OMB No. 0925-0001/0002 (Rev. 08/12 Approved Through 8/31/2015)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: **Christina M. Laukaitis**

eRA COMMONS USER NAME (credential, e.g., agency login): laukaitis

POSITION TITLE: Assistant Professor, Dept. of Medicine & Investigator, University of Arizona Cancer Center

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE  (if applicable) | Completion Date  MM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- |
| Butler University, Indianapolis, IN | B.S. | 06/1995 | Biology, Chemistry |
| University of Illinois, Urbana, IL | Ph.D. | 08/2001 | Cell & Structural Biology |
| University of Illinois, Urbana, IL | M.D. | 06/2003 | Medicine |
| St. Vincent Hospital, Indianapolis, IN | Residency | 06/2006 | Internal Medicine |
| University of Washington, Seattle, WA | Fellowship | 08/2008 |  |

1. **Personal Statement**

My professional goal is to understand the genetic and environmental risk factors that predispose individuals to cancer in order to treat neoplasia before cancer develops. My training and board certification in Medical Genetics have provided me with expertise and experiencing caring for people at high-risk for breast and other cancers due to mutations in *BRCA1*, *BRCA2, APC* and mismatch repair genes. In my laboratory, we seek explanations for high-risk families without identified mutations. I have experience working with WBF and UDCA sample genotyping and experience interpreting genetic data that influences cancer risk.

1. Nelson-Moseke, A.C., Jeter, J.M., Cui, A., Roe, D.J., Chambers, S.K., and **Laukaitis, C.M.** (2013) An Unusual BRCA Mutation Distribution in a High Risk Cancer Genetics Clinic. Familial Cancer 12(1):83-87. PMID: 23179792
2. **Laukaitis, C.M.** (2012) Genetics for the General Internist. American Journal of Medicine 125(1):7-13. PMID: 22079017
3. **Laukaitis, C.M.**, Erdman, S.H. and Gerner, E.W. (2012) Chemoprevention in patients with genetic risk of colorectal cancers. Colorectal Cancer 1(3):241-256.
4. **Laukaitis, C.M.** and Gerner, E.W. (2011) DFMO: Targeted Risk Reduction Therapy. Best Practice and Research: Clinical Gastroenterology. 25(4-5):495-506. PMID: 22122766
5. **Positions and Honors**

**Positions and Employment**

1995-2001 Graduate & Teaching Assistant, Dept. of Cell & Structural Biology, Univ. of Illinois, Urbana, IL

2003-2004 Intern, Internal Medicine Residency Program, St. Vincent Hospital, Indianapolis, IN

2004-2006 Resident, Internal Medicine, St. Vincent Hospital, Indianapolis, IN

2006 *Locum tenens* physician, Hopi Health Care Center, Polacca, AZ

2006-2008 Fellow, Division of Medical Genetics, University of Washington, Seattle, WA

2008-2009 Postdoctoral Research, Fred Hutchinson Cancer Research Center, Seattle, WA

2008-2010Assistant Professor of Clinical Medicine, Dept. of Medicine, University of Arizona, Tucson, AZ

2008-2013 Associate Investigator, Arizona Cancer Center, University of Arizona, Tucson, AZ

2009-present Member, Genetics Interdisciplinary Training Program, Univ. of Arizona, Tucson, AZ

2009-present Member, Cancer Biology Interdisciplinary Training Program, Univ. of Arizona, Tucson, AZ

2010-present Assistant Professor, Tenure Eligible, Department of Medicine, University of Arizona, Tucson, AZ

2012-2013 Associate Program Director, Internal Medicine Residency Program, Univ. Arizona, Tucson, AZ

2014-present Investigator, University of Arizona Cancer Center, University of Arizona, Tucson, AZ

2014-present Laboratory Co-Director, Clinical Laboratory of the University of Arizona Genomics Core, Tucson, AZ

2015-present Director of Genetic Consultation and Counseling Services, Center for Applied Genetics and Genomic Medicine, University of Arizona, Tucson, AZ

**Honors, Awards and Additional Training**

1991-1995 National Science Scholar, National Science Foundation

2005 Summer Institute in Statistical Genetics, North Carolina State University, Raleigh, NC

(Basic statistics, Genetic data analysis, Molecular phylogenetics)

2010-2011 Young Alumni Board, Butler University, Indianapolis, IN

2011 Yellen Distinguished Young Investigator Award, Arizona Cancer Center; Unrestricted use gift

2011 40 under 40, Arizona Star, recognizes young leaders in Tucson based on professional accomplishments, leadership qualities and community impact.

2013 “Researcher of the Year”, Arizona Chapter, American College of Physicians

**Licenses, Board Certifications, and Professional Memberships**

2001— Member, Society for the Study of Evolution

2003— Member, European Society for Evolutionary Biology

2006 Diplomate, American Board of Internal Medicine

2006— Member, Genetics Society of America

2007— Member, American Society for Human Genetics

2007-2011 Member, American College of Physicians

2008— Physician license, State of Arizona

2008— Member, Arizona State Genetic Services Advisory Committee

2009 Diplomate, American Board of Medical Genetics

2011— Fellow, American College of Physicians

2011— Member, International Society for Gastrointestinal Hereditary Tumors (InSiGHT)

2011— Member, Collaborative Group of the Americas on Inherited Colorectal Cancer

2011— Member, Southwest Oncology Group (SWOG)

1. Contribution to Science

1. **Molecular mechanisms of cell migration**

I cloned the genes for variants of the green fluorescent protein to genes encoding adhesion molecules (integrins and intracellular molecules). By co-expressing in migrating cells pairs making spectrally-shifted fused proteins, we described their roles in the process of cell migration.

1. Knight, B., **Laukaitis, C. M.**, Akhtar, N., Hotchin, N. A., Edlund, M. and Horwitz, A. R. (2000) Visualizing cell migration in situ. Current Biology. 10: 576-585. PMID: 10837222
2. **Laukaitis, C. M.**, Donais, K., Webb, D. J., and Horwitz, A. F. (2001) Differential dynamics of 5 integrin, paxillin, and -actinin during formation and disassembly of adhesions in migrating cells. Journal of Cell Biology. 153(7):1427-1440. PMID: 11425873

2. **Development of a mouse system modeling genomic instability**

I have worked with a strong international team of genomics and genetics experts, we have developed a mouse system modeling genomic instability, a key factor in cancer development. In this system, we have evaluated the evolutionary forces leading to this dramatic expansion, which comprises 0.1% of the mouse genome. I started as a junior member of the team and now run a key research group contributing to it.

1. Emes, R.D., Riley, M.C., **Laukaitis, C.M.**, Goodstadt, L., Karn, R.C., and Ponting, C.P. (2004) Rapid duplication and sequence diversification within the rodent androgen-binding protein (ABP) gene cluster. Genome Research. **14**(8):1516-1529. PMID: 15256509
2. **Laukaitis, C.M.**, Heger, A., Blakley, T.D., Munclinger, P., Ponting, C.P., and Karn, R.C. (2008) Rapid bursts of *Abp* gene duplication occurred independently in diverse mammals. BMC Evolutionary Biology. 8:46. PMID: 18269759
3. Janoušek V.\*, Karn R.C., **Laukaitis C.M.** (2013) The role of retrotransposons in gene family expansions: insights from the mouse *Abp* gene family. BMC Evol Biol. **13**:107. PMID: 23718880
4. Karn RC, **Laukaitis CM.** (2014) Selection shaped the evolution of mouse androgen-binding protein (ABP) function and promoted the duplication of *Abp* genes. Biochem Soc Trans. 42(4):851-60. PMID: 25109968

**3. Studies of the mouse salivary androgen-binding protein (ABP) model system**

We have studied the phenotypic effects of having multiple highly similar gene copies, including regulated expression in various secretory organs of the head and neck. We identified ABP as a proteinaceous pheromone. We are now evaluating the consequences of knocking out individual gene pairs on the stability of the gene complex and on the health and behavior of the knockout mouse. We have identified evolutionary oddities, such as expressed non-processed pseudogenes and extensive sex-limited and strain-specific expression patterns, that will inform future work seeking transciptional control regions.

1. **Laukaitis, C.M.**, Critser, E.S. and Karn, R.C. (1997) Salivary androgen-binding protein (ABP) mediates sexual isolation in Mus Musculus. Evolution.**51**(16): 2000-2005.
2. **Laukaitis, C.M.**, Dlouhy, S.R., Emes, R.D., Ponting, C.P., and Karn, R.C. (2005) Diverse spatial, temporal, and sexual expression of recently duplicated androgen-binding protein genes in *Mus musculus.* BMC Evolutionary Biology. 5:40. PMID: 16018816
3. Zhou, X., Wei, Y., Xie, F., **Laukaitis, C.M.**, Karn, R.C., Kluetzman, K., Gu, J., Zhang, Q-Y., Roberts, D.W., and Ding, X. (2011) A Novel Defensive Mechanism against Acetaminophen Toxicity in the Mouse Lateral Nasal Gland: Role of CYP2A5-mediated regulation of testosterone homeostasis and salivary Androgen-binding protein Expression. Molecular Toxicology. **79**(4):710-723. PMID: 21252290
4. Karn, R.C., Mauss, C. and **Laukaitis, C.M.** (2012) Congenic strain analysis reveals genes that are rapidly evolving components of a prezygotic isolation mediating incipient reinforcement. PLoS One. **7**(4):e35898. PMID: 22558260

**4. Analysis mouse and rat saliva and tear proteomes**

Our interest in the proteins found in saliva and tears has led us to analyze mouse and rat saliva proteomes and mouse tear proteomes. We have compared these to the corresponding transciptome and to published human saliva and tear proteomes. Based on these unique analyses, we help to determine where mouse is, and is not, an appropriate model system.

1. Karn, R.C. and **Laukaitis, C.M.** (2011) Positive selection shaped the convergent evolution of independently expanded kallikrein subfamilies expressed in mouse and rat saliva proteomes. PLoS One. **6**(6):e20979. PMID: 21695125
2. Karn, R.C., Chung, A.G., **Laukaitis, C.M.** (2013) Shared and unique proteins in human, mouse and rat saliva proteomes: Footprints of functional adaptation. Proteomes. 1(3):275-89. PMID: 24926433
3. Karn, R.C., Chung, A.G., **Laukaitis, C.M.** (2014) Did androgen-binding protein paralogs undergo neo- and/or sub-functionalization as the *Abp* gene region expanded in the mouse genome? PLoS One. 9(12):e115454. PMID: 25531410

Complete List of Published Work in MyBibliography: http://www.ncbi.nlm.nih.gov/sites/myncbi/christina.laukaitis.1/bibliography/46181380/

1. **Research Support**

**Ongoing**

74-001-34-IRG (Laukaitis, PI) 12/20/15-12/31/16

American Cancer Society Institutional Research Grant

A Multi-locus SNP Assay to Predict Risk of Advanced Breast Cancer in *ELLA* Samples

The goal of this project is to extend our genetic analysis of *ELLA* samples to a novel but promising pair of interacting SNPs whose presence may explain the young age and late stage of breast cancer diagnosis in *ELLA* participants.

U54 CA143924 (Alberts, PI) 09/01/14-08/31/19

NIH/NCI

Partnership for Native American Cancer Prevention

The goal of this project is to partner with tribal communities to develop sustainable community education programs and research for cancer prevention that address the unique needs and stages of readiness in three tribal communities (Hopi Tribe, Navajo Nation, and Tohono O’odham Nation).

Role: Medical Education Director for Community Outreach Program

**Contracts**

ARISE Trial (LAL-CL02) (Laukaitis, Site PI) 09/13-09/16

Synageva BioPharma Corporation

A Multicenter, Randomized, Placebo-Controlled Study of Sbc-102 in Patients with Lysosomal Acid Lipase Deficiency: ARISE (Acid Lipase Replacement Investigating Safety And Efficacy)

This multicenter, randomized, placebo-controlled study evaluates the safety and efficacy of SBC-102 (sebelipase alfa) in patients with Lysosomal Acid Lipase Deficiency (LALD). The study will consist of a screening period, a 20-week double-blind treatment period and a 130 week open-label extension period.

No Grant # (Laukaitis, Site PI) 02/14—indefinite

Genzyme, a Sanofi Company

Genzyme Rare Disease Registry

The Rare Disease Registry Program is a longitudinal, international, observational program that tracks outcomes of routine clinical practice for patients with Gaucher, Fabry, MPS I, and Pompe diseases. Data collected represents rare disease practice patterns and disease and treatment understanding across different populations and cultures. The data collected by this international, collaborative registry may provide information to characterize the natural history and progression of these diseases, as well as the clinical responses of patients whose physicians have prescribed disease treatment.

**Complete**

Phi Beta Psi Sorority Cancer Research Grant (Laukaitis, PI) 08/01/12-03/31/15

Phi Beta Psi charity Trust

Detecting Inherited DNA-Repair Mutations in Women With Strong Family Histories of Breast Cancer.

This proposal supports translational studies looking for inherited genetic variation in breast-cancer risk genes to explain elevated familial breast cancer risk in the absence of *BRCA1* or *BRCA2* gene mutations. This work funds a preliminary study genotyping women from the UA Cancer Genetics Clinic who have not been affected by cancer, but who are at high-risk based on their family history.

Komen Small Research Grants (Ray, PI) 06/01/09-05/30/13

Susan B. Komen Foundation

Education and Screening Regarding BRCA1/2 Mutations and Associated Cancer Risks to the Underserved Urban, Rural, and Latina Populations at High Risk for Hereditary Breast Cancer in Arizona Via Tele-Genetic Counseling.

The major goal of this project was to measure the feasibility and reaction to providing genetic counseling and testing to underserved populations using modalities such as telemedicine.

Role: Co-Investigator