

## **Kylene Kehn-Hall, Ph.D.**

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### **EDUCATION**

The George Washington University

- Ph.D. in Biochemistry and Molecular Biology, Jan. 2006
- Dissertation "*Consequences of Cyclin D1/BRCA1 Interaction in Breast Cancer Progression*"
- M.S. in Biochemistry and Molecular Biology, Aug. 2002
- Thesis "*The Role of p21/waf1 in Human T-Cell Leukemia Virus Type-1 Infected Cells*"

Virginia Commonwealth University

- B.S. in Chemistry, Aug. 2001
- *Cum Laude*
- B.S. in Biology, May 2000
- Minor in Criminal Justice and Chemistry
- *Cum Laude*

### **TEACHING EXPERIENCE**

#### **Micro 233: Virology**

- Spring 2007 Course Director and Presented 2 Lectures
- Spring 2008 Course Director and Presented 3 Lectures
- Spring 2009 Course Director and Presented 3 Lectures
- Responsible for creating course schedule, coordinating guest lectures, and grading exams

#### **Micro 212: Pathogenic Bacteriology**

- Fall 2008 Course Director and Presented 2 Lectures
- Creator of newly offered course
- Responsible for creating course schedule, coordinating guest lectures, and grading exams

### **RESEARCH EXPERIENCE**

#### **Assistant Research Professor**

**Jan. 2008 – Present**

The George Washington University, Department of Microbiology, Immunology, and Tropical Medicine, Washington, DC

- Co-Course Director and Instructor of Microbiology 233: Virology (graduate level course).
- Director and Instructor of Microbiology 212: Bacteriology (graduate level course)
- Responsible for writing, editing, and submitting numerous research papers and grant proposals.
- Train graduate students in biochemical and molecular biology laboratory techniques.
- Research in Progress:
  - Understanding changes induced in the cellular membrane proteome of cells chronically infected with HIV-1 and determining how such changes are relevant to the latency phenomenon.

- Investigating the function of the newly discovered human retrovirus, HTLV-3, and its potentially transforming protein, Tax3, in terms of binding partners and transformation ability.
- Investigating the use of p53 activating drugs on HIV-1 infected cells, specifically the compound 9-aminoacridine.
- Identifying biomarkers of LTNP HIV-1 infected patients with the aim of identifying underlying differences that allow these individuals to combat HIV-1 infection.
- Characterizing the post-translational modifications of the tumor suppressor protein, BRCA1, and their influence on breast cancer development.

**Research Scientist  
2008**

**June 2007 - Jan.**

US Army Medical Research Institute of Infectious Diseases, Department of Bacteriology, Fort Detrick, MD

Employed by True Research Foundation, San Antonio, TX

Supervisor: Sina Bavari, Ph.D.

- Developed multiplex quantitative RT-PCR assays for the detection of biological threat agents
- Coordinated and implemented high-throughput screening of compounds for the inhibition of biological threat agents

**Postdoctoral Research Associate  
2007**

**Jan. 2006 - May**

Federal Bureau of Investigation Counterterrorism and Forensic Science Research Unit, Quantico, VA

Sponsored by Oak Ridge Institute for Science and Education, Oak Ridge, TN

Mentors: Kerri Dugan, Ph.D.; Laura Kienker, Ph.D.

- Obtained a Top Secret Security Clearance.
- Optimized a dual DNA/RNA extraction technique for forensically relevant body fluids (blood, saliva, semen, vaginal secretions, and menstrual blood). Evaluated the ability of this co-extraction method to yield STR profiles using the AmpF<sub>STR</sub>® Profiler Plus™ ID PCR Amplification Kit. PCR products were detected by capillary electrophoresis utilizing a 3130x Genetic Analyzer.
- Gained additional laboratory skills including Real-Time PCR analysis, DNA Sequencing, and On-chip electrophoresis (Agilent bioanalyzer).
- Invited Lecturer, Case Western Reserve University, Seminar Series "Alternative Career Opportunities in Science".

**Research Associate  
2007**

**Jan. 2006 – Dec.**

The George Washington University, Department of Biochemistry and Molecular Biology, Washington, DC

Research advisor: Fatah Kashanchi, Ph.D.

- Co-Course Director and Instructor of Microbiology 233: Virology (graduate level course).
- Wrote and edited research paper and grant proposal submissions.

**Ph.D. Student / Research Assistant**

**Sept. 2002 - Dec. 2005**

The George Washington University, Department of Biochemistry and Molecular Biology, Washington, DC

Research advisor: Fatah Kashanchi, Ph.D.

- Wrote and obtained an FY02 Breast Cancer Research Predoctoral Traineeship Award entitled "Consequences of Cyclin D1/BRCA1 Interaction in Breast Cancer Progression" (DOD, ARMY, ECNS90105A).
- Trained undergraduate and graduate students in the design and implementation of laboratory procedures as well as coordinated research projects.
- Experienced working with both HIV-1 and HTLV-1 in a BSL-3 Facility.

- Explored the implications of cyclin D1 phosphorylating the tumor suppressor protein BRCA1 in breast cancer cells through SDS-PAGE, Western Blotting, FACS analysis, Transformation, Chromatin Immunoprecipitation, and Tagged Protein Purification Methods.
- Characterized the interaction between the viral oncoprotein, HTLV-1 Tax, and the retinoblasoma protein through various molecular biology techniques including Cloning, RNase Protection Assays, Transient Transfections, and plasmid preparations.
- Described the membrane protein of HIV-1 latently infected cells through Membrane Protein Purification and Confocal Microscopy.

**M.S. Student / Research Assistant**

**Aug. 2001 - Aug. 2002**

The George Washington University, Department of Biochemistry and Molecular Biology, Washington, DC

Research advisor: Fatah Kashanchi, Ph.D.

- Studied the physical interaction between the cell cycle regulator cyclin D2 and the cell cycle inhibitor p21/waf1 through Kinase Assays, Immunoprecipitations, and Confocal Microscopy.
- Gained experience working in a BSL-3 Facility.

**COMPUTER SKILLS**

Proficient in MS Excel, MS Word, MS PowerPoint

**HONORS AND AWARDS**

- Sallie Rosen Kaplan Fellowship for Women in Cancer Research, 2005 (DECLINED)
- First Place for Oral Presentation, The George Washington University Research Day, 2005
- Second Place for Oral Presentation, Washington DC Branch ASM Annual Meeting, 2003
- Second Place for Poster Presentation, The George Washington University Research Day, 2003
- Best Poster Presentation, Washington DC Branch ASM Annual Meeting, 2002
- Dean's Scholarship for Virginia Commonwealth University, August 1996-May 2000
- Dean's List, Virginia Commonwealth University, Fall 1996-Spring 1998, Spring 1999-Fall 1999, Summer 2001

**PROFESSIONAL SOCIETIES**

- Member, Sigma Delta Epsilon/Graduate Women in Science, 2005-present
- Member, Golden Key National Honor Society, VCU, 1999-present
- Member, Phi Eta Sigma National Honor Society, VCU, April 1997-present

**SCHOLARLY PRESENTATIONS**

Platform Presentations

- US HUPO Fourth Annual Conference: Proteomics & Beyond, "Potential Biomarkers of HIV/AIDS Non-Progressor Patients", 2008
- Invited Lecturer, Case Western Reserve University, Seminar Series: Alternative Career Opportunities in Science, "Career Possibilities in Forensic Biology", 2007
- The George Washington University Research Day, 2005
- Washington DC Branch ASM Annual Meeting, 2004
- The 11<sup>th</sup> International Conference on Human Retrovirology: HTLV and Related Viruses, 2003
- Washington DC Branch ASM Annual Meeting, 2003

Poster Presentations

- Promega's 17<sup>th</sup> International Symposium on Human Identification, 2006
- The 12<sup>th</sup> International Conference on Human Retrovirology: HTLV and Related Viruses, 2005
- DOD: Era of Hope, 2005
- The George Washington University Research Day, 2004
- The George Washington University Research Day, 2003
- Washington DC Branch ASM Annual Meeting, 2002
- Cold Spring Harbor's Retrovirus Meeting, 2002

- The George Washington University Research Day, 2002

### **AREAS OF RESEARCH INTEREST AND EXPERTISE**

- Virology
- Virus-Host Interactions
- Breast Cancer
- Molecular Biology
- Biochemistry
- Forensic Science
- Cell Cycle Aberrations
- Leukemia

### **GRANTS**

- **FY02 Breast Cancer Research Predoctoral Traineeship Award**  
“Consequences of Cyclin D1/BRCA1 Interaction in Breast Cancer Progression”  
Dates of Award: 2003-2005  
Yearly Direct Cost: 30K/year, 3 year grant  
Role: Principal Investigator
- **GW Administration Seed Grant (Elliot Hershman)**  
“Screening of Chemical Libraries to Find Inhibitors of HIV, HTLV, and HHV-8”  
Dates of Award: 1/01/2008 – 12/31/2008  
Yearly Direct Costs of Award: 50K  
Role: Co-PI
- **GWU HIV/AIDS Institute Grant**  
“Pathogenesis and molecular events related to HIV Vpr and its functional consequences in HIV/AIDS cells”  
Dates of Award: 05/2008- 05/2009  
Yearly Direct Costs of Award: 40K  
Role: Co-PI
- **American Cancer Society Seed Grants for Junior Faculty**  
“Post-translational Modifications of BRCA1”  
Dates of Award: 11/01/2008 – 10/31/2009  
Yearly Direct Cost of Award: 30K  
Role: Principle Investigator

### **PUBLICATIONS**

**Kehn-Hall K,** Carpio L, Guendel I, Coley W, Agbottah E, Easley R, Kashanchi F. Activation of the p53 Pathway in HIV-1 Infected T-cells. Manuscript in Preparation.

Guendel I, Berro R, Klase K, Coley W, Kashanchi F, **Kehn-Hall K.** HIV Membrane Proteome: Implications for Therapeutics. Manuscript in Preparation.

Guendel I, Schwartz A, Teal C, Kashanchi F, **Kehn-Hall K.** Methylation of BRCA1 inhibits tumor suppressor function. Manuscript in Preparation.

Van Duyne R, Easley R, Guendel I, Young M, Kashanchi K, **Kehn-Hall K.** Detection of Biomarkers in Long Term Non-Progressor HIV-1 Patients. Manuscript in Preparation.

**Kehn-Hall K**, Wu W, Heydarian H, Carpio L, Kashanchi F. Global Analysis of Cellular Gene Regulation by HTLV-1 Tax. Manuscript in Preparation

**Kehn-Hall K** and Bavari S. 2009. Detection of highly pathogenic viral agents: Implications for therapeutics and vaccines. *Molecular Diagnostics-2<sup>nd</sup> edition*. Accepted.

Kashanchi F and **Kehn-Hall K**. 2009. Cyclin Dependent Kinases as Attractive Targets to Prevent Transcription from Viral Genomes. *Current Pharmaceutical Design*. Accepted.

Agbottah E, Yeh WI, Berro R, Klase Z, Pedati C, **Kehn-Hall K**, Wu W, Kashanchi F. 2008. Two specific drugs, BMS-345541 and purvalanol A induce apoptosis of HTLV-1 infected cells through inhibition of the NF-kappaB and cell cycle pathways. *AIDS Res Ther*. 10;5:12

Van Duyne R, **Kehn-Hall K**, Klase Z, Easley R, Heydarian M, Saifuddin M, Wu W, Kashanchi F. 2008. Retroviral proteomics and interactomes: intricate balances of cell survival and viral replication. *Expert Rev Proteomics*.5(3):507-28.

Van Duyne R, Easley R, Wu W, Berro R, Pedati C, Klase Z, **Kehn-Hall K**, Flynn EK, Symer DE, Kashanchi F. 2008. Lysine methylation of HIV-1 Tat regulates transcriptional activity of the viral LTR. *Retrovirology*. 22;5(1):40.

Berro R, Pedati C, **Kehn-Hall K**, Wu W, Klase Z, Even Y, Genevière AM, Ammosova T, Nekhai S, Kashanchi F. 2008. CDK13: A NEW POTENTIAL HIV-1 INHIBITORY FACTOR REGULATING VIRAL mRNA SPLICING. *J Virol*. ;82(14):7155-66.

Chevalier SA, Ko NL, Calattini S, Mallet A, Prévost MC, **Kehn K**, Brady JN, Kashanchi F, Gessain A, Mahieux R. 2008. Construction and characterization of a Human T-cell Lymphotropic Virus Type-3 infectious molecular clone. *J Virol*. 82(13):6747-52.

**Kehn-Hall K**, Berro B, Klase Z, Saifuddin M, Kashanchi F. Identifying membrane protein surface markers of HIV-1 infection. *Future HIV Therapy*, March 2008, Vol. 2, No. 2, Pages 155-165.

Van Duyne R, Cardenas J, Easley R, Wu W, **Kehn-Hall K**, Klase Z, Mendez S, Zeng C, Chen H, Saifuddin M, and Kashanchi F. 2008. Effect of transcription peptide inhibitors on HIV-1 replication. *Virology*. [Epub ahead of print]

Wu, W.; **Kehn-Hall, K**; Pedati, C.; Zweier, L.; Castro, I.; Klase, Z.; Dowd, C.S.; Dubrovsky, L.; Bukrinsky, M.; Kashanchi, F. 2008. Drug 9AA reactivates p21/Waf1 and Inhibits HIV-1 Progeny Formation, *Virology Journal*. 5(1):41

**Kehn K**, Berro R, Alhaji A, Bottazzi ME, Yeh W, Klase Z, Duyne R, Fu S, and Kashanchi F. 2007. Functional consequences of Cyclin D1/BRCA1 interaction in breast cancer cells. *Oncogene*.26:5060-9.

Berro, R, Klase Z, de la Fuente C, **Kehn K**, Parvin L, Pumfery A, Agbottah E, Vertes A, Nekhai S, and Kashanchi F. 2007. Identifying the membrane proteome of HIV-1 latently-infected cells. *J Biol Chem*. 282:8207-18

Berro R, **Kehn K**, de la Fuente C, Pumfery A, Adair R, Wade J, Colberg-Poley AM, Hiscott J, Kashanchi F. 2006. Acetylated Tat regulates human immunodeficiency virus type 1 splicing through its interaction with the splicing regulator p32. *J Virol*. 80:3189-204.

Liang WS, Maddukuri A, Teslovich T, de la Fuente C, Seelamgari A, **Kehn K**, Baylor S, Hautaniemi S, Pumfery A, Stephan DA, and Kashanchi F. 2005. Therapeutic Targets for HIV-1 Infection in the Host

Proteome. *Retrovirology*. 2:20.

**Kehn K**, de la Fuente C, Strouss K, Berro R, Jiang H, Brady J, Mahieux R, Pumfery A, Bottazzi M, Kashanchi F. 2005. The HTLV-I Tax Oncoprotein Targets the Retinoblastoma (Rb) Protein for Proteasomal Degradation. *Oncogene*. 24:525-40.

Hsieh G, Loukas A, Wahl A, Bhatia M, Wang Y, Williamson A, **Kehn K**, Maruyama H, Hotez P, Leitenberg D, Bethony J, and Constant S. 2004. A secreted protein from the human hookworm *Necator americanus* binds selectively to NK cells and induces IFN- $\gamma$  production. *J. Immunol*. 173:2699-2704.

Seelamgari A, Maddukuri A, Berro R, de la Fuente C, **Kehn K**, Deng L, Dadgar S, Bottazzi M, Ghedin E, Pumfery A, and Kashanchi F. 2004. Role of Viral Regulatory and Accessory Proteins in HIV-1 Replication. *Frontiers in Bioscience*. 9:2388-2413.

**Kehn K**, Berro R, de la Fuente C, Strouss K, Ghedin E, Dadgar S, Bottazzi M, Pumfery A, and Kashanchi F. 2004. Mechanisms of HTLV-1 Transformation. *Frontiers in Bioscience*. 9:2347-2372.

**Kehn K**, Deng L, de la Fuente C, Strouss K, Wu K, Maddukuri A, Baylor S, Rufner R, Pumfery A, Bottazzi M, and Kashanchi F. 2004. The role of cyclin D2 and p21/waf1 in human T-cell leukemia virus type 1 infected cells. *Retrovirology* 1:6.

de la Fuente C, Maddukuri A, **Kehn K**, Baylor SY, Deng L, Pumfery A, and Kashanchi F. 2003. Pharmacological Cyclin-dependent Kinase Inhibitors as HIV-1 Antiviral Therapeutics. *Current HIV Research* 1:131-52.

de la Fuente C, Wang L, Wang D, Deng L, Wu K, Hong L, Stein D, Denny T, Coffman F, **Kehn K**, Baylor S, Maddukuri A, Pumfery A, Kashanchi F. 2003. Paradoxical Effects of a Stress Signal on Pro- and Anti Apoptotic Machinery. *Molecular and Cellular Biochemistry* 245:99-113

de la Fuente C, Santiago F, Deng L, Eadie C, Zilberman I, **Kehn K**, Maddukuri A, Baylor S, Wu K, Lee CG, Pumfery A, and Kashanchi F. 2002. Gene Expression Profile of HIV-1 Tat Expressing Cells: A close interplay between Proliferative and Differentiation signals. *BMC Biochem*. 3:14.

Wang L, Deng L, Wu K, de la Fuente C, Wang D, **Kehn K**, Maddukuri A, Baylor S, Santiago F, Agbottah E, Trigon S, Morange M, Mahieux R, Kashanchi F. 2002 Inhibition of HTLV-1 transcription by cyclin dependent kinase inhibitors. *Molecular and Cellular Biochemistry* 237:137-153.

Furia B, Deng L, Wu K, Baylor S, **Kehn K**, Li H, Donnelly R, Coleman T, and Kashanchi F. 2002. Enhancement of NF- $\kappa$ B acetylation by coactivator p300 and HIV-1 Tat proteins *J Biol Chem*. 277:4973-4980.