

JANICE ORTEGA, PhD

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Accomplishments

- UTSW Department of Radiation Oncology SEED Grant **2018**
- ARCS John H. Richardson Fellowship **2016**
- 6th international symposium on DNA Damage Response & Human Disease **2016**
- National Cancer Institute Training Grant T32 (CA165990) **2013-2015**
- Featured article in PNAS **2015**

Phosphorylation of PCNA by EGFR inhibits mismatch repair and promotes misincorporation during DNA synthesis

Hsieh P., Pearlman AH., *EGFR inhibits Mismatch Repair*, PNAS, 2015

- ASBMB Best Thematic Poster in Genomic Replication and Repair **2013**
- Magna Cum Laude, BS in Chemistry **2006**

Education

Ph.D. Toxicology [2006-2012] University of Kentucky, Lexington, KY, United States

Dissertation: Novel Mechanism Leading to Mismatch Repair Deficiency and Mutator Phenotype.

Advisor: Dr. Liya Gu

B.S. Chemistry [2001-2006] University of Puerto Rico, Rio Piedras, Puerto Rico

Research Experience

- 1. Instructor, UT Southwestern, Dallas, TX, USA **Present****
 - Assist and supervise lab members for proper work progress. Provide experimental guidance, materials, and training.
 - Mentor and daily meet graduate students to ensure proper progress.
 - Responsible for lab supply ordering, purchasing of equipment, lab organization, maintenance of centrifuges, FPLC systems, cryotanks, and refrigerators.
 - Lab set up after relocation to Texas. Wrote and comply with the biosafety, radioactive, and chemical protocols for the lab, equipment purchasing and layout, and chemical inventory.
 - Involve in collaborative research and moving forward three independent research projects.
 - Perform independent research; planned, designed, implemented, and analyzed results for research projects.
 - Developing CRISPR/Cas9 knockout cell lines and working in establishing knock in stable cell lines for live imaging experiments.
- 2. Post-doctoral Scholar Research Associate, University of Southern California, Los Angeles, CA, USA **2015-2017****
 - Performed lab management, collaborative research projects, manuscripts revision, staff training, and independent research.
 - Mentored master student. Developed working hypothesis, trained with experimental projects and provided daily guidance to achieve work progress. Currently a PhD student in cancer biology.

- Lab set up after relocation to California. Wrote and comply with biosafety and radiation safety protocols. Purchased all equipment and lab supplies.
- 3. Post-doctoral Fellow**, University of Kentucky, Lexington, KY, USA **2012-2015**
- Mentored graduate and summer internship students. Assisted in experimental designs, provided experimental materials, and taught experimental procedures.
 - Assisted with lab management, collaborative research projects, and performed independent research; planned, designed, implemented, and analyzed results for research projects.
 - Experienced and added expertise in several biochemical and molecular biology assays such as Immunoprecipitation, Immunofluorescence Microscopy, and Southern Blot analysis. Operated and maintained scientific apparatus such as Bio-Rad Surface Plasmon Resonance (SPR), confocal microscope, and Fast Protein Liquid Chromatography (FPLC).
 - Created stable cell lines using lentiviral and retroviral systems.
 - Reviewed materials for publication.
- 4. Graduate Research Assistant**, University of Kentucky, Lexington, KY, USA **2007-2012**
- Assisted with summer internship students mentoring, research projects, and performed independent research; planned, designed, implemented, and analyzed results for research projects.
 - Involved in maintain of mammalian and insect cell cultures and reagents.
 - Isolated DNA from mammalian cells and blood samples for PCR, single-strand conformational polymorphism (SSCP), and microsatellite instability screening.
 - Experienced and skilled several biochemical and molecular biology assays; gene cloning, PCR mutagenesis, in vitro kinase assay, protein purification, and western blot among others.
 - Assisted in the revision of articles for publication.
- 5. Research Assistant**, University of Kentucky, Lexington, KY, USA **2005**
- Studied the effect of red raspberry extracts in decreasing the activation of Aryl Hydrocarbon Receptor (AhR) and NF- κ B response in hepatocytes cells exposed to dioxin or cigarette smoke condensates (CSC).
 - Assisted in planned, designed, and implemented the research project.
 - Experienced in maintain mammalian cell culture, genomic DNA isolation, and luciferase assay.
- 6. Research Assistant**, University of Puerto Rico, Rio Piedras, Puerto Rico **2003-2006**
- Explored the enhancement of quinones cytotoxicity using Polyethylenimine polymer as a delivery vector.
 - Assisted in the maintenance of culture cells by growing, passage, and freezing mammalian cell culture as by preparing culture medium and reagents for lab members.
 - Maintained lab incubators and biological cabinet.

Publications

1. Bo Peng, **Janice Ortega**, Liya Gu, Zhijie Chang, and Guo-Min Li. *Phosphorylation of proliferating cell nuclear antigen promotes cancer progression by activating the ATM/AKT/GSK3 β /Snail signaling pathway*. JBC (2019) Apr 26;294(17):7037-7045.
2. McDonnell KJ, Chemler JA, Bartels PL, O'Brien E, Marvin ML, **Ortega J**, Stern RH, Raskin L, Li GM, Sherman DH, Barton JK, Gruber SB. *A human MUTYH variant linking colonic polyposis to redox degradation of the [4Fe4S]₂₊ cluster*. Nat Chem. (2018) Aug;10(8):873-880.

3. Feng Pan, Thomas Wingo, Zhigang Zhao, Rui Gao, Hideki Makishima, Guangbo Qu, Lin Li, Miao Yu, **Janice Ortega**, Jiapeng Wang, Aziz Nazha, Li Chen, Bing Yao, Can Liu, Shi Chen, Ophelia Weeks, Hongyu Ni, Brittany Phillips, suming huang, Jianlong Wang, Chuan He, Tomas Radivoyevitch, Guo-Min Li, Iannis Aifantis, Jaroslaw Maciejewski, Feng-Chun Yang, Peng Jin, and Mingjiang Xu. *Tet2 loss leads to hypermutagenicity in hematopoietic stem/progenitor cells. Nature Communications*, (2016) Apr 25;8:15102.
4. Binzel DW, Khisamutdinov E, Vieweger M, **Ortega J**, Li J, Guo P. *Mechanism of three-component collision to produce ultra-stable pRNA three-way junction of phi29 DNA-packaging motor by kinetic assessment. RNA*. (2016) Nov 22(11):1710-1718.
5. Li F, **Ortega J**, Peng B, Li GM. *Regulation of Mismatch Repair by Histone Code and Posttranslational Modifications in Eukaryotic Cells. DNA Repair (Amst)* (2016) Feb; 38:68-74
6. **Ortega J**, Li J, Lee S, Tong D, Gu L, Li GM. *Phosphorylation of PCNA by EGFR inhibits mismatch repair and promotes misincorporation during DNA synthesis, PNAS* (2015) 5;112(18):5667-72
7. Liu S, Lv G, Zheng L, Dai H, Liu W, Li H, Xu H, Hua Y, Zhou Y, **Ortega J**, Li GM, Kunkel TA, and Shen B. *Alpha-segment error editing by the mammalian FEN1/MutSa functional complex, EMBO J*. 2015, Apr 28. pii: e201489865
8. Tong D, **Ortega J**, Kim C, Huang J, Gu L, Li GM. *Arsenic Inhibits DNA Mismatch Repair by Promoting EGFR Expression and PCNA Phosphorylation, JBC*. 2015, Apr 23. pii: jbc.M115.641399.
9. Mao G, Lee S, **Ortega J**, Gu L, Li GM. *Modulation of microRNA processing by mismatch repair protein MutLa, Cell Res*. 2012 Jun;22(6):973-85.

Awards and Honors

UTSW Department of Radiation Oncology Seed Grant	2018
ARCS John H. Richardson fellowship	2016
Best Poster 6th international symposium on DNA Damage Response & Human Disease	2016
USC Biochemistry Retreat 2016 Best Poster Presentation	2016
National Cancer Institute Training Grant T32 (CA165990)	2013-2015
ASBMB Best Thematic Poster in Genomic Replication and Repair	2013
ASBMB Travel Award	2012-2013
Midwest DNA Repair Conference Second Best Oral Presentation	2011
Markey Cancer Second Best Thematic Poster in Basic Research	2010
FASEB MARC Travel Award	2010
Research Supplement to Promote Diversity in Health-Related Research	2007-2011
Lyman T. Johnson Academic Year Fellowship Award	2006-2009
Magna Cum Laude, BS in Chemistry	2006
Research Initiative Student Enhances Fellow (RISE)	2004-2005
Puerto Rico Louis Stokes Alliance for Minority Participation Fellow (PR-LSAMP)	2003-2004
Bristol Myers Scholarship	2001-2003

Teaching Activities

Mentored High School, Undergraduate, and graduate students	2007-Present
<ul style="list-style-type: none"> • Kara Y. Chan- UK graduate student • Ali Aljasser- USC master student 	

- Alicia Zhang- UTSW graduate student

Guest Lecturer DNA damage and Repair
All Things Made New-mentor high school student

2009-2010
2017-Present

Academic/Professional Training

Introduction of Medical Product Regulation, University of Southern California
Biology and Therapy of Cancer, University of Kentucky
Citizen Police Academy, University of Kentucky Police Department

2016
2015
2010

Skills

Computer Skills: Microsoft Office, ImageQuant, GraphPad Prism, PyMol, and WinCoot

Languages: Spanish •••••
English •••••
Italian •