

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2. Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Woodrow, Kim Anh		POSITION TITLE Assistant Professor Bioengineering	
eRA COMMONS USER NAME (credential, e.g., agency login) woodrowk			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Wells College, Aurora, NY	B. A.	05/1998	Biol. & Chem. Sci.
Stanford University, Stanford, CA	M. S.	06/2001	Chemical Engineering
Stanford University, Stanford, CA	Ph. D.	06/2005	Chemical Engineering
Yale University, New Haven, CT	Postdoc	092/2009	Biomedical Engineering

A. Personal Statement

NA

B. Positions and Honors

Positions:

2010 - Assistant Professor, Bioengineering, University of Washington, Seattle, WA

Honors:

1994 - 1998 Henry Wells Scholar, Wells College
 1997 National Science Foundation REU Fellowship, Roswell Park Cancer Institute
 1998 BA awarded with high honors and distinction in major, Wells College
 1998 Nancy A. Reed Chemistry Prize, Wells College
 1998 Koch Prize (Honorable Mention), Wells College
 1998 Summa cum laude, Wells College
 1998 Phi Beta Kappa, Wells College
 1998 General Electric REU Fellowship, Cornell University
 1999 - 2002 National Science Foundation Graduate Research Fellowship
 2003 Centennial Teaching Assistant Award, Stanford University
 2006 - 2007 National Institute of Health Genomics Postdoctoral Training Fellowship
 2007 - 2009 L’Oreal USA Fellowship for Women in Science
 2008 - 2009 National Institute of Health Vascular Research Postdoctoral Training Fellowship
 2010 - 2012 Creative and Novel Ideas in HIV Research Award
 2012 - 2017 NIH Director’s New Innovator Award
 2013 Landolt Mentor Award (Nominee)
 2013 Newsweek: 125 Women of Impact

C. Peer-reviewed Publications

Ball, C.B. and Woodrow, K.A. Electrospun solid dispersions of maraviroc for rapid intravaginal pre-exposure prophylaxis of HIV. *Antimicrobial Agents and Chemotherapy*, In-revision.
 Blakney, A.K., Krogstad, E.A., Jiang Y.H., and Woodrow, K.A. Delivery of multipurpose prevention drug combinations from electrospun nanofibers using composite microarchitectures. *International Journal of Nanomedicine*, 2014, In-press.
 Blakney, A., Ball, C., Krogstad, E. and Woodrow, K.A. Electrospun fibers for vaginal anti-HIV drug delivery. *Antiviral Research*, 2013, 100 (6993), S9-S16.
 Chaowanachan, T., Krogstad, E., Ball, C., Woodrow, K.A. Drug synergy of tenofovir and nanoparticle-based antiretrovirals for HIV prophylaxis. *PLoS ONE*, 2013, 8(4), e61416. (PMCID3632578)
 Ball, C., Krogstad, E., Chaowanachan, T., and Woodrow, K.A. Drug-eluting fibers for HIV-1 inhibition and

- contraception. *PLoS ONE*, 2012, 7(11), e49792. (PMCID3509119)
- Woodrow, K.A., Bennett, K., and Lo, D. Mucosal Vaccine Design and Delivery. *Annual Review of Biomedical Engineering*, 2012, 14, 17-36. (PMCID22524387)
- Woodrow, K.A., Cu, Y., Booth, C.J., Saucier-Sawyer, J.K., Wood, M.J., and Saltzman, W.M. Intravaginal gene silencing using biodegradable polymer nanoparticles densely loaded with small-interfering RNA. *Nature Materials*, 2009, 8(6), 526-533. (PMCID2693358)
- Woodrow, K.A., Wood, M.J., Saucier-Sawyer, J.K., and Saltzman, W.M. Biodegradable meshes printed with extracellular matrix proteins support micropatterned hepatocyte cultures. *Tissue Engineering Part A*, 2009, 15(5): p. 1169-79. (PMCID19072719)
- Woodrow, K.A. and Swartz J.R. A Sequential expression system for high-throughput functional genomic analysis. *Proteomics* 2007, 7, 3870-3879. (PMCID17960738)
- Woodrow, K.A., Airen, I.O., and Swartz, J.R. Rapid expression of functional genomic libraries. *Journal of Proteome Research*, 2006, 5, 3288-3300. (PMCID17137330)
- Michel-Reydellet, N., Woodrow, K.A., and Swartz, J.R. Increasing PCR fragments stability and protein yields in a cell-free system with genetically modified Escherichia coli extract. *Journal of Molecular Microbiology and Biotechnology*, 2005, 9, 26-34. (PMCID16254443)
- Belcheva, N., Woodrow, K., Mahoney, M.J., and Saltzman W.M. Synthesis and biological activity of polyethylene glycol-mouse nerve growth factor conjugate. *Bioconjugate Chemistry*, 1999, 10, 932-937. (PMCID10563761)
- Luo, D., Belcheva, N., Woodrow, K., and Saltzman, W.M. Controlled DNA delivery systems. *Pharmaceutical Research*, 1999, 16, 1300-1308. (PMCID10468035)

D. Research Support

Ongoing Research Support

R01 AI 112002 (PI: Woodrow)

02/2014 – 05/2018

NIAID / NIH

Iterative design process that employs safety, toxicity and efficacy endpoints in nonhuman primates and user-focused design feedback to support the rapid advancement of a first-generation fiber microbicide prototype for first-in-human clinical trials.

R33 AI 094412 (PI: Woodrow)

06/2013 – 05/2016

NIAID / NIH

Nanoparticle microbicides for delivery of combination antiretroviral drugs (Microbicide Innovation Program) Measure dose-reduction of ARV drug nanoparticle combinations against cell-free and cell-cell HIV transmission, describe drug-drug interactions based on models for drug synergy, and provide data on pharmacokinetics of nanoparticle microbicides administered topically to the vaginal mucosa.

GA00/GA01 (PI: Woodrow)

12/2012 – 06/2014

The Population Council

Development of Nanofiber devices incorporating, MIV-150-Zinc-Carrageenan with and without contraception Develop fiber delivery systems for MIV-150, zinc acetate, and carrageenan both individually and in combination for rapid and sustained release.

OPP1067729 (PI: Woodrow)

10/2012 – 12/2014

Bill and Melinda Gates Foundation

Drug-eluting fibers for HIV prevention (Accelerated Grant Pilot)

Establish versatility of the electrospun fiber platform to: deliver individually and in combination physico-chemically diverse agents relevant for multipurpose prevention, demonstrate the ability to program drug release kinetics, and establish the feasibility for scale-up and manufacture.

1 DP2 HD 075703 (PI: Woodrow)

09/2012 – 08/2017

NICHD / NIH

Nanomaterials for engineering protection in the genital mucosa

Modulate the magnitude and phenotype of mucosal dendritic cells for chemo-vaccine strategies against HIV.

R21 AI 098648 (PI: Woodrow)

07/2012 – 06/2014

NIAID / NIH

A NanoGuard Vaginal Matrix as a Dual-Protection Contraceptive Microbicide (Combined Multipurpose Strategies for Sexual and Reproductive Health)

Fabricate electrospun nanofibers demonstrate their function as a chemical and physical barrier device for dual-prevention of sexual HIV transmission and unintended pregnancy.

Completed

R21 AI 094412 (PI: Woodrow)

06/2011 – 05/2013

NIAID / NIH

Nanoparticle microbicides for delivery of combination antiretroviral drugs (Microbicide Innovation Program)

Provide data on the design, fabrication and activity of ARV drug nanoparticle combinations for inhibition of HIV infection.

Sub-award P30 AI 027767 (PI: Woodrow)

08/2010 - 05/2013

Office of AIDS Research/CFAR University of Alabama CFAR P30AI027767 (Saag)

Multifunctional nanoparticles as a combination microbicide to prevent mucosal transmission of HIV (Creative and Novel Ideas in HIV Research)

Develop new high-throughput methods for designing, screening, and selecting polymeric nanoparticles that optimize the biomaterial-cellular interface at mucosal surfaces for delivery of nucleic acid, peptide, and small molecule antiretroviral drugs targeting HIV.