

RESEARCH SCIENTIST

Summary

Innovation and discovery-oriented Research Scientist with extensive expertise in molecular biology, cell biology and biochemistry. Performed basic research relevant to vaccine development. Strong background in theory and operation of DNA and RNA amplification techniques, cloning and expression techniques, protein biochemistry methods. Experiences in using sequence analysis computer programs, including Vector NTI. Strong oral, written and interpersonal communication skills. Excellent team player and collaborator.

Skills

- Laboratory management
- Strategic planning
- Complex problem solving
- Team building
- Group instruction
- Supervising and mentoring
- Development, optimization and implementation of new protocols and innovative research approaches
- Discovery of novel biological mechanisms
- Publication in high profile scientific journals
- Writing protocols, reports, procedures, manuscripts

Education and Training

Bachelor of Science : Microbiology 2002 University of Maria-Curie Skłodowska City , Poland

Master of Science : Immunology 2004 University of Maria-Curie Skłodowska City , Poland

Ph.D. : Microbiology Molecular Biology and Biochemistry 2009 University of Idaho City , State , USA

Postdoctoral Training in Molecular Biology 2013 Washington State University City , State , USA

Postdoctoral Training in Molecular Endocrinology 2014 Washington State University City , State , USA

Research and Professional Experience

Research Scientist 01/2015 to Current Verizon Media (Former Oath) Miami , FL

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

Research Focus: *Cancer prevention and treatment: Genome stability, DNA repair, Transposable elements, Epigenetics, Genome technologies.*

Key Achievements

- Contributed to discovery of a novel class of transposable elements. (Manuscript in preparation to be submitted to PNAS journal).
- Procured and managed the internal UGA research grant resulting in generation of preliminary data for 2 grant applications.

New Methodologies: Single-Molecule Real Time (SMRT) DNA sequencing. Development of novel technology for the genome-wide mapping of carcinogen-induced chemical modifications in the DNA. ChIP sequencing.

Responsibilities: Design, implementation and management of multiple research projects. Emphasis on scientific premises, rigor and data reproducibility. Established multidisciplinary research teams and collaborations within UGA, and partnerships with the biotech industry (Pacific Biosciences, Oxford Nanopore Technologies). Organize project team meetings. Developing effective strategies and actively applying for the internal and extramural research funding. Teaching Cell Biology and Biochemistry course. Training research professionals.

Postdoctoral Research Associate 01/2014 to 12/2014 Rice University Houston , TX

DEPARTMENT OF ANIMAL SCIENCES

Research Focus: *Muscle Biology: Novel endocrine actions of muscle cytokine, myostatin.*

Key Achievements:

- Developed, optimized and successfully implemented an *in vitro* system for studying the endocrine actions of myostatin.
- Generated research findings which contributed to founding a new start up company, AAVogen Inc., working on a novel gene therapeutics to combat muscle wasting disease.

New Methodologies: Mammalian cell culture, cell-based assays, digital PCR, ELISA.

Responsibilities: Designed and performed experiments. Performed statistical analyses, including setting up data for analysis, selecting appropriate method and judging validity and reliability of data. Reviewed grant proposals and manuscript submissions.

Postdoctoral Research Associate 01/2010 to 12/2013 Rice University Houston , TX

SCHOOL OF MOLECULAR BIOSCIENCES

Research focus: *Genome stability, DNA repair, chromatin remodeling: Role of ATP-dependent chromatin remodelers in DNA repair pathway.*

Key Achievements:

- Developed and optimized new, cell-based assay enabling the quantitative assessment of DNA repair efficiency in living cells.
- Discovered new role for the SWI/SNF remodeler (human tumor suppressor) in regulation of the fundamental DNA repair system.

New Methodologies: Bacterial and yeast cell culture, yeast genetics, DNA, RNA purification, biochemical and molecular techniques (sonication, homogenization, extraction, centrifugation, filtration), cytotoxicity assays, DNA repair assays, DNA damage quantification, handling toxic and carcinogenic substances.

Responsibilities: Planned, designed and performed research experiments. Developed new methods and research protocols. Performed data collection, processing and analysis. Established priorities, schedules, time tables and budgets. Presented research findings to internal and external parties, at national and international conferences. Initiated and maintained liaisons with other departments and collaborators to maximize project success. Wrote manuscripts and grant progress reports. Trained research professionals.

Doctoral Research: Research Assistant 08/2005 to 12/2009 UNIVERSITY OF IDAHO City, STATE

DEPARTMENT OF MICROBIOLOGY MOLECULAR BIOLOGY AND BIOCHEMISTRY

Research Focus: *Reproductive Biology, Molecular mechanisms of sex determination: Structure, function and regulation of genes involved in sexual development, using fungal model organism-Aspergillus nidulans.*

Key Achievements:

- Developed and managed 4 research projects, which led to 4 first-author publications, including a *Nature Communications* paper.
- Discovered a novel, sexual cycle specific gene-silencing system. This study was published in the journal of *Genetics* and the article was featured in the journal's highlights of the month.
- Made an important discovery improving genetic studies of the human pathogen- *Aspergillus fumigatus*. Those studies were published in the journal of *Eukaryotic cell* and microscope images from this work were selected for the journal's cover.

New Methodologies: Bacterial and fungal cell culture, fungal genetics, DNA-recombinant technologies, molecular cloning, plasmid design and construction, large-scale plasmid preps, DNA-mediated transformation, gene disruption and complementation, ORF-swap, fusion PCR, real-time, quantitative PCR, site-directed mutagenesis, Southern blotting, Northern blotting, primer design, DNA sequencing and sequence analysis, fungal tissue dissection, spatio-temporal gene expression, microscopy (light, inverted, fluorescent, confocal). Software: MS word, PowerPoint, Excel, Prism, Reference Manager, Photoshop, DNA star (Lasergene).

Responsibilities: Author protocols. Planned and performed experiments. Analyzed data. Wrote manuscripts and progress reports. Assisted with laboratory management, equipment validation and maintenance. Supervised and mentored students and research professionals. Taught Advanced Laboratory Techniques, and General Microbiology Laboratory.

Publications/Manuscripts

1. **Czaja, W.**, Bensasson, D., Bergman, C.M., Garfinkel, D.J. (2016) Long read SMRT sequencing reveals that the novel form of Ty1-retrotransposon restriction is a widespread mechanism in populations of domesticated and wild yeast (*in preparation, to be submitted to PNAS journal*).
2. **Czaja, W.**, Nakamura, Y., Eldridge J.A, Marquez Y., DeAvila D.M., Thompson T.B., Rodgers B, D. (2016). Redefining organismal growth control through the novel actions of myostatin (*manuscript under review in Endocrinology journal*).
3. **Hinz, J.M., Czaja W.** (2015) Facilitation of Base Excision Repair by Chromatin Remodeling DNA Repair(Amst), 36:91-7.
4. **Czaja, W.**, Mao, P. Smerdon, M.J. (2014) Chromatin remodeling complex RSC promotes Base Excision Repair in *Saccharomyces cerevisiae*. DNA Repair (Amst), 16, 35-43.
5. **Czaja, W.**, Miller, K.Y., Miller, B.L., Skinner, M.K. (2014) Structural and functional conservation of fungal MatA and human SRY sex determining transcription factors. *Nature Communications*. 17;5:5434.
6. **Czaja, W.**, Miller, K.Y. and Miller, B.L. (2013) Novel Sexual-cycle Specific Gene Silencing in *Aspergillus nidulans*. *Genetics*. (featured in the highlights of the month) .
7. **Czaja, W.**, Mao, P. and Smerdon, M.J. (2012) The Emerging Roles of ATP-Dependent Chromatin Remodeling Enzymes in Nucleotide Excision Repair. *International journal of molecular sciences*, 13, 11954-11973.
8. **Czaja, K.C., Czaja, W.E.** Giacobini-Robecchi, M.G., Geuna, S., Fornaro, M. (2011) Injury-induced DNA replication and Neural Proliferation in the Adult Mammalian Nervous System. *DNA replication and Related Cellular Processes*, Kusic-Tisma, J. (ed.), ISBN: 978-953-307-775-8 InTech.
9. **Czaja, W.**, Miller, K.Y. and Miller, B.L. (2011) Complex mechanisms regulate developmental expression of the matA (HMG) mating type gene in homothallic *Aspergillus nidulans*. *Genetics*, 189, 795-808.
10. **Czaja, W.**, Bespalov, V.A., Hinz, J.M. and Smerdon, M.J. (2010) Proficient repair in chromatin remodeling defective ino80 mutants of *Saccharomyces cerevisiae* highlights replication defects as the main contributor to DNA damage sensitivity. *DNA Repair (Amst)*, 9, 976-984.
11. **Pyrzak, W.**, Miller, K.Y. and Miller, B.L. (2008) Mating type protein Mat1-2 from asexual *Aspergillus fumigatus* drives sexual reproduction in fertile *Aspergillus nidulans*. *Eukaryotic cell*, 7, 1029-1040.

Presentations

1. Eukaryotic Microbes Club Presentation: A new role for RSC chromatin remodeler in Base Excision Repair, University of Georgia, Athens, GA, August 28, 2016.
2. Faculty Workshop Presentation: DNA repair within the chromatin landscape, University of Georgia, Athens, GA, January 8, 2016.
3. Seminar: ATP-dependent Chromatin Remodeling: a novel player in Base Excision Repair. Washington State University, Pullman, WA, May 22, 2015.
4. Seminar: ATP-dependent Chromatin Remodeling: a novel player in Base Excision Repair. University of Georgia, Athens, GA, July 14 2014.
5. Seminar: Molecular genetic analysis of mating type gene function and sexual reproduction in *Aspergillus nidulans*, University of Idaho, Moscow, ID, October 9, 2009.
6. Seminar: Evidence for sexuality in the human pathogen *Aspergillus fumigatus*, University of Idaho, Moscow, ID, April 25, 2008.
7. Seminar: Sexual potential in asexual fungus; Role of mating type genes in sexual reproduction of filamentous fungi, University of Idaho, Moscow, ID, December 11, 2008.

Honors and Awards

- Outstanding Graduate Student, Maria-Curie Skłodowska University, Poland, 2004.
- Research Fellowship, University of Idaho, Moscow, ID, 2004.
- Outstanding Academic Achievement Award, Gamma Sigma Delta, Moscow, ID, 2007.
- Certificate of Research Excellence, Idaho INBRE/COBRE, Moscow, ID, 2007.
- Research Expo Award, oral presentation, third place, University of Idaho, Moscow, ID, 2008.
- Graduate and Professional Student (GPSA) Travel Award, University of Idaho, Moscow ID, 2009.
- Faculty Research Grant Award, University of Georgia, Athens, GA, 2015.

Professional Activities

- **Journal Peer-review:** Nucleic Acids Research, PLOS ONE, Experimental Cell Research, IUBMB Life, Genetics.
- **Grant review:** Preludium 10, Grant proposal title: Role of SWI/SNF complexes in modulation of response to DNA damaging drugs. National Science Center, Poland, March 2016.

Membership

- 2006-2009 Member, Genetics Society of America
- 2006-2009 Member, The Honor Society of Agriculture Gamma Sigma Delta
- 2007-present Member, Golden Key International Honor Society
- 2015-present Member, Winship Cancer Institute, Emory University, Atlanta, GA