sciences College of Pharmacy, University of Georgia

1999-2004: Post-Doctoral Research Associate, Division of Drug Delivery and Disposition, University of North Carolina, School of Pharmacy

2004-2008: Research Assistant Professor, Division of Drug Delivery and Disposition, University of North Carolina, School of Pharmacy

2008-2010: Research Associate Professor, Division of Molecular Pharmaceutics, University of North Carolina, School of Pharmacy

2011-2017: Assistant Professor, Department of Pharmaceutical Sciences, University of Oklahoma Health Sciences Center

2017-present: Associate Professor, Department of Pharmaceutical Sciences, University of Oklahoma Health Sciences Center

Awards and Honors

1986: Third place GPA in College of Pharmacy, FES Cuautitlán UNAM, México

1990/1989/1988: First place GPA in College of Pharmacy, FES Cuautitlán UNAM, Mexico

1991: Diario de México Medal (Given to the best students in México)

1991: Gabino Barreda Medal - UNAM Given to the student with the highest GPA of the class of 1990 Pharmacists. FES Cuautitlán UNAM, México

1993-1999: FULBRIGHT-CONACYT scholarship recipient

1997: Best poster presentation, 2nd session "Effect of Food on the Chronokinetics of Ampicillin" Graduate Research Association of Students in Pharmaceutics meeting, University of Florida
1994-1999: Graduate Assistantship recipient, University of Georgia

Other Experience and Professional Memberships:

2003-2010: School of Pharmacy representative, Network of Laboratory Animal Coordinators UNC-CH (Division of Laboratory Animal Medicine and the Institutional Animal Care and Use Committee)

2004-2010: Faculty advisor for the AAPS Graduate Student Chapter at UNC-CH School of Pharmacy

2004-2010: Organizer of the Discussion Group "TBDUNC". A monthly seminar series for a diverse group of investigators in the NC Research Triangle area who study aspects of TB disease spanning basic science to clinical research

1995- present: Member of the American Association of Pharmaceutical Scientists (AAPS)

2003- present: Member of the International Society for Aerosols in Medicine (ISAM)

1999- present: Scientific Reviewer for: Journal of Aerosols in Medicine, Journal of Pharmaceutical Sciences, AAPS PharmSci Tech, AAPS Journal, Biopharmaceutics and Drug Disposition, Journal of Gene Medicine, International Journal of Tuberculosis and Lung Disease, Journal of Antimicrobial Agents, Drug Development and Industrial Pharmacy, European Journal of Pharmaceutics and Biopharmaceutics

Research Support:

Current:

- 07/01/2019-06/30/2021: "Preclinical Assessment of OHet72 as a new drug in the armamentarium against TB and MDR-TB"
- 08/15/2018-08/14/2020: "Inhaled Delivery of Clofazimine (CFZ) – A high efficiency, flow independent, targeted, low cost DPI". P.I. John Koleng
- 06/15/2017-06/14/2020: "Preclinical PREVENT Cancer Program: Preclinical Efficacy and Intermediate Endpoint Biomarkers: "Prevention of Endometrial Hyperplasia and its Transition to Endometrial Cancer with SHetA2" P.I. C.V Rao, Co-P.I. Doris Benbrook
- 06/01/16-05/31/21: "Targeting HPV Consequences in a Cervical Cancer Clinical Trial". MPI's: Benbrook, Coleman, Frumovitz

Past:

- 2013-2014: SBIR to Pulmokine, Inc. Subcontract, HHSN272201300015C, "An Inhaled Dry Powder Formulation for the Treatment of Multi-Drug Resistant Tuberculosis", P.I. Lawrence Zisman, Awarded: \$76,933
- 2011-2014: RTI International, Subcontract, 1R01 AI091882-01, "Inhaled Caprazamycin for Tuberculosis Therapy". P.I. Anthony J. Hickey, Awarded: \$347,309
- 2011-2014: Duke University, Subcontract, 1U01 AI082107-01, "Development of Cationic Peptide Adjuvants and Formulations for Biodefense Vaccine", P.I. Herman Staats, Awarded: \$418,483

Selected Publications:

1. M.K. Hatipoglu**, S.Mahjabeen* and L. Garcia Contreras. "Development and Validation of a reverse phase HPLC method for SHetA2 in gynecological tissues". *J Pharm Biomed Anal.* 2019; 170 (4): 124-131.
2. M. Ibrahim*, S.M. Hatipoglu* and **L. Garcia Contreras**. "Cryogenic Fabrication of Dry Powders to Enhance the Solubility of a Promising Anticancer Drug, SHetA2, for Oral Administration". *AAPS PharmSciTech.* 2019; 20(1): article 20. <https://doi.org/10.1208/s12249-018-1204-z>.
3. M.K. Hatipoglu, A.J. Hickey, **L. Garcia-Contreras**, "Pharmacokinetics and Pharmacodynamics of High Doses of Inhaled Dry Powder Drugs", *International Journal of Pharmaceutics* 2018; 549 (1-2): 306-316.
4. M. Ibrahim, M.K. Hatipoglu, and **L. Garcia-Contreras**. "SHetA2 Dry Powder Aerosols for Tuberculosis: Formulation, Design, and Optimization Using Quality by Design". *Mol. Pharmaceutics.* 2018; 15 (1): 300-313.
5. D.M. Benbrook, N.B. Janakiram, V. Chandra, G. Pathuri, V. Madka, N.C. Stratton, C.P. Masamha, C.N. Farnsworth, **L. Garcia-Contreras**, M.K. Hatipoglu, S. Lighfoot and C.V. Rao. "Development of a dietary formulation of the SHetA2 chemoprevention drug for mice". *Investigational New Drugs* 2018 Aug;36(4):561-570.

6. S. Mahjabeen, S.M. Hatipoglu, D.M. Benbrook, **L. Garcia-Contreras**. "Pharmacokinetics and Pharmacodynamics of Escalating Doses of SHetA2 after Vaginal Administration to Mice". *Journal of Pharmaceutical Sciences*. 2018; 107: 3179-3186.
7. S. Mahjabeen, S.M. Hatipoglu, D.M. Benbrook, S.D. Kosanke, D. Garcia-Contreras, **L. Garcia-Contreras**. "Influence of the estrus cycle of the mouse on the disposition of SHetA2 after vaginal administration". *European Journal of Pharmaceutics and Biopharmaceutics*. 2018; 130: 272-280.
8. S. Mahjabeen*, V. Chandra**, S.M. Hatipoglu**, D. Benbrook and **L. Garcia Contreras**. "Optimization of a Vaginal Suppository Formulation to Deliver SHetA2 as a Novel Treatment for Cervical Dysplasia". *Journal of Pharmaceutical Sciences*. 2018; 107(2): 638-646.
9. P.G. Durham, S.N. Hanif**, **L. Garcia Contreras**, E.F. Young, M. Braunstein, A.J. Hickey. "Disposable Dosators for Pulmonary Insufflation of Therapeutic Agents to Small Animals." *Journal of Visualized Experiments JoVE*. 2017 Mar 30;(121). doi: 10.3791/55356.
10. **Garcia Contreras, L.**, Padilla-Carlin, D.J. **, Sung, J. *, VerBerkmoes, J, Muttill, P. **, Elbert, K., Peloquin, C., Edwards, D. and Hickey, A.J. "Pharmacokinetics of Ethionamide Delivered in Spray Dried Microparticles to the Lungs of Guinea Pigs". *Journal of Pharmaceutical Sciences*. 2017; 106(1): 331-337.
11. **Garcia Contreras, L.**, Sung, J. *, Ibrahim, M. *, Elbert, K., Edwards, D. Hickey, A. "Pharmacokinetics of Inhaled Rifampicin Porous Particles for Tuberculosis Treatment: Insight into Rifampicin Absorption from the Lungs of Guinea Pigs." *Molecular Pharmaceutics* 2015; 12(8): 2642-50.
12. **Garcia-Contreras, L.**, and Yadav, K. ** "Inhaled Formulation Design for the Treatment of Lung Infections" *Current Pharmaceutical Design*. 2015. 21: 3875-3901.
13. Ibrahim, M. *, Verma, R. K. **, **Garcia-Contreras, L.** "Inhalation drug delivery devices: technology update." *Medical Devices: Evidence and Research*. 2015; 8(2), 131-139. [dx.doi.org/10.2147/MDER.S48888](https://doi.org/10.2147/MDER.S48888).
14. Hanif SNM**, Hickey AJ, **García-Contreras L.** "Liquid chromatographic determination of CPZEN-45, a novel anti-tubercular drug, in biological samples." *J Pharm Biomed Anal*. 2014; 88: 370-6.
15. Hanif, S.N.M. **, Hickey, A.J. and **Garcia-Contreras, L.** "Development of an HPLC method to determine CPZEN-45 in biological matrices." *J Aerosol Med Pulm Drug Deliv*, 2013; 26:A20-A21.
16. Hanif, S.N.M. **, Durham, P., Raghuvanshi, D. *, Hickey, A.J. and **Garcia-Contreras, L.** "Pharmacokinetics of CPZEN-45, a novel anti-tuberculosis drug in male guinea pigs." *J Aerosol Med Pulm Drug Deliv*, 2013; 26:A18-A18.
17. **García-Contreras L**, Muttill P**, Fallon JK**, Kabadi M, Gerity R, Hickey A.J. "Pharmacokinetics of sequential doses of capreomycin powder for inhalation in guinea pigs." *Antimicrob Agents Chemother* 2012; 56(5): 2612-2618.
18. Wang C*, **Garcia-Contreras L**, Muttill P**, Hickey AJ. "Isoxyl assays in plasma." *J Pharm Biomed Anal* 2012; 60: 1-6.
19. Muttill P**, Pulliam B, **García-Contreras L**, Fallon J**, Wang C*, Hickey AJ, Edwards DA. "Pulmonary immunization of guinea pigs with diphtheria CRM-197 antigen as nanoparticle Aggregate dry-powders enhance local and systemic Immune responses." *AAPS J*, 2010; 12(4): 699-707.
20. Muttill P**, Prego C, **García-Contreras L**, Pulliam B, Fallon J**, Wang C*, Hickey AJ, Edwards DA. "Immunization of guinea pigs with novel Hepatitis B antigen as nanoparticle aggregate powders administered by the pulmonary route." *AAPS J*, 2010; 12(3): 330-337.
21. Lu D*, **García-Contreras L**, Muttill P**, Padilla D*, Xu D, Liu J, Braunstein M, McMurray DN, Hickey AJ. "Pulmonary immunization using antigen 85-B polymeric microparticles to prevent tuberculosis." *AAPS J*, 2010; 12(3): 338-347.
22. **García-Contreras L**, Sung JC*, Muttill P**, Padilla D**, Telko M**, VerBerkmoes JL, Elbert KJ, Hickey AJ, Edwards DA. "Dry powder PA-824 aerosols for the treatment of tuberculosis in guinea pigs." *Antimicrob Agents Chemother* 2010; 54(4):1436-1442.
23. Sung JC*, Padilla DJ**, **García-Contreras L**, VerBerkmoes JL, Durbin D, Peloquin CA, Elbert KJ, Hickey AJ, Edwards DA. "Formulation and pharmacokinetics of self-assembled rifampicin nanoparticle systems for pulmonary delivery." *Pharm Res* 2009; 26(8): 1847-1855.
24. Sung JC*, **García-Contreras L**, VerBerkmoes JL, Peloquin CA, Elbert K, Hickey AJ, Edwards D. "Dry powder nitroimidazopyran antibiotic PA-824 aerosol for inhalation". *Antimicrob Agents Chemother* 2009; 53 (4): 1338-1343.
25. Wang C*, Muttill P**, Lu D*, Beltran-Torres AA, **García-Contreras L**, Hickey AJ. "Screening for potential adjuvants administered by the pulmonary route for tuberculosis vaccines." *AAPS J*, 2009; 11(1): 139-147.
26. **García-Contreras L**, Wong Y-L*, Muttill P**, Padilla D**, Sadoff J, DeRousse J, Germishuizen WA, Goonesekera S, Elbert K, Bloom BR, Miller R, Fourie B, Hickey AJ, Edwards D. "Immunization by a bacterial aerosol." *Proc Natl Acad Sci USA*. (PNAS) 2008; 105(12): 4656-4660.
27. Fiegel J**, **García-Contreras L**, Elbert K, Hawi A, Thomas M, VerBerkmoes J, Germishuizen WA, Fourie PB, Hickey AJ, Edwards D. "Preparation and *in vivo* evaluation of dry powder for inhalation of capreomycin." *Pharm Res* 2008; 25(4): 805-811.

28. **García-Contreras L**, Fiegel J**, Telko MJ*, Elbert K, Hawi A, Thomas M, VerBerkmoes J, Germishuizen WA, Fourie PB, Hickey AJ, Edwards D. "Inhaled capreomycin large porous particles for the treatment of tuberculosis in the guinea pig model." *Antimicrob Agents Chemotherapy* 2007; 51 (8): 2830-2836.
29. Lu D*, **García-Contreras L**, Xu D, Kurtz SL, Liu J, Braunstein M, McMurray DN, Hickey AJ. "Poly (lactide-co-glycolide) microspheres in respirable sizes enhance an in vitro T cell response to recombinant *Mycobacterium tuberculosis* antigen 85B." *Pharm Res* 2007; 24(10): 1834-1843.
30. **García-Contreras L**, Sethuraman V*, Kazantseva M, Hickey AJ. "Evaluation of dosing regimen of respirable rifampicin biodegradable microspheres doses in the treatment of tuberculosis in the guinea pig. *J Antimicrob Chemother* 2006; 58 (9): 980-986.
31. J. Fiegel, L. Garcia-Contreras, K. Elbert, A. Hawi, M. Thomas, J. VerBerkmoes, W.A. Germishuizen, P.B. Fourie, A.J. Hickey and D. Edwards. Targeted Delivery of Capreomycin to the Lungs for MDR-TB treatment". Pharmaceutical Research. Vol. 25, No. 4, pp. 805-811 (2008).
32. L. García-Contreras, K. Elbert, A. Hawi, M. Robinson, D.A. Edwards and A.J. Hickey. "Pharmacokinetics of aerosolized rifampicin large porous particles in the guinea pig". In: R.N. Dalby, P.R. Byron, J. Peart, J.D. Suman and S. Farr, editors. *Respiratory Drug Delivery X*. Vol. 3. Davis Healthcare International Publishing, LCC. River Grove, IL. 2006.
33. L. Garcia-Contreras, V. Sethuraman, M. Kazantseva and A.J. Hickey. "Evaluation of Dosing Regimen of Respirable Rifampicin Biodegradable Microspheres Doses in the Treatment of Tuberculosis in the Guinea Pig". *Journal of Antimicrobial Chemotherapy*. 58 (9):980-986 (2006).
34. L. García-Contreras, T. Morcol, S. Bell and A.J. Hickey. "Evaluation of Novel Particles as Pulmonary Delivery Systems for Insulin in Rats". *AAPS PharmSci*. 5 (2) Article 9: 84-94 (2003).
35. L. García-Contreras and A.J. Hickey. " Pharmacokinetics of aerosolized rifampicin in the guinea pig". In R.N. Dalby, P.R. Byron, J. Peart, S. Farr, editors. *Respiratory Drug Delivery VIII* Davis Horwood International Publishing, Ltd. Raleigh, NC. 2002.
36. L. García-Contreras, D. Sarubbi, E. Flanders, D. O'Toole, J. Smart, C. Newcomer and A.J. Hickey. "Immediate and short term cellular and biochemical responses to pulmonary single dose studies of insulin and a delivery agent." *Pharmaceutical Research*, 18 (12): 1685- 1693 (2001).
37. L. Garcia-Contreras J.C. Sung, P. Muttill, D. Padilla, M. Telko, J.L. VerBerkmoes, K.J. Elbert,A.J. Hickey, and D.A. Edwards. "Dry Powder PA-824 Aerosols for the Treatment of Tuberculosis in Guinea Pigs". *Antimicrobial Agents and Chemotherapy*, 54 (4): 1436-42, (2010).
38. P. Muttill, C. Prego, L. Garcia Contreras, B.Pulliam, J. Fallon, C.Wang, A.J. Hickey and D. A. Edwards "Immunization of guinea pigs with novel Hepatitis B antigen as nanoparticle aggregate powders administered by the pulmonary route" *The AAPS Journal*, Apr 24. [Epub ahead of print] (2010).
39. D.L. Lu, L. Garcia-Contreras, P. Muttill, D. Padilla, D. Xu, J. Liu, M. Braunstein, D.N. McMurray, A.J. Hickey. "Pulmonary Immunization using Antigen 85-B Polymeric Microparticles to Prevent Tuberculosis". *The AAPS Journal*, Apr 27. [Epub ahead of print] (2010).
40. J.C. Sung, L. Garcia-Contreras, J.L. VerBerkmoes, C.A. Peloquin, K. Elbert, A.J. Hickey, D. Edwards. "Dry powder nitroimidazopyran antibiotic PA-824 aerosol for inhalation". *Antimicrobial Agents and Chemotherapy*. 53 (4): 1338-1343 (2009).
41. C. Wang, P. Muttill, D. Lu, A.A. Beltran-Torres, L. Garcia-Contreras, A.J. Hickey. "Screening for potential adjuvants administered by the pulmonary route for tuberculosis vaccines". *AAPS Journal*. 11 (1): 139-147 (2009).
42. L. García-Contreras, Y-L. Wong, P. Muttill, D. Padilla, J. Sadoff, J. DeRousse, W.A. Germishuizen, S. Goonesekera, K. Elbert, B.R.Bloom, R. Miller, B. Fourie, A.J. Hickey, D. Edwards. "Immunization by a Bacterial Aerosol". *Proceedings of the National Academy of Sciences, USA*. (PNAS) 105 (12): 4656-4660 (2008).
43. L. Garcia-Contreras, Y-L. Wong, P. Muttill, DJ. Padilla-Carlin, J. DeRousse, S. Goonesekera, K. Elbert, BR. Bloom, AJ. Hickey, DA. Edwards. "A Novel Aerosol Vaccine against Tuberculosis". In: R.N. Dalby, P.R. Byron, J. Peart, J.D. Suman, S. Farr and P.M. Young, editors. *Respiratory Drug Delivery 2008*. Vol. 3. Davis Healthcare International Publishing, LCC. River Grove, IL. (2008).
44. L. Garcia-Contreras, J. Fiegel, M.J. Telko, K. Elbert, A. Hawi, M. Thomas, J. VerBerkmoes, W.A. Germishuizen, P.B. Fourie, A.J. Hickey and D. Edwards. "Inhaled Capreomycin Large Porous Particles For The Treatment Of Tuberculosis In The Guinea Pig Model". *Antimicrobial Agents and Chemotherapy*. 51 (8):2830-2836 (2007).
45. D. Lu, L. Garcia-Contreras, D. Xu, S.L. Kurtz, J. Liu, M. Braunstein, D.N. McMurray, A. J. Hickey "Poly (Lactide-co-Glycolide) Microspheres in Respirable Sizes Enhance an in vitro T Cell Response to Recombinant *Mycobacterium tuberculosis* Antigen 85B". *Pharmaceutical Research*. 24 (10): 1834-1843 (2007).
46. L. García-Contreras, D. Lu and A.J. Hickey. "Formulation Strategies for a novel inhaled tuberculosis vaccine". In: R.N. Dalby, P.R. Byron, J. Peart, J.D. Suman and S. Farr, editors. *Respiratory Drug Delivery X*. Vol. 3. Davis Healthcare International Publishing, LCC. River Grove, IL. 2006.
47. L. García-Contreras and H.D.C. Smyth. "Dry powder and liquid spray systems for inhaled delivery of peptides and proteins". *American Journal of Drug Delivery*. 3(1):29-45 (2005)