

CURRICULUM VITAE

Anna A. Shenderova Schwendeman, Ph. D.

Current Position

2015 – present Assistant Professor, Department of Pharmaceutical Sciences, University of Michigan, Ann Arbor, MI
2012 – present Member, Biointerfaces Institute, University of Michigan
2013 – present Member, University of Michigan Alzheimer's Center
2013 – present Member, Frankel Cardiovascular Center, University of Michigan
2013 – present Member, Michigan Center for Integrative Research in Critical Care

Previous Experience

2012 – 2015 Research Assistant Professor, Department of Medicinal Chemistry
College of Pharmacy, University of Michigan, Ann Arbor, MI
2009 – 2011 Head of Protein Manufacturing, Cerenis Therapeutics, Ann Arbor, MI
2006 – 2011 Sr. Director, Pharmaceutical Sciences, Cerenis Therapeutics,
Ann Arbor, MI
2007 – 2008 Sr. Director (international assignment), Pharmaceutical Sciences,
Cerenis Therapeutics, Toulouse, France
2004 – 2005 Associate Research Fellow (R7), Pfizer Global Research and
Development, Ann Arbor, MI
2003 – 2004 Director, Pharmaceutical Sciences, Esperion Therapeutics,
Ann Arbor, MI
2002 – 2003 Research Investigator, Pharmaceutical Sciences,
Esperion Therapeutics, Ann Arbor, MI
2000 – 2002 Scientist, Formulations, Esperion Therapeutics, Ann Arbor, MI

Education

1990 – 1994 Moscow Institute of Physics and Technology, Moscow, Russia
B.S. in Chemical Physics
1995 – 2000 The Ohio State University, Columbus, OH
Ph.D. in Pharmaceutical Chemistry

Honors and Awards

1994 Dean's List at Moscow Institute of Physics and Technology
1998 Second Place Podia Presentation, PGSR Meeting, Lawrence, KS
1999 – 2000 Presidential Fellowship, The Ohio State University
2013 – pres. Editorial Advisory Board of *J. Pharm. Sci.*
2013 American Heart Association, Scientist Development Award
2014 Upjohn Research Award, College of Pharmacy, University of Michigan
2015 Winner of "Biomedical Innovation Shark Tank" hosted by Michigan
Economic Development Corporation

2013 – pres. Associate Editor, Nanomedicine NBM

Professional Societies

American Cancer Association
American Association of Pharmaceutical Scientists
Controlled Release Society
American Heart Association
American Chemical Society
American Society for Biochemistry and Molecular Biology

Professional Service

Associate Editor:

Nanomedicine: nanotechnology biology and medicine (2016 – present)

Journal advisory boards:

J. Pharm. Sci. (2013 – present)

Journal reviewer for:

ACS Nano
Angewandte Chemie
ATVB
Eur. J Pharm. and Biopharm.
Drug Deliv Transl Res.
International J. Pharmaceutics
JAMA
J. Controlled Release
JoVE
J. Pharm. Sci.
Nanomedicine NBM
Nutrients
Macromolecules
Open Nano
Pharm. Res.
RSC Advances

Grant reviewer for:

American Heart Association, Lipid Clinical (2015 – present)
Univ. Michigan Biointerfaces Institute B-EYE Challenge (2015)
Peking University-University of Michigan Partnership (2015)
Univ. of Michigan, Cell & Developmental Biology IDEA Awards in Stem Cell Biology (2015)
NIH Atherosclerosis and Inflammation of the Cardiovascular System Study Section (2016)

Patents

1. Dasseux, J.-L., Schwendeman, A., and Rea, T. J, Method of treatment for dyslipidemic disorders, US Patent, 10/440,213, 2003.

2. Schwendeman, S. P., Zhu, G., Bentz, H., Hubbell, J., Jiang, W., Shenderova, A., and Kang, J., Methods for stabilizing biologically active agents encapsulated in biodegradable controlled-release polymers, US Patent no. 6,743,446, 2004.
3. Dasseux, J.-L., Schwendeman, A., and Rea, T. Method of treatment for dyslipidemic disorders. WO 03096983, 2005.
4. Dasseux, J.-L., Schwendeman, A., and Rea, T. Method of treatment for dyslipidemic disorders, EP Patent 1,511,508, 2005.
5. Schwendeman, S. P., Zhu, G., Bentz, H., Hubbell, J., Jiang, W., Shenderova, A., and Kang, J., Methods for stabilizing biologically active agents encapsulated in biodegradable controlled-release polymers, US Patent App. 11/863,088, 2007.
6. Dasseux, J.-L., Schwendeman, A., and Zhu, L, Apolipoprotein A-I Mimics, EP Patent 2,396,017, 2010.
7. Oniciu, D. C., Dasseux, J.-L., Schwendeman, A. S., Sy, G. A. and Ackermann, R. M. Lipoprotein complexes manufacturing and uses thereof. US Provisional Patent Application Serial no. 61/487263, 2011.
8. Dasseux, J.-L., Schwendeman, A., and Zhu, L, Apolipoprotein A-I Mimics, US Patent 8,378,068, 2013.
9. Schwendeman, S. P., Doty, A. C., Shah, R. B., Giles, M. B., Chang, R. S., Schwendeman, A. S. Efficient aqueous encapsulation and controlled release of bioactive agents, Application No. PCT/US2014/064872, 2014.
10. Schwendeman, A. S., Cohen, M. S., Moon, J. J., Kuai, R., Subramanian, C. Compositions and methods for disease treatment using nanoparticle delivered compounds. US Provisional Patent, 2014. US Application No.: 62/024,223, 2014.
11. Schwendeman, A. S., Besirli, C., Lee, K. Chang, R. S., Zacks, D., Biologically active, aqueous formulation of MET-12 peptide. US Application No.: 62/053,586, 2014.
12. Schwendeman, A., Turner, S., Remaley, A. T. The effect of phospholipid composition of reconstituted HDL on its cholesterol efflux and anti-inflammatory properties, US Provisional Patent Application No. 62/031,705, 2014.
13. Schwendeman, A. S., Li, X.-A., Nemzek, J. Composition of synthetic HDL nanoparticles and optimized treatment regimen for sepsis. Invention disclosure, UM OTT file number 6268, 2014.
14. Chen, Y. E., Schwendeman, A. S., Guo, Y., Zhang, J., Yuan, W., Morin, E. Compositions and methods for treating cardiovascular related disorders. U.S. Provisional Patent Application No. 62/138,193, 2015.
15. Moon, J., Kuai, R., Schwendeman, A. S. Compositions and methods for delivery of biomacromolecule agents. U.S. Provisional Patent Application No. 62/138,186, 2015.

16. Dasseux, J.-L., Schwendeman, A., and Zhu, L, Apolipoprotein AI Mimics, US Patent 20,150,141,330, 2015.
17. Dasseux, J.-L., Schwendeman, A., and Zhu, L, Apolipoprotein AI Mimics, US Patent 8,993,597, 2015.
18. Moon, J. J., Schwendeman, A. A., Kuai, R., and Nam J., Compositions and methods for delivery biomacromolecule agents, US Provisional Patent Application No. 62/352,182, 2016.

Teaching

ChE/PharmSci 519	3 cr.	Modern Pharmaceutical Engineering Biopharmaceutical Products Manufacturing and Regulatory. 2013, 2014, 2015 (4.5 contact per year)
MedChem 740	3 cr.	Original Research Proposal (course coordinator) 2013/14, 2014/2015 (10 contact hours per year)
ChE 696	1 cr.	Career Strategies (guest lecturer), 2014 (3 contact hours)
MedChem 532	3 cr.	Bioorganic Principles of Medicinal Chemistry, 2014 (6 contact hours)
PharmSci 705	2 cr.	Nanotechnology and Drug Delivery, 2015 (2 contact hours)
CheE 504	3 cr.	Cellular Biotechnology, 2016 (3 contact hours)
Chem 290	3 cr.	Twenty Two Ways to Think About Drugs, 2016 (1.5 ct. h)
PharmSci 706	2 cr,	Biopharmaceutical Products, 2016 (20 contact hours)
MedChem 550	2 cr.	PSTP Flagship Course, 2016 (1.5 contact hours)
Biophysics 440	3 cr.	Biophysical Analysis, 2016 (1.5 contact hours)

Graduate Students, Postdocs, Visiting Scholars, Staff

Ph.D. Advisor for:

Karthik Pisupati (2012 – 2016, co-advised with Steve Schwendeman)
 Rui Kuai (AHA fellow, co-advised with James Moon)
 Emily Morin (CBTP fellow, CVRE fellow)
 Dan Li
 Jukyung Jay Kang
 Sang Yeop Kim
 Maria Fawaz (PSTP fellow)

Postdoctoral Advisor for:

Gwangseong Kim, Ph.D. (2012 – 2013)
Hiren Patel, Ph.D. (2014 – 2015)
Wenmin Yuan, Ph.D. (AHA fellow, 2014 – present)
Jie Tang, Ph.D. (2014 – present)

Undergraduates

Frances M Acevedo Mariani (REU, summer 2013, University of Puerto Rico)
(UM PREP, 2015-2016)
William Miller (LSA, UROP, 2013-2014)
Courtney Reid (LSA, UROP, 2014- 2015)
Eled Brehau Gebrehiwot (REU, summer 2014, University of Georgia)
Ruta Raulickis (BME, UROP, 2014-2015)
Oluwatosin Olojo (LSA, UROP, 2014-2015)
Rebecca Myers (LSA, UROP, 2014-2015)
Alexander Benet (Pharmaceutics, 2014 – 2015)
Kelsey Ernst (LSA, UROP, AHA Undergraduate Fellow, 2014 – 2017)
Gregory Nazarian (LSA, 2015 – 2016)
Sara Deschaine (REU, summer 2015, Clarkson University)
Sunni Lee (UROP, 2015 – 2016)
Divya Vemulapalli (2016 – present)

High School Students:

Sunni Lee (summer 2014)
Divya Vemulapalli (summer 2015)

Visiting Scholars:

Yue Yuan, Ph.D. (2013 – 2014)
Jenny Shenkar Capua, D.V.M. (2014 – 2016)
Xueming Li, Ph. D. (2015 – 2016)
Li Li, Ph. D. (2016 – 2017)

Staff Supervisor for:

Karl Olsen, B.S.
Rose Ackerman, M.S.

Ph.D. and Candidacy Committees:

Hyuck Jin Lee (U of M, Chemistry)
Kyle Kourshavn (U of M, Chemistry)
Shasha Li (U of M, Med Chemistry)
Rae Sung Chang (U of M, Pharm Sciences)
Will Kaplan (U of M, Med Chemistry)
Yuwei Tian (U of M, Chemistry)
Brandt Huddle (U of M, Med Chemistry)
Alexandra Sowa (U of M, Med Chemistry)
Mikhail Murashov (U of M, Pharm Sciences)
Siyuan Sun (U of M, Chemistry)

Consulting

2011 – 2015	KineMed, Emeryville, CA
2011 – 2012	CohBar Pharmaceutical, Los Angeles, CA
2012	Citizen Oncology Foundation, Chicago, IL
2012 – 2013	AcuPlaq, St Louis, MO
2013 – 2014	ONL Therapeutics, Ann Arbor, MI
2013 – 2014	Rgenix, New York, NY
2015 – pres.	TSRL, Ann Arbor, MI
2015 – pres.	DeMatteo Monness Consulting, New York, NY
2016 – pres.	SygPath Inc, Bolder, CO
2016 – pres.	GLG Healthcare Councils, Austin, TX

Research Support

Current

Synthetic HDL – a potential sepsis therapy, 1/1/15 – 12/31/19, R01GM113832, PI (30%), multiple PI grant with Xiang-An Li, \$820,081 direct cost to A. Schwendeman.

Structure and function of the LPLA2/LCAT acyltransferase family, 1/1/15 – 12/31/18, NIH R01HL122416, \$1,211,037, co-I (10%), PI: John Tesmer, \$265,660 direct cost to A. Schwendeman.

Drug loaded HDL nanoparticles for glioma therapy, 4/1/15 – 3/31/2017, NIH R21NS091555, co-I (10%), PI: Maria Castro, \$137,500 direct cost to A. Schwendeman.

Structure and HDL interaction of LCAT, 1/1/2015 – 12/31/16, MedImmune Corporation, \$360,000, PI (5%), \$119,000 direct cost to A. Schwendeman.

A novel nano-vaccine technology for cancer immunotherapy application, MTRAC, PI (0%) multiple PI grant with James Moon, \$75,000 direct to A. Schwendeman.

Development of synthetic HDL nanoparticles for treatment of abdominal aortic aneurism, CVC Aikens Aortic Discovery Research Program, PI (0%), \$25,000 direct to A. Schwendeman.

Synthetic HDL-mediated atheroma targeted delivery of LXR agonists for regression of atherosclerosis, 1/1/2016 – 12/31/2017, American Heart Association, 16POST27760002, PI (0%), \$99,112 direct to A. Schwendeman.

Characterization of Neupogen and generic filgrastim, 5/27/16 - 12/20/17, Theraproteins Inc, PI (0%), \$259,000 direct to A. Schwendeman.

Characterization of Forteo and generic teriparatide, 4/29/16 - 4/28/17, Amneal Pharmaceuticals, PI (0%), N021463, PI (0%), \$45,000 direct to A. Schwendeman.

Characterization of Byetta and generic exenatide, 12/10/16 – 12/09/17, Amneal Pharmaceuticals, PI (0%), \$93,500 direct to A. Schwendeman.

Influence of raw materials, manufacturing variables, and storage conditions on release performance of long-acting release microsphere products, 10/1/15-9/30/18, Food and Drug Administration, co-I (4%), PI: Steven Schwendeman, dry appointment.

Sustained immune checkpoint therapy for treatment of brain cancer, 1/1/2016 -1/1/2017, Mcubed, co-PI (0%) with Steven Schwendeman and Maria Castro, \$20,000 direct to A. Schwendeman.

HDL nanoparticles to treat Neimann-Pick C disease, 8/1/16 – 7/30/17, co-PI (0%) with Andrew Lieberman, \$12,500 direct to A. Schwendeman.

Past

The role of lipid composition on synthetic HDL efficacy, 7/1/13 – 6/30/16, American Heart Association 13SDG17230049, PI (15%), \$195,000 direct cost to A. Schwendeman.

In vitro release methods for parenteral long-acting liposomal products, 9/1/14 – 8/31/16, FDA U01FD005249-01, co-I (20%), PI: Peter Working, \$107,500 direct to A. Schwendeman.

Protein folding diseases initiative, 4/30/15 – 3/30/16. Fast Forward Medical Innovation, Medical School, University of Michigan, (0%), \$40,000 direct to A. Schwendeman.

Analytical comparison of parent and follow-on biologics to aid biosimilars regulatory guidelines development, 4/01/2014 – 3/30/2015, NIPTE/FDA, PI (5%) with Steven Schwendeman (co-PI), \$82,122** direct cost to A. Schwendeman.

Optimizing synthetic HDL potency through phospholipid composition, 06/01/16 – 08/15/16, AHA Undergraduate Fellowship for Kelsey Ernst, \$4,000, PI (0%).

Novel long-circulating HDL nanomedicines, 11/1/2013 – 6/1/2014, College of Pharmacy Upjohn Fund, PI (0%), \$25,000** direct to A. Schwendeman.

Novel delivery platforms for glioma therapeutics, 01/01/14-12/31/14, Biointerfaces Nanomedicine Challenge, \$80,000, co-I (0%), PI: Maria Castro.

Development of a liposome doxorubicin product drug release assay, 9/15/2014 – 9/14/2015, FDA, U01FD004893-01S1, co-I (20%), PI: Peter Working, \$83,494** direct to A. Schwendeman.

In vitro-In vivo correlations of parenteral microsphere drug products, 9/15/2013 – 9/14/2015, FDA, co-I (10%), PI: Steve Schwendeman, dry appointment.

SR-BI targeted withanolide nanoconjugates for improved endocrine cancers therapy, 01/01/14 – 01/01/15, Michigan Translation and Commercialization (MTRAC), \$188,278, co-PI (0%) with Mark Cohen, \$39,000** direct to A. Schwendeman.

Molecular structure and function of paraoxonase -HDL particles, 11/1/2013 – 10/30/2014, University of Michigan - Israel Partnership for Research, \$50,000, co-PI (0%) with Dan Tawfik, Weizmann Institute of Science, \$25,000** direct to A. Schwendeman.

Development of a liposome doxorubicin product drug release assay, 9/15/2013 – 9/14/2014, FDA, co-I (17.5%), PI: Peter Working, \$128,777** direct to A. Schwendeman.

University of Michigan Institute for Manufacturing Leadership – pilot phase, 7/1/13 – 6/30/14, UM Provost Office GCTC, co-I (8.3%), PI: Shridar Kota.

Therapeutic application of synthetic HDL for treatment of autoimmune diseases, 4/1/2013 - 3/30/2014, Mcubed, \$60,000, co-PI (0%) with James Moon and Mariana Kaplan, \$20,000** direct to A. Schwendeman.

Development of long circulating gold nanoparticles for targeting of atherosclerotic plaque, 9/1/2012 – 8/31/2013, IMRA North America, \$80,000, co-PI (0%) with Xueding Wang, \$40,000** direct to A. Schwendeman.

Pending

KLF14 and Atherosclerosis. NIH R01, PI (20%) with Y. Eugene Chen (multiple PIs) (2% score).

HDL nanoparticles to treat Neimann-Pick C disease, co-I (0%) with Andrew Lieberman, MTRAC Kick-starter.

Publications

1. **Shenderova A**, Burke TG, Schwendeman SP. Stabilization of 10-hydroxycamptothecin in poly(lactide-co-glycolide) microsphere delivery vehicles, *Pharm. Res.*, 14, 1406-1414 (1997).
2. **Shenderova A**, Burke TG, Schwendeman SP. An acidic microclimate in poly(lactide-co-glycolide) microspheres stabilizes camptothecins, *Pharm. Res.*, 16, 241-248 (1999).
3. Schwendeman SP, **Shenderova A**, Zhu G, Jiang W. Stability of encapsulated substances in poly(lactide-co-glycolide) delivery systems, in *Handbook of Pharmaceutical Controlled Release Technology*, D. Wise (ed.), Dekker (New York), 2000.
4. Marinina J, **Shenderova A**, Mallery SR, Schwendeman SP. Stabilization of vinca alkaloids encapsulated in poly(lactide-co-glycolide) microspheres, *Pharm. Res.*, 17, 677-683 (2000).
5. Madou MJ, He KQ, **Shenderova A**. Fabrication of artificial muscle based valves for controlled drug delivery, *Micro Total Analysis Systems*, 132 -136 (2000).
6. Mallery SR, **Shenderova A**, Pei P, Begum S, Ciminieri JR, Wilson RF, Casto BC, Schuller DE, Morse MA. Effects of 10-hydroxycamptothecin delivered from locally injectable poly(lactide-co-glycolide) microspheres in a murine human oral squamous cell carcinoma regression model, *Anticancer Res.*, 21, 1713-22 (2001).
7. **Shenderova A**, Ding AG, Schwendeman SP. Potentiometric method for determination of microclimate pH in poly(lactic-co-glycolic acid) films, *Macromolecules*, 37, 10052-10058 (2004).
8. Ding AG, **Shenderova A**, Schwendeman SP. Prediction of microclimate pH in poly(lactic-co-glycolic acid) films, *J. Am. Chem. Soc.*, 128, 5384-5390 (2006).

9. Zhong Y, Ding A, Zhang L, **Shenderova A**, Zhu G, Pei P, Chen R, Mallery SR, Mooney DJ, Schwendeman SP. Rescue of SCID murine ischemic hindlimbs with pH-modified rhbFGF/poly(D,L-lactic-co-glycolic acid) implants, *J. Controlled Release*, 122, 331-337 (2007).

At the University of Michigan.

10. Schwendeman SP, Bailey B, Shah R, **Schwendeman AS**. Injectable controlled release depots for large molecules, *J Controlled Release*, 190, 240-253 (2014).
11. Li D, Gordon S, **Schwendeman A**, Remaley AT. Apolipoprotein mimetic peptides for stimulating cholesterol efflux, in *Apolipoprotein mimetics in management of human disease*, G.M. Anantharamaiah (ed.), Springer International Publishing (New York), pp. 29-42, 2015.
12. Yuan Y, Che X, Zhao M, Wang Y, Liu Y, **Schwendeman A**, Li S. Development of cyclosporine A microemulsion for parenteral delivery, *J Microencapsul.*, 12, 1-8 (2015).
13. **Schwendeman* A**, Sviridov DO, Guo Y, Yuan W, Morin EE, Yuan Y, Stonik J, Freeman L, Ossoli A, Thacker S, Pryor M, Killion S, Chen YE, Turner S. Remaley AT. The effect of phospholipid composition of reconstituted HDL on its cholesterol efflux and anti-inflammatory properties, *J. Lipid Res*, 56 (9), 1727-1737 (2015). #1
14. Morin EE, Guo L, **Schwendeman* A**, Li* XA, HDL in sepsis – risk factor and therapeutic approach, *Frontiers in Pharmacology*, 6, 244 (2015).
15. Subramanian C, Kuai R, Zhu Q, White P, Moon JJ, **Schwendeman A**, Cohen MS. Novel HDL nanoparticle as combination therapy with chemotherapeutics for adrenocortical carcinoma, *Surgery*, 159 (1), 284-295 (2015).
16. Kuai R, Ochyl LJ, **Schwendeman* A**, Moon* JJ. Lipid-based nanoparticles for vaccine applications, in *Biomedical engineering: convergence technologies*, H. Jo, H.-W. Jun, J. Shin, S. H. Lee (eds), Springer (New York), pp. 177-197, 2016.
17. Yu LX, Allen B, Akseli I, Amidon G, Bizjak TG, Boam A, Caulk M, Doleski D, Famulare J, Furness S, Ganapathy M, Hasselbalch B, Havel H, Hoag S, Randazzo G, Robert I, Johnson B, Ju R, Katz P, Lacana E, Lee SL, Lostritto R, McNally G, Mehta M, Nasr M, Nosal R, Oates M, Polli J, O'Connor T, Raju GK, **Schwendeman A**, Selen A, Seo P, Shah V, Sood R, Tong T, Tyner K, Vaithiyalingam S, VanTrieste M, Wu G, Wu L, Yu L, Zezza D. Advancing Product Quality: A Summary of the Second FDA/PQRI Conference. *The AAPS Journal*, 18(2), 528-543 (2016).
18. Zhang M, Huang R, Ackermann R, Im SC, Waskell L, **Schwendeman A**, Ramamoorthy, A. Incorporation of the cyt *b*₅ – cyt P450 complex in nanodiscs characterized by solution NMR, *Angew Chem Int Ed*, 55(14), 4497-4499 (2016).
19. Kuai R, Li D, Chen, YE, Moon* JJ, **Schwendeman* A**. High density lipoproteins (HDL) – nature's multifunctional nanoparticles, *ASC Nano*, 10(3), 3015-3041 (2016).
20. Merlet N, Busseuil D, Mihalache-Avram T, Mecteau M, Shi Y, Nachar W, Brand G, Brodeur MR, Charpentier D, Rhainds D, Sy G, **Schwendeman A**, Lalwani N, Dasseux

- JD, Rhéaume E, Tardif JC. HDL mimetic peptide CER-522 treatment regresses left ventricular diastolic dysfunction in cholesterol-fed rabbits, *Int J Cardiol*, 215, 364-371 (2016).
21. Taylor M, Sanjanwala A, Morin EE, Rowland-Fisher E, Anderson K, **Schwendeman A**, Rainey W. Synthetic HDL inhibits adrenal steroid production in HAC15 cells, *Endocrinology*, 157(8): 3122-3129 (2016).
 22. Doty AC, Hirota K, Olsen KF, Sakamoto N, Wang Y, Choi S, Qu W, **Schwendeman AA**, Schwendeman SP, Validation of a cage implant for assessing *in vitro* performance of long-acting release microspheres, *Biomaterials*, 109: 88-96 (2016).
 23. Hirota K, Doty AC, Ackermann R, Zhou J, Olsen KF, Feng MR, Wang Y, Choi S, Qu W, **Schwendeman AS**, Schwendeman SP. Characterizing release mechanisms of leuprolide acetate-loaded PLGA microspheres for IVIVC development I: In vitro evaluation, *J Control Release*, 244: 302-313 (2016).
 24. Yuan Y, Wen J, Tang J, Ackermann R, Olsen K, **Schwendeman* A**. Synthetic high density lipoproteins for delivery of 10-hydroxycamptothecin to colon cancer, *Int J Nanomedicine*, 11: 6229-6238 (2016).
 25. Yuan W, Kuai R, Dai Z, Yuan Y, Noble C, Hayes M, Zheng N, Jiang W, Szoka FC, **Schwendeman* A**. Development of a flow-through USP 4 apparatus drug release assay for doxorubicin liposomes, *AAPS J*, 19(1):150-160 (2017).
 26. Tang J, Li D, Yuan W, Drake L, Morin EE, Deschaine S, Ackermann R, Olsen K, Smith DE, **Schwendeman* A**. Influence of apolipoprotein A-I peptide lipidation and administration route on pharmacokinetics and ability to mobilize cholesterol, *J. Lipid Res*, 58(1):124-136 (2017).
 27. Smith CK, Seto NL, Vivekanandan-Giri A, Yuan W, Playford MP, Manna Z, Hasni SA, Kuai R, Mehta N, **Schwendeman A**, Pennathur S, Kaplan MJ. Lupus HDL promotes pro-inflammatory responses in macrophages by binding LOX1R and failing to promote ATF3 activity *Ann Rheum Dis*, in press.
 28. Kuai R, Ochyl LJ, Bahjat KS, **Schwendeman* A**, Moon* JJ. Designer nanodisc vaccines for personalized cancer immunotherapy, *Nat Materials*, in press.
 29. Tang J, Kuai R., Yuan W, Moon* JJ, **Schwendeman* A**. Effect of size and pegylation of liposomes and peptide-based synthetic lipoproteins on tumor targeting, under revision.
 30. White P, Subramanian C, Kuai R, Timmermann BN, Moon JJ, **Schwendeman A**, Cohen MS. Mimetic sHDL Nanoparticles: a novel drug-delivery strategy to target triple-negative breast cancer, under revision.
 31. Subramanian C, White PT, Kuai R, Avinaash K, Castle VP, Moon JJ, Timmermann BN, **Schwendeman A**, Cohen MS. Synthetic HDL nanoconjugate target stem cells, blocking migration and self-renewal, under revision.
 32. Shalev O, Raghavan S, Mazzara JM, Senabulya, N, Sinko PD, Fleck E, Rockwell C, Simopoulos N, Jones CM, **Schwendeman A**, Mehta G, Clarke R, Amidon GE, Shtein M.

Novel approach to small molecular medicines printing using deposition from vapor phase, under revision.

33. Pisupati K, Tian Y, Okbazghi S, Benet A, Ackermann R, Ford M, Saveliev S, Hosfield CM, Urh M, Carson E, Becker C, Tolbert TJ, Schwendeman SP, Ruotolo BT, **Schwendeman* A**. Are biosimilars like snowflakes? A multidimensional analytical comparison of Remicade and Remsima, under revision.
34. Patel H, Ding B, Ernst K, Drake L, Tang J, Chen Z, **Schwendeman* A**. Strength of apolipoprotein A-I peptide phospholipid interaction defines HDL nanoparticle assembly and pharmacodynamics, *submitted*.
35. Pisupati K, Benet A, Tian Y, Okbazghi S, Ackermann R, Ford M, Saveliev S, Carson E, Becker C, Tolbert TJ, Ruotolo BT, Schwendeman SP, **Schwendeman* A**. Stress characterization and comparison of Remicade and its biosimilar Remsima, *submitted*.

***Corresponding author**

Invited Presentations

1. PLGA implants for protein and peptide delivery, Biotechnology of new materials workshop, Krasnoyarsk, Russia, May 2011.
2. Development of high density lipoprotein therapeutics, Siberian Federal University, Krasnoyarsk, Russia, June 2011.
3. Synthetic HDL nanoparticles for treatment of atherosclerosis, Medicinal Chemistry, University of Michigan, Ann Arbor, June 2012.
4. Microencapsulaton of biomacromolecules in PLGA without organic solvents, ICB Conference of Protein Formulation and Delivery, Boston, October 2012.
5. Synthetic HDL – nature’s nanomedicine, Nanomedicine Challenge, Biointerfaces Institute, University of Michigan, Ann Arbor, November 2013.
6. Synthetic HDL – a potential sepsis treatment, Pediatric Critical Care, University of Michigan, Ann Arbor, March 2014.
7. Role of HDL in protein folding diseases. Amyloid and Human Disease Symposium, University of Michigan, Ann Arbor, May 2014.
8. Development of USP-4 drug release assay for liposomal doxorubicin, Sotax Corporation, Boston, MA, June 2014.
9. Synthetic HDL – a mimic of nature’s nanomedicine, Nanotek Conference, San Francisco, CA, November 2014.
10. Synthetic HDL – a mimic of nature’s nanomedicine, Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, January 2015.

11. Synthetic HDL – a mimic of nature’s nanomedicine, Department of Pharmaceutical Sciences, University of Michigan, Ann Arbor, MI, January 2015.
12. Physicochemical characterization of Remicade® and its biosimilar Remsima™, National Institute for Pharmaceutical Technology and Education Conference, Rockwell, MD, April 2015.
13. The need to fund biosimilar research. Remicade and Remsima case study, FDA Public Forum, Silver Spring, MD, June 2015.
14. Synthetic HDL and neurodegenerative diseases. Protein Folding Diseases Meeting, Life Science Institute, University of Michigan, Ann Arbor, MI, July 2015.
15. Physicochemical characterization of Remicade® and its biosimilar Remsima™, PQRI Conference, Silver Spring, MD, October 2015.
16. Characterization and quantitative comparison of Remicade® and its biosimilar Remsima™, IBC Bioprocess Conference, Boston, MA, October 2015.
17. Characterization and quantitative comparison of Remicade® and its biosimilar Remsima™, MedImmune Corporation, Rockville, MD, January 2016.
18. High density lipoproteins – nanomedicine and drug delivery carrier, Biological E. Limited, Hyderabad, India, February 2016.
19. Complex generic products. Biological E. Limited, Hyderabad, India, February 2016.
20. Complex generic products. Dr. Reddy’s, Hyderabad, India, February 2016.
21. Design and development synthetic HDL nanomedicines, Saha Cardiovascular Center, University of Kentucky, Lexington, KY, March 2016.
22. How similar are Remicade® and Remsima™? Biosimilar Process Development, ACS Meeting, San Diego, CA, March 2016.
23. Are biosimilars like snowflakes? Multifunctional analytical comparison of Remicade® and Remsima™. Cellular Biotechnology Training Program Annual Symposium, Ann Arbor, MI, April 2016.
24. Are biosimilars like snowflakes? Multifunctional analytical comparison of Remicade® and Remsima™. Protein Metrics Symposium, San Francisco, CA, April 2016.
25. Synthetic HDL – a mimic of nature’s nanomedicine, Regenerative Nano-Medicine Summer School, Tel Aviv University, Israel, June 2016.
26. Complex parenteral products, Amneal Pharmaceuticals, Long Island, NY, July 2016.
27. Design and development synthetic HDL nanomedicines, Protein Folding Disease Initiative Seminar Series, University of Michigan, Ann Arbor, September 2016.

28. Comparative analysis of Neupogen® and biosimilar flgrastim. Therapeutic Proteins International, Chicago, IL, September 2016.
29. Design and development synthetic HDL nanomedicines, Cardiovascular Center Frontiers in Science Seminar, University of Michigan, Ann Arbor, October 2016.
30. High density lipoproteins – nanomedicine and drug delivery carrier, Nanjing Technology Institute, Nanjing, China, November 2016.
31. Synthetic high density lipoprotein – a mimic of nature’s nanomedicine, Purdue University, West Lafayette, IN, April 2017.

Conference Moderator/Organizer

1. Nobel Nanoparticles Workshop, Biointerfaces Institute, Nanoparticle and Drug Delivery (Moderator), Ann Arbor, MI, July 2012.
2. Nanomedicine Workshop, Biointerfaces Institute, Cardiovascular Disease Applications (Moderator), Ann Arbor, MI, November 2013.
3. Nanomedicine and Drug Delivery Symposium (NanoDDS), Nanoparticle Assisted Imaging (Moderator), Chapel Hills, NC, October 2014.
4. UM-Weizmann-Technion Conference, Metabolic Diseases (Moderator), Rehovot, Israel, January 2015.
5. B-EYE: Biointerfaces and Ophthalmology Challenge (Co-organizer), Ann Arbor, MI, March 2015.
6. 2nD FDA/PQRI Conference on Advancing Product Quality, Biosimilars: How Similar is Similar? (Co-moderator) Bethesda, MD, October 2015.
7. Recent Advances in Biomolecular NMR Spectroscopy International Symposium, Membrane Active Peptides. (Moderator) Ann Arbor, MI, April 2016.
8. Nanomedicine and Drug Delivery Symposium (NanoDDS) (Co-organizer) Ann Arbor, MI, September 2017.

Regulatory Submissions

1. Pre-IND Briefing Document for ETC-642 – Reverse Lipid Transport (RLT) Peptide, Esperion Therapeutics, FDA, 2000.
2. Investigational Drug Application (IND) for ETC-642 – Reverse Lipid Transport (RLT) Peptide, Esperion Therapeutics, FDA, 2001.
3. Investigational Drug Application (IND) for ETC-216, Apolipoprotein A-I-Milano Recombinant Protein and Phospholipid Complex for Treatment of Acute Coronary Syndrome Patients, Esperion Therapeutics, FDA, 2001.
4. Investigational Drug Application (IND) for ETC-1001 for Treatment of Individuals with

- Lipid Disorders, Esperion Therapeutics, FDA, 2003.
5. Pre-CTA Briefing Document for ETC-588, Heath Canada, Esperion Therapeutics, 2004.
 6. Clinical Trial Application (CTA) for ETC-642, Health Canada, Esperion Therapeutics a Division of Pfizer PGRD 2004.
 7. Clinical Trial Application for ETC-588, Health Canada, Esperion Therapeutics a Division of Pfizer PGRD 2004.
 8. Investigation Drug Application for CER-522, an Apolipoprotein A-I mimetic peptide, for treatment of dyslipidemic disorders, Cerenis Therapeutics, FDA, 2008.
 9. Investigational Drug Application for CER-001, a recombinant Apolipoprotein A-I phospholipid complex, Cerenis Therapeutics, FDA, 2009.
 10. Clinical Trial Application for CER-001, a recombinant Apolipoprotein A-I phospholipid complex, Cerenis Therapeutics, Health Canada, 2010.
 11. Change of Final Product Manufacturing Process for CER-001, CTA Amendment, Cerenis Therapeutics, Health Canada, 2011.
 12. Change of Final Product Manufacturing Process for CER-001, IND Amendment, Cerenis Therapeutics, FDA, 2011.
 13. Change of Cell Culture Process and Facility for CER-001, CTA Amendment, Cerenis Therapeutics, Health Canada, 2011.
 14. Change of Cell Culture Process and Facility for CER-001, IND Amendment, Cerenis Therapeutics, FDA, 2011.
 15. Investigational Medical Product Dossier for CER-001, a recombinant Apolipoprotein A-I phospholipid complex, Cerenis Therapeutics, European Medical Agency, 2011.
 16. Pre-IND Briefing Document for ONL-101 a synthetic peptide for treatment of retinal detachment, ONL Therapeutics, FDA, 2013.

Conference Proceedings

1. Shenderova A, Burke TG, Schwendeman SP, Biodegradable polymer microspheres stabilize the active form of 10-hydroxycamptothecin, *Proc. Am. Assoc. Cancer Res.*, 36, 303 (1996).
2. Shenderova A, Burke TG, Schwendeman SP, Characterization of the microclimate in PLGA microspheres with a camptothecin probe, *Pharm. Res.*, 9, S-254 (1996).
3. Shenderova A, Burke TG, Giovanella B, Schwendeman SP, Characterization of controlled release formulations of camptothecins composed of polylactide-co-glycolide (PLGA) microspheres, *Proc. Am. Assoc. Cancer Res.*, 38, 260 (1997).

4. Shenderova A, Burke TG, Schwendeman SP, Mechanisms of stabilization of camptothecins in PLGA microspheres, *Pharm. Res.*, 14, S-46 (1997).
5. Zhu G, Mallery SR, Clark YM, Shenderova A, Schwendeman SP, Stabilization of proteins encapsulated in injectable poly(lactide-co-glycolide) delivery vehicles, *J. Dent. Res.*, 77 (Special Issue A), 170 (1998).
6. Shenderova A, Burke TG, Schwendeman SP, Evidence for an acidic microclimate in PLGA microspheres, *Proceed. Int'l. Symp. Control. Rel. Bioact. Mater.*, 25, 265-266 (1998).
7. Shenderova A, Madou MJ, Yao S, Schwendeman SP, Potentiometric and impedance measurements of PLGA coated microelectrodes, *Proceed. Int'l. Symp. Control. Rel. Bioact. Mater.*, 26, #5919 (1999).
8. Shenderova A and Schwendeman SP, Techniques for microclimate pH measurement in PLGA delivery devices, *PharmSci*, 2, #2241 (1999).
9. Shenderova A, Zhu G and Schwendeman SP, Correlation of measured microclimate pH with the stability of BSA encapsulated in PLGA microspheres, *Proceed. Int'l. Symp. Control. Rel. Bioact. Mater.*, 27, #0413 (2000).
10. Lalwani N, Drake S, Watson C, Shenderova A, Rodriguez W, Bisgaier C, Dasseux JL, ETC-642, a Novel HDL mimetic, rapidly elevates HDL-associated cholesterol following intravenous administration in rats, rabbits, and nonhuman primates. *Proceed. Atherosclerosis, Thrombosis and Vascular Biology*, 24 (2004).
11. Devalaraja RM, Loughner A, Schwendeman A, Drake SL, Lalwani N, Synthetic HDL decreases the expression of scavenger receptor and blocks differentiation of foam cells in vitro. *Proceed. Atherosclerosis, Thrombosis and Vascular Biology*, 26, (2006).
12. Zhong Y, Zhang L, Shenderova A, Zhu G, Pei P, Chen R, Mallery SR, Mooney DJ, Schwendeman SP, Overcoming barriers to protein delivery with minimally invasive controlled release depots, *Proceedings of the 13th International Symposium on Recent Advances in Drug delivery Systems: "Overcoming long-standing barriers,"* Salt Lake City, UT, pp. 36-37 (2007).
13. Zhong Y, Zhang L, Shenderova A, Zhu G, Pei P, Chen R, Mallery SR, Mooney DJ, Schwendeman SP, Rescue of murine ischemic hindlimbs with controlled-release rhbFGF, *Proceed. Int'l. Symp. Control. Rel. Bioact. Mater.*, 34, #231 (2007).
14. Keyserling CH, Hunt TL, Klepp HM, Barbaras R, Schwendeman A, Lalwani N, Dasseux JL, A first-in-human, randomized, double-blind, ascending single-dose, placebo-controlled, two-period crossover study to evaluate the safety, tolerability, pharmacokinetics and pharmacodynamics of intravenous CER-001 in healthy dyslipidemic volunteers. *Proceed. AHA* (2011).
15. Baron R, Goffinet M, Sy G, Schwendeman A, Keyserling CH, Barbaras R, Lalwani ND, Dasseux JLH, CER-001 a novel HDL mimetic: characterization of in vitro and in vivo biological activities. *Proceed. AHA* (2011).

16. Sviridov DO, Schwendeman AA, Kim G, Stonik J, Ossoli A, Thacker S, Pryor M, O'Mahony A, Polokoff M, Turner S, Remaley AT, The association of 5A peptide with sphingomyelin increases its ability to efflux cholesterol both in vitro and in vivo, *ATVB*, 34, (2013).
17. Yuan Y, Kim G, Schwendeman A, Synthetic HDL nanoparticles for anticancer drug delivery, *PharmSci*, 16, #3745 (2013).
18. Chang RS, Shah RB, Giles MB, Schwendeman AS, Schwendeman SP. Aqueous PLGA-microencapsulation and long-term immunoreactive release of anti-VEGF Fab, *PharmSci*, 16, (2013).
19. Yuan Y, Che X, Zhao M, Li S, Wang Y, Schwendeman A. Development of cyclosporine A microemulsion for parenteral delivery, *PharmSci*, 16, (2013).
20. Mariani FMA, Kim G, Yuan Y, Schwendeman A. Polymerized HDLs for vaccine delivery. *ABRCMS* (2013).
21. Kuai R, Subramanian C, Timmermann BN, Moon JJ, Cohen MS, Schwendeman A. Synthetic high density lipoproteins for targeted delivery of withalongoles to adrenocortical carcinomas, *Proceed. Int'l. Symp. Control. Rel. Bioact. Mater.*, 41, #10347 (2014).
22. Nieto K, Schwendeman A, Kim YC, Prausnitz MR, Schwendeman SP. Sulprostone-loaded polylactic acid microspheres for treatment of glaucoma., *Proceed. Int'l. Symp. Control. Rel. Bioact. Mater.*, 41 (2014).
23. Dai Z, Tran D, Yuan W, Yuan Y, Zheng N, Jiang W, Schwendeman A, Noble C, Hayes M, Working P. Development of a liposomal doxorubicin product drug release assay, *PharmSci*, (2014).
24. Dai Z, Yuan W, Kuai R, Yuan Y, Zheng N, Jiang W, Noble C, Hayes M, Schwendeman A. Development of flow-through USP 4 apparatus release assay for liposomal doxorubicin, *PharmSci*, 2262 (2014).
25. Doty AC, Wang Y, Choi S, Qu W, Lionberger R, Feng MR, Schwendeman A, Schwendeman SP. Cage implant system to evaluate mechanisms of *in vivo* PLGA microsphere release for IVIVC model development, *PharmSci* (2014).
26. Gebrehiwot EB, Patel H, Schwendeman A. Optimizing Synthetic HDL Therapy for Arteriosclerosis, *ABRCMS* (2014). *Travel award*
27. Morin EE, Guo Y, Kuai R, Lautner G, Meyerhoff ME, Chen YE, Schwendeman A. Atheroma-specific delivery of synthetic HDL containing S1P for modulation of vascular inflammation, *ATVB* (2015).
28. Zhang M, Huang R, Ackermann R, Im SC, Waskell L, Schwendeman A, Ramamoorthy A, Incorporation of the cyt b_5 – cyt P450 complex in nanodiscs characterized by solution NMR, *Experimental Nuclear Magnetic Resonance Conference* (2015).

29. Kuai R, Schwendeman A, Moon JJ. Nanodisc vaccine platform for elicitation of anti-tumor cytotoxic CD8+ T lymphocytes, *BME Conference* (2015).
30. Becker C, Carlson E, Kil Y, Saveliev S, Ford M, Schwendeman A. Comprehensive HCP analysis of infliximab samples, *Host Cell Protein Workshop, BEBPA Conferences* (2015).
31. Shalev O, Raghavan S, Rockwell C, Simopoulos N, Mazzara JM, Schwendeman A, Mehta G, Shtein M. Novel approach to enhance bioavailability of organic small molecule medicines by organic vapor jet printing. *Preclinical formulation and formulation for drug discovery, GRC* (2015).
32. Tang WH, Kil YJ, Crowell KL, Bern MW, Carlson E, Becker C, Ford M, Saveliev S, Pisupati K, Ackermann R, Schwendeman A. Rapid identification and quantitation of disulfide bonds in infliximab (Remicade versus Remsima), *ASMS Conference* (2015).
33. Pisupati K, Benet A, Ackermann R, Tian Y, Ford M, Saveliev S, Carlson E, Becker C, Ruotolo B, Schwendeman S, Schwendeman A. Assessing biosimilarity of infliximab products by LCMS and forced degradation studies. *Colorado Protein Stability Conference* (2015).
34. Kuai R, Schwendeman A, and Moon JJ. Nanodisc vaccine platform for elicitation of anti-tumor cytotoxic CD8+ T lymphocytes. *Biomedical Engineering Society Annual Meeting* (2015).
35. Li D, Tang J, Olsen K, Ackermann R, Schwendeman A. Pegylation of synthetic high-density lipoproteins improves circulation time and in vivo efficacy, *AAPS Conference*, #2548, (2015).
36. Pisupati K, Benet A, Ackermann R, Tian Y, Ford M, Saveliev S, Carlson E, Becker C, Ruotolo B, Schwendeman SP, Schwendeman A. Comprehensive characterization of Remicade and its biosimilar- Remsima using mass spectrometry, *AAPS Conference*, #2679, (2015).
37. Tang J, Yuan W, Dai Z, Li D, Zheng N, Jiang W, Noble C, Hayes M, Szoka FC, Schwendeman A. Development of the liposomal amphotericin B release assay, *AAPS Conference*, #2820, (2015).
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39. Dai Z, Noble C, Yuan W, Zheng N, Jiang W, Szoka FC, Schwendeman A, Hayes M, Working P. Development of a single vial assay for liposomal doxorubicin drug release, *AAPS Conference*, (2015).
40. Kuai R, Ochyl LJ, Schwendeman A, and Moon JJ. Nanodisc-based peptide vaccines for personalized cancer immunotherapy. *Keystone Symposium on Cancer Vaccines*, (2016).

41. Guo L, Morin E, Yuan Y, Zhan GG, Gong MC, Li Z, Standiford T, Schwendeman A, Li XA. Synthetic high density lipoprotein – a potential therapy for sepsis, *ATVB Conference* (2016).
42. Acevedo-Mariani FM, Kang JJ, Yuan W, Pogozeva I, Schwendeman A. Optimization of apolipoprotein A-I mimetic peptides for lipid binding and lecithin-cholesterol acyltransferase activation, *ATVB Conference* (2016).
43. Tang W, Bern M, Skilton J, Carlson E, Ford M, Pisupati K, Schwendeman A, Hosfield C, Saveliev S, Rosenblatt M, Urh M, Becker C. Improved reagents and software for comparing biosimilar and originator therapeutic proteins: accurate analysis of deamidation and disulfide bond scrambling, *ASMS Conference* (2016).
44. Kerr RA, Kang J, Schwendeman A, Ruotolo BT. Ion mobility-mass spectrometry reveals the stoichiometry and structures of lipid bound amyloidogenic peptide complexes within nanodiscs. *ASMS Conference* (2016).
45. Tang J, Kuai R, Yuan W, Moon JJ, Schwendeman A. Effect of size and pegylation of liposomes and peptide-based synthetic lipoproteins on tumor targeting, *AAPS Conference* (2016).
46. Kang JJ, Acevedo-Mariani FM, Yuan W, Pogozeva I, Schwendeman A. Optimization of apolipoprotein A-I mimetic peptides for lipid binding and lecithin-cholesterol acyltransferase activation, *AAPS Conference* (2016).
47. Tang J, Li D, Yuan W, Drake L, Morin EE, Deschaine S, Ackermann R, Olsen K, Smith DE, Schwendeman A. Influence of apolipoprotein A-I peptide lipidation and administration route on pharmacokinetics and ability to mobilize cholesterol, *AAPS Conference* (2016).
48. Kuai R, Xu Y, Schwendeman A, Moon JJ. Cancer immunotherapy with novel vaccine nanodiscs for efficient elimination of mucosal tumors, *CRS Conference* (2017).