

Resume

Jeffrey A. Hughes, R.Ph., Pharm.D., Ph.D.
Professor

Citizen: U.S.A.

Department of Pharmaceutics

College of Pharmacy

JHMHC Box 100494

Gainesville, Florida 32610-0494

Tel: (352) 846-2725 Fax: (352) 392-4447

e-mail: hughes@cop.ufl.edu

Laboratory Web Page: http://www.cop.ufl.edu/departments/pc/hughes_index.htm

Home Address:

4521 NW 21st Drive

Gainesville, Florida 32605

Tel: (352) 335-5614

Mobile 352-219-6603

Education

University of Kentucky

University of Kentucky

University of Kentucky

University of North Carolina

Rudy Juliano, Ph.D.

National Institutes of Health

Edward H. Oldfield, M.D.

Universite' Louis Pasteur

Jean Paul Behr

B.S., Pharmacy

Pharm.D., Pharmacy

Ph.D., Pharmaceutical Sciences

Post-Doctoral Fellow,

Pharmacology

Research Fellowship

Neuroscience

Sabbatical

Licensure

Kentucky, Board of Pharmacy, License # 9812

Florida, Board of Pharmacy, License # PS 30245

Positions

1988-1992	College of Pharmacy University of Kentucky	Graduate Research Assistant
1992-1994	Department of Pharmacology University of North Carolina	Pharmaceutical Research Manufacture's Post- Doctoral Fellow
1994-1999	Department of Pharmaceutics University of Florida	Assistant Professor
1999- Present	Department of Pharmaceutics University of Florida	Associate Professor
2004-Present	Department of Pharmaceutics,	Professor
2000-Present	Co Director of the Center for the Neurobiology of Aging	
2003-Present	Graduate Student Coordinator	Department of Pharmaceutics

College and University Committees and Responsibilities

1995-Present	University of Florida College of Pharmacy	Finical Aid and Awards Committee
2000-2003	University of Florida	Institutional Animal Care & Use Committee
2001-2004	University of Florida College of Pharmacy	Tenure and Promotion Committee
2004-Present	University of Florida College of Pharmacy	Student Relationship Committee

Scholarships and Fellowships

1989-1991	Graduate Scholarship	EPSCoR Membrane Research Award University of Kentucky
1992-1994	Post-Doctoral Fellowship	Pharmaceutical Research Manufacture's Association, University of North Carolina at Chapel Hill

Honors and Awards

1992	PMA Post-Doctoral Fellowship
1999	American Association of Pharmaceutical Scientists New Investigator Award
2002	PhRMA Foundation Sabbatical Fellowship in Pharmaceutics
1996	Ad-hoc Reviewer for NIH (NIAMS) Gene Therapy Area
1996	Ad-hoc Reviewer for NIH (NCI) Drug Delivery in Cancer
1998-2004	Reviewer for NIH (NCI) Drug Delivery in Cancer
1998 & 1999	American Association of College of Pharmacy New Investigator's Grant Program
2001-2004	NIH Biochemistry Ad-Hoc Review Panel
2005	NIH Gene Therapy Ad-Hoc Review Panel
2006	NIH Nanoparticles Ad-Hoc

Membership and Professional Organizations

Member	American Association of Colleges of Pharmacy
Member	American Association of Pharmaceutical Scientists
Member	Rho Chi
Member	Phi Delta Chi
Member	Phi Lambda Sigma
Member	American Chemical Association
Member	Society of Neuroscience
Member	American Association for the Advancement of Science
Member	American Society of Gene Therapy
Member	Neuroscience

Professional Activities

1991-1992	Graduate Student Member of the Biotechnology Curriculum Reform Committee, American Association of Pharmaceutical Scientists
June 1994	Abstract Reviewer, American Association of Pharmaceutical Scientists
Nov. 1994	Session Moderator, American Association of Pharmaceutical Scientists Annual Meeting, "Tissue Culture Systems to Study Drug Absorption"
June 1996	Session Moderator, American Association of Pharmaceutical Scientists, Southeastern Meeting Biotechnology Symposium: "Advances in Gene Therapy: Formulation, Delivery, and Therapeutic Applications"
June 1997	Section Chair, Southeastern AAPS meeting, Biotechnology
April 1988	Poster Reviewer, American Association of Pharmaceutical Scientists, Annual Meeting

May 1998	Southeast, American Association of Pharmaceutical Scientists Chair-elect, Meeting Year 2000
November 1998	American Association of Pharmaceutical Scientist Session Chair, 1998 Annual Meeting, San Francisco
June 1999	American Society of Gene Therapy, 2 nd Annual meeting Session Coordinator, Non-viral gene delivery
Jan 1999-Dec 1999	American Association of Colleges of Pharmacy Faculty Delegate
Jan 1999-Dec 2000	American Association of Colleges of Pharmacy Secretary, Pharmaceutics Division
2002-2004	FMAU, External Board Members, MBRs
2002-2004	American Society of Gene Therapy Poster evaluation panel
2004-2006	American Association of Pharmaceutical Scientist: Graduate Student and Postdoctoral Education Committee.
2007-2110	American Society of Gene Therapy, Non-viral gene therapy systems board member

Editorial Boards:

1992-Present	Critical Reviews in Therapeutic Drug Carrier Systems
2003-2006	Journal of Drug Delivery (Assoc Editor)
2003-Present	Expert Opinions in Current Drug Delivery Systems
2002-Present	Drugs and the Pharmaceutical Sciences

Ad Hoc Journal Reviewer

International Journal of Pharmaceutics, Pharmaceutical Research, Biochemistry, Journal of Gene Therapy, Biomembranes, Journal of Pharmaceutical Sciences, Molecular Therapy, European Journal of Pharmaceutical Sciences, European Journal of Biochemistry. Journal of Pharmaceutical Education, Biochemistry, Bioconjugate Chemistry,

Teaching Experience

Professional Pharmacy students (lectures in physical pharmacy, biochemistry, molecular biology and pharmaceutical compounding)

Graduate Students (lectures in physical pharmacy, drug delivery, analytical methods, biotechnology, Alzheimer's Disease)

Students Supervised

Post-Doctoral Fellows: Preeti Ajmani, Karen Bech, Ke Wu, Chung Zhang, and Raj Rao

<i>Graduate Students:</i>	Name	Status	Current Employment
	Scott W. Poxon	graduated	Whitehall Robbins
	Earvin Liang	graduated	Emisphere
	Fuxing Tang	graduated	Forrest Labs
	Brett Houk	graduated	Pfizer
	Chancham Pattravadee	graduated	Faculty Thailand
	Wu Xiao	graduated	
	Yan Gong	graduated	Res. Asst Prof University of Florida
	Ke Ren	graduated	Post-Doc University of Florida
	Aaron Hirko	graduated	
	Preeti Yadava	graduated	

University of Florida Scholars Program

Student	Year	Current Status
David Buethe	2002	USF Medical School
Charqa Patel	2003	UF Medical School
Nick Teman	2003	USC Medical School
Alison Schwman	2004	UF IDS Program
Chetan Patel	2005	UF undergraduate
Aaron Fulchok	2005	UF undergraduate

Book Chapters

Hughes J, Astriab A, Yoo H, Alahari S, Liang E, Sergueev D, Ramsey Shaw, B, Juliano RL, “In vitro transport and delivery of antisense oligonucleotides” in “Methods in Enzymology: Antisense Technology Part A, General Methods, Methods of Delivery, and RNA Studies”, M. Ian Phillips ed. Academic Press San Diego, 342-358. 1999.

Hughes, J.A. and Schulman, S.G. “Fluorescence Spectroscopy”, Methods of Pharmaceutical Analysis, Marcel Dekker, New York, 2002

Sean Sullivan, Yan Gong** and Jeffrey Hughes, Cationic Liposomes in Gene Delivery in Liposomes a practical approach 2nd edition, edited by Volmar Weissing and Valadmir Torchillin.

Hughes, J.A., Avrutskaya, V., and Juliano, R.L., Ed. “Oligonucleotide Transport Across Membranes into Cells: Effects of Chemical Modifications.” Delivery Systems for Antisense Oligonucleotide Therapeutics. Oxford: CRC Press. pgs 191-198 (1995)

Juliano J.L, Hughes J.A., Avrutskaya A., Eds Lee V.H., Hashida M, and Mizushima Y. “Targeting: From Proteins to Genes”, Trends and future perspectives in Peptide and Protein Drug Delivery, Harwood Academic Publishers, pgs. 199-206 (1995).

Xiao, W, Zhang, C, Yadava, P, and Hughes, J.A. Nucleic Acid Cellular Delivery, 81-94 in Cellular Drug Delivery, Principles and Practice, Edited by Robert Lu, and Svein Oie, Humana Press 2004,

Perksy, A.M, Prokai, L, and Hughes, J.A Thermodynamics and States of Mater; Chapter 2, in Theory and Practice of Contemporary Pharmaceutics, edited by Tapash Ghosh and Bhaskara Jasti, CRC Press, Boca Ranton, Fl 2005

Hughes, J.A. Persky, A.M. Guo,X., and Ghosh, T.K., Chapter 3, Solubility, in Theory and Practice of Contemporary Pharmaceutics, edited by Tapash Ghosh and Bhaskara Jasti, CRC Press, Boca Ranton, Fl 2005

Yadava, P. Buehe, D, Hughes, J.A. Nonviral gene delivery with surfactants, chapter 14 in Polymeric Drug Delivery 1, Particulate Drug Carriers, ACS symposium series 923, American Chemical Society, New York, NY, 2006

Meyer, M., Rao, G. Ren K, and Hughes J.A., Pharmacokinetics of viral and non-viral gene delivery vectors, Chapter 4 in Pharmacokinetics and Pharmacodynamics of Biotechnology Products, Editor, Bernd Meilbohm, Marcel Dekker, New York, 2006

Yadava, P, Mesaros, R. and Hughes, J.A. Liposomal siRNA delivery, Editor Volkmar Vissing, Lipsomes, Marcel Dekker, New Work 2009

Articles

- Yadava P, Roura D, Hughes JA* Evaluation of two cationic delivery systems for siRNA Oligonucleotides 2007;17:213-221.
- Gong Y, Meyer EM, Meyers CA, Klein RL, King MA, Hughes JA*, "Memory-related deficits following selective hippocampal expression of Swedish mutation amyloid precursor protein in the rat Exp. Neurol. 2006;200:371-377.
- Ren K, Thinschmidt J, Liu J, Ai L, Papke RL, King MA, Hughes JA and Meyer EM*, "alpha7 nicotinic receptor gene delivery into mouse hippocampal neurons leads to functional receptor expression, improved spatial memory-related performance, and tau hyperphosphorylation" Neuroscience 2007;145:314-322.
- Hirko AC, Meyer EM, King MA, Hughes JA „Peripheral transgene expression of plasma gelsolin reduces amyloid in transgenic mouse models of alzheimer's disease“ Molecular Therapy 2007
- Rao G, Yadava P, Hughes J*, „Rationally designed synthetic vectors for gene delivery“ Open Drug Delivery Reviews 2007;1:1-13
- Yadava, P**, Zhang, C*. Sun, J, and Hughes, J.A., Antimicrobial activities of human beta defensins against Bacillus species, International Journal of Antimicrobial Agents 2006 28 (2) 132-173
- Gong Y., Meyer E.M., Meyers CA, Klein R.L, King, M.A., and Hughes J.A., Memory-related deficits following selective hippocampal expression of Swedish mutation amyloid precursor protein in the rat, Experimental Neurology, 2006, 200(2) 371-7.
- Wu, K., E. M. Meyer, Hughes, J.A. and King, M.A.(2005). "AAV2/5-mediated NGF gene delivery protects septal cholinergic neurons following axotomy." Brain Res 1061(2): 107-13.
- Fuchs, S., D. Buethe, et al. (2004). "Sulphydryl based cationic surfactants and the impact of polyanions on disulfide bond formation: implications for gene transfer vectors." J Drug Target 12(6): 347-53.
- Hamilton, K. L., J. C. Quindry, Hughes, JA. Powers, Sl. (2004). "MnSOD antisense treatment and exercise-induced protection against arrhythmias." Free Radic Biol Med 37(9): 1360-8
- Wu, K., C. A. Meyers, Meyers, E.M and Hughes, J.A. (2004). "Polyethylenimine-mediated NGF gene delivery protects transected septal cholinergic neurons." Brain Res 1008(2): 284-7.
- Zhang, C., P. Yadava, and Hughes, J.A.. (2004). "Polyethylenimine strategies for plasmid delivery to brain-derived cells." Methods 33(2): 144-50.
- Gong, Y., S. Chen, King, M.A. Meyer, E.M and Hughes, J.A. (2004). "Recombinant adeno-associated virus serotype 2 effectively transduces primary rat brain astrocytes and microglia." Brain Res Brain Res Protoc 14(1): 18-24.
- Hirko A, Tang F, Hughes JA, "Cationic lipid vectors for plasmid DNA delivery" Current Medicinal Chemistry, 2003;,10(14):1185-93
- Hirko, A., F. Tang, and J.A. Hughes, Cationic lipid vectors for plasmid DNA delivery. Curr Med Chem, 2003. 10(14): p. 1185-93.
- Wu, K., R. L. Klein, King, M.A., Hughes, J.A. and Meyer E.M.I. (2003). "Long-term neuronal effects and disposition of ectopic preproNGF gene transfer into the rat septum." Hum Gene Ther 14(15): 1463-72.
- Hirko AC, Buethe DD, Meyer EM, Hughes JA Plasmid delivery in the rat brain, Biosci Rep 2002 Apr;22(2):297-308
- Klein RL, Hamby ME, Gong Y, Hirko AC, Wang S, Hughes JA, King MA, Meyer EM Dose and promoter effects of adeno-associated viral vector for green fluorescent protein expression in the rat brain Exp Neurol 2002 Jul;176(1):66-74

- Ajmani PS, Wang W, Tang F, King MA, Meyer EM, Hughes JA, Transgene delivery with a cationic lipid in the presence of amyloid beta (betaAP) peptide, *Exp Neurol* 2002 Jul;176(1):66-74
- Liang Y, Belford S, Tang F, Prokai L, Simpkins JW, Hughes JA, Membrane fluidity effects of estratrienes, *Exp Neurol* 2002 Jul;176(1):66-74
- Xiao W, Warrington KH Jr, Hearing P, Hughes J, Muzyczka N, Adenovirus-facilitated nuclear translocation of adeno-associated virus type 2, *J Virol* 2002 Nov;76(22):11505-17
- Klein RL, Hamby ME, Gong Y, Hirko AC, Wang S, Hughes JA, King M, Meyer EM, "Dose and promoter effects of adeno-associated viral vector for green fluorescent protein expression in the rat brain" *Experimental Neurology*, 2002;1:66-74
- Klein RL, Hamby ME, Gong Y, Hirko AC, Wang S, Hughes JA, King MA, Meyer EM "Dose and promoter effects of adeno-associated viral vector for green fluorescent protein expression in the rat brain" *Experimental Neurology*, 2002;176:66-74.
- Hirko AC, Beuthe DD, Meyer EM, Hughes JA, "Plasmid delivery in the rat brain" *Bioscience Report*. 2002;2:297-308
- Klein RL, Hamby ME, Gong Y, Hirko AC, Wang S, Hughes JA, King M, Meyer EM, "Dose and promoter effects of adeno-associated viral vector for green fluorescent protein expression in the rat brain" *Experimental Neurology*, 2002;1:66-74
- Klein RL, Hamby ME, Gong Y, Hirko AC, Wang S, Hughes JA, King MA, Meyer EM "Dose and promoter effects of adeno-associated viral vector for green fluorescent protein expression in the rat brain" *Experimental Neurology*, 2002;176:66-74.
- Hirko AC, Beuthe DD, Meyer EM, Hughes JA, "Plasmid delivery in the rat brain" *Bioscience Report*. 2002;2:297-308
- Chacham P and Hughes JA, "Relationship between plasmid DNA topological forms and in vitro transfection", *J Liposome Res* 2001;11:139-152.
- Liang E, Rosenblatt MN, Ajmani PS, and Hughes J, Biodegradable pH-sensitive surfactants (BPS) in liposome-mediated nucleic acid cellular uptake and distribution" *Eur J Pharm Sci* 2000;
- Wu P, Xiao W, Conlon T, Hughes J, Agbandje -McKenna M Ferkol T, Flotte T and Muzyczka N "Mutational Analysis of the Adeno-Associated Virus Type 2 (AAV2) Capsid Gene and Construction of AAV2 Vectors with Altered Tropism", *Journal of Virology*, 2000;74:8635-8647.
- Liang E, Rosenblatt MN, Ajmani PS, Hughes JA, "Biodegradable pH-sensitive surfactants (BPS) in liposome-mediated nucleic acid cellular uptake and distribution", *Eur J Pharm Sci*, 2000;11:199-205.
- Wang S, Bui V, Hughes JA, King MA, Meyer EM, "Adenoassociated Virus Mediated Gene Transfer into Primary Rat Brain Neuronal and Glial Cultures: Enhancement with the pH-sensitive Surfactant Dodecyl 2-(1'-imidazolyl)propionate. *Neurochemistry International* 2000;4:1-6.
- Poxon SW and Hughes JA, "The effect of lyophilization on plasmid DNA activity" *Pharm Dev Tech* 2000;5:115-122.
- Poxon SW, Hughes JA, "A biofunctional assay to study pRL-CMV plasmid DNA formulation stability" *PDA J Pharm Sci Technol*, 1999;53:314-7.
- Tang T, and Hughes JA, Synthesis of a single-tailed cationic lipid and investigation of its transfection" *J Controlled Release* 1999;62:345-358
- Tang F, and Hughes JA, "Use of dithiodiglycolic acid as a tether for cationic lipids decreases the cytotoxicity and increases transgene expression of plasmid DNA in vitro" *Bioconjugate Chem* 1999;10:791-796.

- Tang F, and Hughes JA, "Synthesis of a single-tailed cationic lipid and investigation of its transfection" *J Controlled Release* 1999;62:345-358.
- Tang F, Wang W, and Hughes JA, "Cationic liposomes containing disulfide bonds in delivery of plasmid DNA" *J Liposome Res* 1999;9:331-347.
- Wang W, Ajmani PS, Meyer EM, Simpkins JW and Hughes, JA. "Pre-exposure of cells to cationic lipids enhances transgene delivery and expression in a tissue culture cell line" *J Drug Targeting*, 1999;7:207-211.
- Brazeau G.A., Hughes J.A., Prokai L., "Use of Problem Based Discussion Sessions in a First Year Pharmaceutical Dosage Forms Course," *American Journal of Pharmaceutical Education* 63:85-97, (1999).
- Poxon S.W. and Hughes J.A. "Foam Fractionation Does Not Remove Endotoxin From Solution: Implications for Biotechnology Products". *Parenteral Drug Association Journal*, 53(1), 23-26 (1999)
- Poxon S.W., and Hughes J.A. "Characterization of Endotoxin and Cationic Liposome Interactions". *Pharmaceutical Technology*. 4, 135-143 (1999).
- Ajmani P, Hughes J.A. 3-[N-(N,n'dimethylaminoethane)-carbonyl-cholesterol] (DC-CHOL)-Mediated Gene Delivery To Primary Rat Neurons "Characterization And Mechanisms" *Neurochemical Research* 24, 699-703 (1999).
- Ajmani P., Attia S., Merritt M., Regen S. and Hughes J.A. "A Spermine-Deoxycholic Acid Conjugate-Based Lipid As A Transfecting Agent". *Die Pharmazie* 54 (3), 191-194 (1999).
- Aronsohn A., Brazeau G. and Hughes J. "The impact of space travel on dosage form design and use", *J. Gravitational Physiology* 1999;6:169-172.
- Ajmani PS, Tang F, Krishnaswami S, Meyer EM, Sumners C, Hughes JA, "Enhanced transgene expression in rat brain cell cultures with a disulfide-containing cationic lipid", *Neuroscience Letters* 1999;277:141-144.
- Houk, BE, Hochhaus G, and Hughes JA, "Kinetic Modeling of Plasmid DNA Degradation in Rat Plasma" *AAPS PharmSci* [serial on the internet] October 13, 1999;1: Approx. size: 30k + 175k in images. Available from <http://www.pharmsci.org/journal>.
- Liang E, Ajmani PS and Hughes JA, "Oligonucleotide delivery: a cellular prospective", *Pharmazie* 1999;54:559-566.
- Duncan V.E., Ajmani P.S. and Hughes J.A. "Cellular Delivery Is A Major Obstacle For Oligodeoxynucleotide Inhibition of Telomerase Activity". *Anticancer Research* 18, 4105-4108 (1998).
- Liang E. and Hughes J.A., "Membrane fusion and rupture in liposomes: effects of biodegradable pH-sensitive surfactants". *J Membrane Biol.*, 166(11), 37-49 (1998).
- Brazeau G.A., Attia S.A, Poxon S.W., and Hughes J.A. "In vitro Muscle Toxicity of Non-Viral Gene Delivery Systems". *Pharmaceutical Research*. 15, 680-684 (1998).
- Gulig P.A., Doyle T.J., Hughes J.A., and Matsui, H. "Analysis of Host Cells Associated With The Spv-Mediated Increased Intracellular Growth Rate of Salmonella Typhimurium In Mice". *Infection and Immunity*. 66(6) 2741-85 (1998).
- Attia S., Shepherd V.E., Rosenblatt M.N., Davidson M.K., and Hughes, J.A. "Characterization of Oligodeoxynucleotides With Mycobacteria: Implications For New Therapeutic Strategies. Antisense and Nucleic Acid Drug Development. 8(3), 207-14, (1998).
- Aronsohn A.I., and Hughes J.A. "Nuclear Localization Signal Peptides Enhance Cationic Liposome-mediated Gene Therapy". *Journal of Drug Targeting* 5(3), 163-169(1998).
- Liang E., and Hughes J.A. Characterization of a pH-Sensitive Surfactant, Dodecyl-2-(1'imidazolyl) propionate (DIP), and Preliminary Studies In Liposome Mediated Gene Transfer. *BBA* 1369, 39-50(1998).

- Weissig V., Lash J., Eroads G., Meyer H., and Hughes J.A. DQAsomes: "A Novel Potential Drug And Gene Delivery System Made From DequaliniumTM". *Pharmaceutical Research* 15(2), 334-7(1998).
- Tang F., and Hughes J.A. "Introduction of a Disulfide Bond Into A Cationic Lipid Enhances Transgene Expression of Plasmid DNA". *Biochemical and Biophysical Research Communications* 242,141-145(1998).
- Li B., Hughes J.A., and Phillips M.I. "Uptake and Eflux of Intact Antisense Phosphorothiaote Deoxyoligonucleotide Directed Against Angiotensin Receptor in Bovine Adrenal Cells". *Neurochemistry Int.* 31(3) 393-403(1997).
- Poxon S.W., Liang E., and Hughes J.A. "The Use of Dendrimers To Delivery Oligonucleotides In Tissue Culture Systems". *Journal of Drug Delivery* 3: 255-261(1996).
- Hughes J.A., Avrutskaya V., and Juliano R.L. "The Use of Endosomal Disrupting Agents To Enhance The Effects of Oligonucleotides". *Pharmaceutical Research* 13(3): 404-410(1996).
- Hughes J.A., and Jay M. A hollow fiber membrane bioreactor for the synthesis of ¹¹C-formaldehyde. *Appl. Radiation Isotopes* 23: 1234-1239(1995).
- Hughes J.A., Hartman N.G., Jay M. Preparation of ¹¹C-Thymidine and ¹¹C-2'-arabion-2'-fluoro-B-5 methyl-uridine (FMAU) using a hollow fiber membrane bioreactor system. *J. Labeled Comp. and Radiopharmaceuticals* Vol XXXVI 12: 1133-1145(1995).
- Hughes, J.A., Avrutskaya V., Wickstrom E.M, and Juliano R.L. Radiolabeling of backbone modified oligonucleotides and their transport in everted rat jejunum sacs. *Pharm. Res.* 12: 893-906(1995).
- Hughes J.A., Avrutskaya V., and Juliano R.L. "The Influence of Base Composition on Cellular Transport And Membrane Binding of Oligonucleotides." *Antisense and Nucleic Acid Drug Development* 4:452-459(1994).
- Hughes J.A., Bennett C.F., and Juliano R.L. "The Lipid Membrane Permeability of 2' Modified Derivatives of Phosphorothioate Oligonucleotides". *J. Pharm. Sci.* 83(4): 597-600(1994).
- Chandler M.H., Clifton G.D. and Hughes J.A., "Utility of Rapid Theophylline Assay in Clinical Research". *Therap. Drug Monit.* 11: 365-367(1989).

Miscellaneous Publications

- Brazeau, G.A., and Hughes, J.A. (1996) Vaccines on the horizon: HIV and cancer. American Pharmacy NS36: 14-15.
- Hughes J.A., and Brazeau, G.A. (1995) Genetically engineered vaccines. American Pharmacy 35: 9.
- Hughes, J.A. (1994) Molecular medicine: Oligonucleotides. American Pharmacy 34(10): 12-13.
- Hughes, J.A. (1986) Buspirone: A new anoxyltic. Kentucky Pharmacist 22(4): 22-24.

Abstracts Presented to Scientific Meetings

- Houk BE, Hochhaus G, Hughes JA Pharmacokinetics of plasmid DNA in vitro and after Iv bolus administration in the rat. 14th Annual Meeting of the American Association of Pharmaceutical Scientists, New Orleans, November Pharm Sci. 1999;1: Issue 4, # 3155
- Tang F. Gene therapy 98 In vitro characterization of plasmid DNA transfer mediated by a disulfide containing cationic lipid, 1st Annual meeting of the Society of Gene Therapy, Seattle WA, June 1998
- Tang F. Gene therapy 99 The Use of Dithiodiglycolic Acid As A Tether In Cationic Lipids Decreases The Cytotoxicity And Increases Transgene Expression of Plasmid DNA Delivery *In Vitro* And *In Vivo*, 2nd Annual Meeting of the Society of Gene therapy, Washington DC, 1999
- Tang F., Synthesis of A Single Tail Cationic Detergent And Use In Plasmid DNA Transfection AAPS, San Francisco, 1998
- Brett H., AAPS A Novel Assay for Pharmacokinetic/ Pharmacodynamic Modeling of Gene Therapy *In Vitro* AAPS, San Francisco, 1998.
- Ajmani P. S., Tang F. and Hughes, J.A. Evaluation of a disulfide-containing cationic lipid as a transfecting agent in primary cells. AAPS, San Francisco, 1998.
- Wang W., Ajmani P.S., Meyer E.M., Simpkins J.W. and Hughes J.A. Previous exposure of cells to cationic liposomes enhances transgene expression in non-viral delivery. AAPS, San Francisco, 1998.
- Chancham P., Ajmani P.S., Meyer E.M., King M., and Hughes J.A. Investigation of the movement of different sizes of fluorescently labeled microspheres in brain: Implications for gene delivery. AAPS, San Francisco, 1998.

- Earvin, E. and Hughes, J.A. Investigation of Biodegradable pH-sensitive surfactants (BPS) in oligonucleotide cellular delivery, AAPS San Francisco 1998
- Earvin, E., and Hughes, J.A. Mechanism investigation of membrane destabilization by biodegradable pH-sensitive surfactants in oligonucleotide delivery, AAPS, San Francisco, 1998
- Brazeau, G.A., Attia, S.A, Poxon, S.W., and Hughes, J.A. In vitro muscle toxicity of non-viral gene delivery systems. Pharmaceutical Research. (15), 680-684(1998)
- Poxon, S.W., and Hughes, J.A. Foam fractionation does not remove endotoxin from solutions: implications for biotechnology products, AAPS, 1998
- Poxon, S.W., and Hughes, J.A., The effect of lyophilization on plasmid DNA stability, AAPS, San Francisco, 1998
- Poxon, S.W. and Hughes, J.A. Characterization of endotoxin and cationic liposome interaction, AAPS San Francisco, 1998
- Weissig, V., Torchilin, V.P., Lasch, J., Erdos, G.W., and Hughes, J. "Lipofection with DQAsomes: Mitochondria-specific?" The 25th International Symposium on Controlled release of Bioactive Materials. Las Vegas, NV. June 21-26, 1998
- Weissig, V., Torchilin, V.P., Lasch, J., Erdos, G.W., Meyer, H.M., and Hughes, J. "Cationic bolosomes as potential mitochondria-specific vectors for DNA delivery." Gordon Conference on Drug Carriers in Medicine and Biology. Ventura, CA. February 22-27, 1998
- Poxon, S.W., and Hughes, J.A. "A potential gene therapy pitfall: The effects of endotoxin on cationic liposome mediated plasmid delivery." American Association of Pharmaceutical Scientists. Boston, 1997
- Liang, E., and Hughes, J.A. "Physicochemical characterization and use of dodecyl, 2-(1' imidazolyl) propanate (DIP) in oligonucleotide delivery." American Association of Pharmaceutical Scientists. Boston, 1997
- Brazeau, G.A., Attia, S., and Hughes, J.A. "Myotoxicity of selected cationic macromolecules used in non-viral gene delivery." American Association of Pharmaceutical Scientists. Boston, 1997
- Ajmani, P., and Hughes, J.A. "Evaluation and characterization of the cationic lipid 3 B[N-(N' dimethylaminoethane)-carbomoyl] cholesterol-(DC-Chol) as a transfection agent for neuronal gene delivery." American Association of Pharmaceutical Scientists. Boston, 1997
- Wang, S.A., Hughes, J.A., King, M., and Meyer, E.A. "Non-viral delivery of NGF." Society for Neurobiology, 27th Annual Meeting. New Orleans, LA. October 24-30, 1997

- Weissing V., Lasch, J., and Hughes, J.A. "Cationic bolosomes as potential mitochondria-specific vectors for gene delivery." Boscat '97 Northeastern University. Boston, MA. September 19-21, 1997
- Brazeau, G.A., Attia, S.A., and Hughes, J.A. "Myotoxicity evaluation of non-viral gene delivery systems." Southeastern American Association of Pharmaceutical Scientists. Morristown, NC. June 23. 1997
- Ajmani, P, and Hughes, J.A. "Non-viral gene delivery: A comparison of lipids." Southeastern American Association of Pharmaceutical Scientists. Morristown, NC, June 23, 1997
- Hung, B., Hughes, J.A., and Phillips, I. "Dendrimer delivery of oligonucleotides. "American Association of Clinical Pharmacology. San Francisco, CA. April 1997
- Hughes, J.A., and Aronsohn, A.I. "Nuclear localization signal peptides enhance non-viral gene delivery." 9th American Association of Pharmaceutical Scientists. Seattle, WA. 1997
- Hughes, J.A. and Regen, S.L.. "Deoxycholic acid spermine conjugates as gene delivery vectors." 9th American Association of Pharmaceutical Scientists. Seattle, WA. 1996
- Juliano, R.L., Hughes, J.A., et al. "Targeting from proteins to genes: Delivery of protein drugs the next ten years." Kyoto, Japan. 1993
- Hughes, J.A., and Jay, M. "Synthesis of labeled thymidine using an enzyme based hollow fiber membrane bioreactor." IX International Symposium on Radiopharmaceutical Chemistry. Paris, France. 1992

Invited Presentations

New Treatments for Alzheimer's Disease, University of Pittsburg, March 3, 2009

Delivery of Nucleic Acid, Roche Pharmaceuticals June, 5, 2009

Gene Delivery for Alzheimer's Disease, University of Florida, College of Veterinary Medicine, October 23, 2008

Gene Delivery for Alzheimer's Disease, Louis Pauster Institute, Strasbourg France, August 24, 2006.

USP-797 and update "Kentucky Pharmacist Association Annual Meeting, May, 2005, Lexington, KY

Pharmaceutics of Gene Delivery, "Florida A&M University, Feb 2005, Tallahassee, Florida

Liposomes in Gene Delivery, "North Carolina Biotechnology Discussion Group, Jan 2005, Research Triangle, NC,

Gene Delivery, University of Tennessee, College of Pharmacy, March 2005, Memphis, TN

Adeno-associated virus (AAV) as a model for the development of non-viral gene delivery systems, Zurich, Switzerland, May, 2003

Intracellular processing of AAV; Louis Pasteur University, Strasbourg, France , April 23, 2003

Plasmid Based Gene Delivery, December 6 2003, University of Florida, Genetics Institute Seminar Series.

USP-797 and update "Kentucky Pharmacist Association Annual Meeting, May 20, 2004, Louisville, KY

"Surfactants in Gene Delivery", American Chemical Society Meeting, Sept 11, 2003, New York, New York

"Polymers in Gene Delivery, Graduate Pharmaceutics Education Network, Koyto Japan, May 27 2004

"Transport and Delivery of Oligonucleotides." Gene Medicine, Houston, Texas. January 11, 1994.

- “Transport and Delivery of Oligonucleotides.” University of Mississippi, Department of Pharmaceutics. January 16, 1994.
- “Transport and Delivery of Oligonucleotides.” University of Florida, Department of Pharmaceutics. February 6, 1994.
- “Transport and Delivery of Oligonucleotides.” Glaxo, Biotechnology Development, Research Triangle Park. February 10, 1994.
- “Transport and Delivery of Oligonucleotides.” University of Arizona, Department of Pharmaceutics. February 21, 1994.
- “Transport and Delivery of Oligonucleotides.” Gent Pharmaceuticals. April 12, 1994.
- “Transport and Delivery of Oligonucleotides.” University of Chicago, Department of Pharmaceutics and Pharmacodynamics. April 21, 1994.
- “Oligonucleotides as Drugs.” University of Florida, Department of Pharmacodynamics. February 1995.
- “Transport and Delivery of Oligonucleotides.” 28th Annual Higuchi Research Seminar, Lake Ozarks, MO. March 13, 1995.
- “Transport and Delivery of Oligonucleotides.” 10th Annual Kosetenbauder Research Seminary, Lexington, KY. April 27, 1995.
- “Oligonucleotides as Drugs: Pitfalls.” University of Florida, Center for Drug Discovery. October, 1995.
- “Pharmaceutical Formulation and Delivery Problems with Nucleic Acids.” B.I.P, Danbury, CT. November 25, 1996.
- “Non-viral Gene Therapy.” University of Florida, Gene Therapy Center. January 7, 1996.
- “Gene Therapy Pharmaceutical Concerns.” 29th Annual Higuchi Research Seminar, Lake Ozarks, MO. March 13, 1996.
- “Transport and Delivery of Oligonucleotides.” Florida Affiliate of the American Cancer Society, Annual Meeting, Orlando, FL. March 28, 1996.
- “Transport and Delivery of Oligonucleotides.” Experimental Biology Meeting, Washington, DC. April 17, 1996.
- “Non-viral Gene therapy.” University of Kentucky, Department of Pharmaceutical Sciences. Feb. 16, 1997.

- “Evaluation of Non-viral Delivery Systems.” 30th Annual Higuchi Research Seminar, Lake Ozarks, MO. March 13, 1997.
- “Biotechnology: Implications to the Practice of Pharmacy.” Chulalongkorn University, Bangkok, Thailand. April 28, 1997.
- “Antisense Therapeutics.” Chulalongkorn University, Bangkok, Thailand. April 29, 1997.
- “Drug Delivery of Macromolecules.” Chulalongkorn University, Bangkok, Thailand. April 30, 1997.
- “Non-viral Gene Therapy.” Silpakorn University, Nakorn-Pathom, Thailand. May 2, 1997.
- “Barriers in Non-Viral Gene Delivery.” Gene Medicine, Woodlands TX. October 6, 1997
- “Drug Delivery to Mycobacterium.” Post-Graduate Meeting, University of Kentucky, Lexington, KY. October 13-16.
- “Intracellular Drug Delivery” University of Maryland, Department of Pharmaceutical Sciences, Baltimore, MD, June 3, 1998
- “Non-viral gene delivery mechanistic approach”, Janssen Pharmaceuticals, Brussels Belgium, July 2, 1998
- “Overcoming the Barriers in Non-Viral Gene Delivery” Pharmatech III, New Perspectives in Drug Delivery Systems,, July 26-29, 1998, Grandville Hotel, Belo Horizonte Brazil
- “Gene delivery: barriers and opportunities” Departments of Pharmacodynamics and Pharmaceutics, University of Florida, September 23, 1998
- “Non-viral gene delivery: overcoming the barriers: University of Minnesota, College of Pharmacy and Department of Biomedical Engineering. March 2, 1999
- Novel Drug Delivery Systems 100th Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics March 18-20, 1999
- “Non-viral gene delivery”, University of Connecticut February 2, 2000
- “Non-viral gene delivery” Medical College of Virginia August 23, 1999
- “Non-viral gene delivery” Pfizer Pharmaceuticals, February 3, 2000
- “Microdomains and the implication to therapy” University of Kentucky, College of Pharmacy, April 2000
- Disulfide Lipids in Nonviral Gene Therapy, Society for Controlled Release, Paris France, July 2000

Chemical delivery systems for nucleic acids “University of Grotton, The Netherlands, June 2001

Advances in the treatment of Alzheimer’s “3rd Global Gator Meeting, Dresden, Germany, June 2001.

Introduction to Genetic Medicine, Florida Society of Health Care Pharmacist, keynote address, Orlando, Florida, August 2001

Surfactants in Gene Delivery “American Chemical Society Annual Meeting, 2003, New York City.

Oligonucleotide Delivery “American Association of Pharmaceutical Scientists, Annual Meeting 2002, Toronto CA.

Advances in Gene Delivery: on viral gene approach “Florida Agricultural and Mechanical University” April 17 2004

Surfactants in Gene Delivery, ETH, Zurich Switzerland , April 2003

Gene Therapy for Biodefense, University of Florida, Genetics Institute Lecture Series, March 2004.

Naopartilces for Gene Delivery, Pharmaceutical Sciences World Congress, Koyto Japan, May 2004.

siRNA Drug Delivery, American Association of Pharmaceutuical Scientist Biotech Annual Meeting, San Francisco, CA June 2005

Short Courses offered

The Center for Surface Science and Engineering at the University of the Florida is offering a Biannual Intensive Short Course on Surfactants: Principles and Applications March 8-10, 1999
A comprehensive course designed for research, development and technical staff from industry

Grants and Contracts Funded

American Association of Colleges of Pharmacy, New Faculty Grant Program. "The effect of freeze drying and compaction of plasmid DNA stability." \$10,000 (1994-1995)

Pharmaceutical Research and Manufactures Association, Undergraduate Award. "Development of a fluorescence method to study oligonucleotide stability." \$5,000 (1994-1995)

University of Florida, Research Development Award. "Oligonucleotide based inhibition of telomerase." \$15,000 (1995-1996)

Society of Nuclear Medicine, Research Award Program. "Development of boron-labeled oligonucleotides to inhibit telomerase." \$5,000 (1995-1996)

Parenteral Drug Association. "Pharmaceutical stability investigations with oligonucleotides." \$15,000 (1995-1996)

National Institutes of Health. "Lung specific delivery of oligonucleotides." \$348,000 (1995-2001)

Florida Affiliate of the American Cancer Society. "Receptor mediated systems for the effective delivery of nucleic acids to malignant cells." \$22,000 (1995-1996)

Division of Sponsored Research, University of Florida. "Stability studies with DNA." \$2,500 (1995-1996)

Division of Sponsored Research, University of Florida. "Partial support for a graduate student." \$7,000 (1995-1996)

Division of Sponsored Research, University of Florida. "CZE analysis of oligonucleotide stability." \$9,200 (1995-1996)

Florida Space Undergraduate Program. "Development of a model of absorption for space flight." \$10,000 (1996-1997)

National Institutes of Health, part of a program project (P.I. J. Simpkins). "Development of lipid vectors for gene delivery." \$534,23 (8/1/96-7/1/99)

PDA Foundation for Pharmaceutical Sciences. "Development of methods to determine DNA integrity." \$45,000 (1/1/97-12/31/99)

PHRMA Foundation. "Analysis of biodegradable surfactants as a means to increase the transport of nucleic acids." \$5,000 funds for an undergraduate (2/1/97-1/1/98)

Florida Space Undergraduate Program. “The effect of gravity on the pharmacokinetics and pharmacodynamics of antibiotics: An *in vitro* model.” \$4,000 (5/97-8/97)

American Association of Pharmaceutical Scientists and American Association of Colleges of Pharmacies, Undergraduate Research Program. “Pharmacokinetics and pharmacodynamics of non-viral gene therapy.” \$4,250 (5/97-4/98)

National Institutes of Health, Undergraduate Research Fellowship. “Pharmacokinetics of liver-targeted liposomes delivery systems.” \$2,250 (6/97-9/97)

Division of Sponsored Research, University of Florida. “Non-viral gene delivery for the treatment of stroke.” \$10,000 (1997-1998)

PHRMA Foundation. “Mechanistic Studies of estrogen on liposomal membrane fusion.” \$5,000 funds for an undergraduate student (7/1/98-6/1/99)

Whittaker Foundation through the Department of Bioengineering, Effects of estrogens on membrane fluidity (5-1-99- 4-30-2000) \$12,000

National Institutes of Health, :AAV in transgene expression in the Brain” (7-1-99 through 6-30-2002), Edwin Meyer PI, Hughes, Co-PI (Direct cost 441,756)

American Foundation for Pharmaceutical Education, 2001 Gateway Research Scholarship for Elizabeth Katsacos (6-11-01 through 6-10-02) \$5,000

National Institutes of Health, “Discovery of Novel Drugs for Alzheimer’s Disease” \$175,553

Defensins as a novel gene therapy for Anthrax “ Department of Defense sub contract from University of South Florida” \$100,000 direct cost. From 9/02 till 8/04. The object of this contract is to investigate the antimicrobial aspects of defensins. (10 percent effort)

HL067855-03 . PI Scott Powers, (co I J Hughes) 10 % Effort August 2002- September 2006

Exercise, Antioxidants, and I-R Injury 175,000

United Therapeutics, PI (Jeffrey Hughes) 5% Effort July 2005 – May 2007
50,000

R21 NS048782-01A2 PI Jeff Hughes 15% Effort May 2006- April 2008
Gene Delivery Based on Microbes Direct
125,000/year

Defensins as a novel gene therapy for Anthrax “ Department of Defense sub contract from University of South Florida” \$100,000 direct cost. From 9/02 till 8/04. The object of this contract is to investigate the antimicrobial aspects of defensins. (10 percent effort)