

## **Mark Hoffman, Ph.D.**

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Lee's Summit, MO 64063  
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hoffmanma@umkc.edu

### **EDUCATION**

- Doctor of Philosophy – Bacteriology** May 1996  
University of Wisconsin – Madison  
Thesis: Structural elements involved in the biological activities of staphylococcal enterotoxin A  
Advisors: Late Dr. Marsha Betley, Dr. John Mansfield  
Minor: Biotechnology, emphasis in Computer Science
- BA - Molecular Biology - Oxbridge Honors Program** May 1991  
William Jewell College (*Summa cum laude*)  
Overseas Study - Oxford University Spring 1990

### **PROFESSIONAL EXPERIENCE**

#### **University of Missouri – Kansas City**

- Director Bioinformatics Core Aug 2013 - present  
Assoc. Professor – Biomedical and Health Informatics Aug 2013 - present  
Assoc. Professor – Pediatrics Aug 2013 - present

#### **Cerner Corporation**

- Vice President – Personalized Medicine May 2013 – Aug 2013  
Vice President and General Manager – Cerner Research Feb 2012 – Apr 2013  
Vice President – Life Sciences Solutions March 2009 – Feb 2012  
Director – Translational Medicine Sept 2006 – March 2009  
Director – Genomics Strategy March 2005-Sept 2006  
Clinical Bioinformatics Ontology Project Director January 2003 – present  
Genomics Solution Manager January 2003 – March 2005  
Bioterrorism / Public Health Task Force Sept 2001-2003  
Co-Investigator – AHRQ Grant to study use of HIV genotype information in clinical decision support with the University of Illinois in Chicago Sept 2001-2004  
R&D Architect Sept 2000-Dec. 2002  
Microbiology/Pathology Team Lead August 1998 -Sept. 2000  
Application Developer – Microbiology Sept.1997 - Aug. 1998

**Key Projects:** Personalized medicine initiatives, development of technology solutions to enable drug and diagnostic development, Millennium Helix™ development, Clinical Bioinformatics Ontology™ development, Health Sentry™ functional and project lead, AHRQ grant-funded project with University of Chicago Medical Center – HIV pharmacogenomics decision support, Classic Electronic Signatures - 21 CFR part 11 compliance project lead, Classic bill at result project lead.

#### **Consultant**

- RAND Corporation project on genetic test reporting, funded by CDC Dec 2007-Dec 2009

#### **University of Missouri – Kansas City**

- Adjunct Professor – School of Computing and Engineering Jan 2004 – Aug 2013

## University of Kansas

Adjunct Professor – School of Nursing

June 2006 – Aug 2013

## Postdoctoral Research

National Animal Disease Center (USDA) - Ames, IA  
University of Wisconsin, Madison Dept. of Bacteriology

Aug.1996 - Sept.1997  
May 1996 - Aug.1996

## Graduate Research

Dept. of Bacteriology, University of Wisconsin – Madison

Aug.1991 - May 1996

## Bioinformatics Programming Internship

DNASTAR, Inc. - Madison WI

Summer 1994

## Teaching Assistant

Bacteriology 101 - Dept. of Bacteriology, Univ. of Wisconsin – Madison  
Bacteriology 550 - Dept. of Bacteriology, Univ. of Wisconsin – Madison

Fall 1992  
Spring 1993

## Research Assistant

Kansas University Medical Center – Dept. of Biochemistry  
University of Missouri Kansas City - School of Basic Life Sciences

Summers 1990, 1991  
Summer 1989

## PUBLICATIONS

### Peer reviewed

DeShazo, J; Hoffman, MA “A Comparison of a multistate inpatient EHR database to the HCUP national inpatient sample” (in review 2013)

Masys, D, Jarvik, GP, Abernethy, NF., Anderson, NR., Papanicolaou, G; Paltoo, DN., Hoffman, MA., Kohane, IS., Levy, HP “Technical desiderata for the Integration of Genomic Data into Electronic Health Records” J. Biomed Info. 2012 45(3): 419-22

Hoffman, MA, Williams, M; “Electronic medical records and personalized medicine” Human Genetics 2011, 130(1)33-39

Deshmukh, V.; Hoffman, M; Arnoldi, C.; Bray, B; Mitchell, J. “Efficiency of CYP2C9 Genetic Test Representation for Automated Pharmacogenetic Decision Support” Methods Inf. Med. 2009; 48(3):282-290.

Uy, J.; Baker,R; Hoffman,M; Moorman, A.; Novak, R. et. al "HIV Genotypic Resistance Testing to Optimize Antiretroviral Prescribing: Is There Room for Improvement?" Antiviral Therapy 2007 12 (6):957-62

Hoffman, M.; Menge, C; Casey, T; Laegreid, W; Bosworth, B; Dean-Nystrom, E. “Bovine immune response to Shiga-toxigenic *Escherichia coli* O157:H7” Clin. Vacc. Immun. 2007; 13(12):1322-7

Hoffman, MA. “The Genome Enabled EMR” J. Biomed. Info. 2007 40(1):44-6

Hoffman, M., Arnoldi, C., Chuang, I “The Clinical Bioinformatics Ontology: a curated semantic network utilizing RefSeq information” Pac. Symp. Biocomp. 2005, p. 139-150

Hoffman, MA., Wilkinson, T, Bush, A, Myers, W, Griffin R, Hoff, G, Archer, R. “Multijurisdictional approach to Biosurveillance, Kansas City” Emerg. Inf. Dis. 2003 9(10):1281-1286

Laegreid W, Hoffman M, Keen J, Elder R, Kwang J. "Development of a blocking enzyme-linked immunosorbent assay for detection of serum antibodies to O157 antigen of *Escherichia coli*." Clin Diagn Lab Immunol. 1998 Mar;5(2):242-6.

Hoffman M, Tremaine M, Mansfield J, Betley M. "Biochemical and mutational analysis of the histidine residues of

staphylococcal enterotoxin A." Infect Immun. 1996 Mar;64(3):885-90.

### **Book chapters**

Hoffman, M. "Genomic Medicine: Informatics Implications and Opportunities" in Managing information Technology in Health Services Organizations ed. Gordon Brown 2012 (2<sup>nd</sup> edition)

Hoffman, M. "Genomic Medicine: Informatics Implications and Opportunities" in Managing information Technology in Health Services Organizations ed. Gordon Brown 2005

McCormick, K.; Hoffman, M. "Influence of Biomedical Informatics on Clinical Information Systems" in Nursing and Informatics for the 21st Century: Cases, Practice, and the Future, edited by Charlotte Weaver, Connie Delaney, Patrick Weber, and Robyn Carr HIMSS 2006

### **Patents awarded**

**US Patent – 8,538,704** – Hoffman, M; McCallie, D; "Computerized method and system for inferring genetic finding for a patient"

**US Patent – 8,498,880** – Nedblake, G; Hoffman, M; Power, K; "Shared protocol statements"

**US Patent – 8,489,409** – Moussavi, M; Hoffman, M – "Automated newborn screening reporting"

**US Patent – 8,364,502** – Nedblake, G; Hoffman, M; Power, K – "Proactive correction alerts"

**U.S. Patent – 8,224,585** – Hoffman, M. – "Documenting and presenting mutation observations"

**U.S. Patent – 8,224,671** – Nedblake, G, Hoffman, M., Power, K. "Documentation of protocol orders"

**U.S. Patent – 8,001,097** - Hofman, M., Power, K., Kuhns, G., Smith, N. "Computerized System and Method for Building a System of Test Components for a Healthcare Orderable Procedure"

**U.S. Patent – 7,983,848** – Hoffman, M., McCallie, D. "Computerized method and system for inferring genetic finding for a patient"

**U.S. Patent – 7,957,914** – Hoffman, M., Kuhns, Ginger, Power, K.. "Automated detection of genetic test duplication"

**U.S. Patent – 7,885,445** - Hoffman, M., Humphrey, L., Duello, D. "Computerized method and system for association a portion of a diagnostic image with an electronic medical record"

**U.S. Patent 7,869,956** - Hoffman, M. "A computerized system and method for documenting and presenting mutation observations"

**U.S. Patent – 7,813,879** Bush, A, Gosch, J, Hoffman, M "System and method for processing biologically significant events"

**U.S. Patent – 7,773,793** - Hoffman, M., Humphrey, L., Duello, D. "Computerized method and system for association a portion of a diagnostic image with an electronic medical record"

**U.S. Patent – 7,729,865** - Hoffman, M., Kuhns, G., Power, K. "A computerized system and method for automated correlation of genetic test results"

**U.S. Patent – 7,634,359** – Hofman, M., Power, K., Kuhns, G., Smith, N. "Computerized System and Method for Building a System of Test Components for a Healthcare Orderable Procedure"

**Australian Patent 2,002,303,386** Hoffman M., McCallie D. “Computer system for providing information about the risk of an atypical clinical event based upon genetic information”

### Patents pending

Hoffman, MA; Ryan, H; Sutariya, B.; Perez,L.; Kuckelman, J. “Multi-site decision support for sepsis”

Hoffman, MA; Ryan, H; Sutariya, B.; Perez,L.; Kuckelman, J. “Multi-site decision support”

Hoffman, MA “Centralized data mapping for site-specific data extraction”

Hoffman, MA “Dynamically adjusted rules-based decision support using site-specific mapped values”

Griffin, J.; Hoffman, M.; Cass, B; Gorup, P. “Distributed Clinical Research System”

Hoffman, M. , McCallie, D “Computer system for providing information about the risk of an atypical clinical event based upon genetic information”

Hoffman, M., Arnoldi, C “Computerized system and method for creating and maintaining an ontology for genomics concepts”

### ABSTRACTS (Representative)

S. Gravlin, M.Moussavi, M. Hoffman “Integrating clinical decision support rules for pharmacogenomics into the EHR” Pediatric Pharmacogenomics Conference 2011

S. Gravlin, M.Moussavi, M. Hoffman “Promoting Personalized Medicine through Health Information Technology” Pediatric Pharmacogenomics Conference 2010

C.Arnoldi, M. Moussavi, M. Hoffman "Modeling Cytogenetic Information in the Clinical Bioinformatics Ontology" Advancing Practice Innovation and Instruction through Informatics 2005

C. Arnoldi, M. Hoffman " Using the Clinical Bioinformatics Ontology to Represent CYP2D6 Information" Kansas City Life Sciences Institute Research Day 2004

M. Hoffman, T. Casey, B. Bosworth “Bovine Immune Response to *Escherichia coli* O157:H7” Hemorrhagic Uremic Syndrome conference 1997

### FUNDED RESEARCH

PI – Informatics and Personalized Medicine (internally funded by Cerner, IRB approved) 2009-2011

PI – Personal Genomics Evaluation Pilot (internally funded by Cerner, IRB approved) 2009-2010

Consultant – University of Illinois Chicago AHRQ Grant – Clinical Informatics in Patient Safety 2001-2004

### SCIENTIFIC SERVICE

NeuroDevNet (Canada) – Scientific Advisory Board 2010 - present

Associate Editor – Journal of Clinical Bioinformatics Ongoing

Editorial review – Journal of Biomedical Informatics, Emerging Infectious Diseases, Nature Reviews Genetics, Genetics in Medicine Ongoing

Evaluating Genomic Applications in Practice and Prevention Stakeholders group (EGAPP ESG) 2007-2009

EGAPP ESG – IT Subcommittee Co-Chair 2008-2009

AMIA Translational Bioinformatics Conference Scientific Program Committee 2010

AMIA Translational Bioinformatics Conference Track Co-Chair 2009

Health and Human Services Secretary’s Advisory Committee on Genetics, Health, and Society 2007

(SACGHS) Task force on Oversight of Genetic Testing

Master’s Thesis Committee – Vijay Nalla (UMKC) 2005

Master’s Thesis Committee – Chintan Patel (UMKC) 2004

Search Committee for Dean of School of Computing and Engineering UMKC 2004-2005

Bioinformatics Curriculum Committee – UMKC 2003-2004

## INVITED WORKSHOPS

"Enabling Research Use of Clinical Data" NIH  
"Perspectives and Tools: How to Interpret Pharmacogenetic Reporting" AACC 2006, 2007

## INVITED LECTURES

"Clinical Decision Support" Regulatory Issues in Next Generation Medicine and Pharmacogenomics – University of Maryland 2013  
"Medical Informatics as an Enabler of Translational Medicine" – Kansas City Life Sciences Institute Research Symposium 2013  
"Powerful Patient Data: Genomics and Family Health History in Health IT" – Genetic Alliance and Intermountain Healthcare 2013  
"Beyond the Hype – Developing, Implementing, and Sharing Pharmacogenomic Clinical Decision Support" Panel – AMIA Summit on Translational Bioinformatics 2013  
"Use of Genetic Information in a Widely Distributed EHR" NHLBI Workshop – Integration of Genetic Test Results Within Medical Records 2011  
"Accelerating Clinical Research: A New Paradigm" Georgia Health Sciences University Tech Fair 2011  
"Bridging Patient Care and Research" Leveraging Electronic Health Records for Genetic Research – University of Michigan 2011  
"Healthcare reform: How will we know if things have improved?" William Jewell College 2011  
"HITECH and Meaningful Use: The Impact of the Current EHR Landscape on the Support of Personalized Medicine" Intermountain Healthcare 2010  
"The intersection of public health and personalized medicine" William Jewell College 2010  
"Health data ecosystem: readiness for genomic data sharing" HHS Secretary's Advisory Committee on Genomics, Health and Society 2010  
"Clinical Bioinformatics and Personalized Medicine" H. Lee Moffitt Total Cancer Care Summit 2007  
"Non-intrusive integration of Genomics information into a Clinical Information System" University of Missouri Kansas City, School of Engineering 2006  
"The Genome Enabled Laboratory Information System" AACC Cool Tools Conference 2004  
"Biomedical Informatics: New Frontiers" MOBIO - Missouri Chamber of Commerce 2002  
"Clinical Decision Support Using HIV Genotype Information" AIMCL 2002  
"Capturing Pharmacogenomic Information for Patient Management" AACC Pharmacogenomics Workshop 2002  
"Immune Response to Bacterial Toxins" Midwest Research Institute 1997  
"Structure Function Analysis of Staphylococcal Enterotoxin A" Human Gene Therapy Research Institute 1996

## PANELIST

IT Roundtable – Clinical Research Forum 2012  
LabInfotech – Molecular Diagnostics Panel 2008  
"Clinical Decision Support and Personalized Medicine" Personal Healthcare Workgroup – Health and Human Services 2007  
"Embedding structured genetic findings in the EMR" AMIA 2005  
"Integrating molecular & clinical information and knowledge to improve health care" MedInfo Genomics working group panel 2004  
McCarthy, JF, Hoffman, M, Nelson, S, Schrag, RC, Larson, RR "Bridging the Molecular Gap: Extracting, Representing and Utilizing Molecular Knowledge in Clinical Medicine" AMIA 2001

## MEMBERSHIPS

American Medical Informatics Association 2001-present

American Association for the Advancement of Science	2000-present
American Society for Microbiology	1993-present
Association for Molecular Pathology	2006-present
Healthcare Information and Management Systems Society	2001-2008

## **AWARDS**

Winner – Cerner Outstanding Intellectual Property Achievement	2004
Winner – Cerner Innovation of the Year – 2003 “Patent Program” (with other inventors and legal Dept.)	2004
Finalist - Cerner Innovation of the Year – 2002 “Health Sentry”	2003
Finalist - Cerner Innovation of the Year – 2002 “HIV Pharmacogenomics Decision Support”	2003
Cerner Top Gun Award to top 5% of associates	2002
USDA Certificate of Merit for work on the First Virtual Conference on Infectious Disease in Animals	1997
NIH Biotechnology Training Program	1991-1994
William Jewell College Faculty Award to top graduating senior	1991
Biology Departmental Award	1991
Spanish Poetry Award	1991
Missouri Academy of Science - 2 <sup>nd</sup> place Undergraduate Biological Research	1991

## **COMMUNITY**

Elder – Lee’s Summit Christian Church	2011-
Founder, President – Eden Renewal	2009-present
Parliamentarian – Lee’s Summit Christian Church	2009
Moderator – Lee’s Summit Christian Church	2008
Vice Moderator – Lee’s Summit Christian Church	2007
Administration Department – Lee’s Summit Christian Church	1999-2001, 2005 - present
Search Committee for Senior Pastor – Lee’s Summit Christian Church	2003-2004
Board of Directors – University Associates (UMKC)	2003-2006
Moderator Technology Department – Lee’s Summit Christian Church	2002-2004