

AMY KEYWICK

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EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Master of Science, Developmental & Cell Biology

2007

Thesis: Oxidative stress induced activation of MAP kinase causes proteasomal degradation of the p65 isoform of Nrf1

Advisor: Jeff Y. Chong

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Bachelor of Science, Genetics

2002

SUMMARY OF TECHNICAL SKILLS

- GLP and GMP Compliance
- RNA/DNA isolation from cells/tissues
- Total RNA isolation from fresh frozen and FFPE animal tissues: manual and automated
- *In vitro* cell culture: HEK 293, HeLa, HepG2, Cos7, CHO, primary fibroblasts
- Mouse handling, breeding, and weaning
- qRT-PCR: TaqMan, SYBR/EVA green
- Polymerase Chain Reaction
- Transfection
- Transformation
- DNA Cloning
- Restriction Enzyme Digests/Ligations
- Dual Luciferase Reporter Assay
- *Ex vivo* experience with rat liver slices
- *In vivo* experimentation and collection/preservation of tissues
- Handling whole blood and serum samples
- Protein Isolation
- Immunoblot Analysis
- Immunoprecipitation
- Immunohistochemistry
- ELISA
- PatchXpress automated patch-clamp
- Spectrophotometry
- Primer/Probe Design
- Experience with BLAST, PHRED
- Plaque Assays
- DNA in situ Hybridization
- Making competent bacterial cells

RESEARCH EXPERIENCE

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Sept. 2005 - Dec. 2007

Graduate Student Researcher

- Assisted post-doctor in obtaining supplementary and primary data for scientific paper showing p65Nrf1 inhibits activity of Nrf2 transcription factor
- Responsible for maintaining and conducting transfections and reporter assays with Cos7 cell line to generate data figures submitted for secondary author paper
- Managed (interbred, genotyped) transgenic mouse line with organ specific knockout of Nrf1 gene
- Performed PCR with isolated DNA of transgenic mice to verify occurrence of recombination
- Performed immunohistochemistry on fixed tissue from transgenic mice to detect expression of Nrf1
- Independently maintained 293, HepG2, and primary mouse fibroblast cells for *in vitro* experiments in p65Nrf1 thesis project
- Optimized protein isolation procedure to allow detection of p65Nrf1 protein in Western blot for half-life experiments and MAPK activation/inhibition experiments for thesis project
- Conducted qRT-PCR to find endogenous levels of Nrf1 in cells treated with oxidative stress

- Made deletion clones of p65Nrf1 to be used in future experiments; Process involved primer set design for each distinct sequence, PCR, gel purification, sub-cloning, restriction enzyme digest, ligation, transformation, and DNA mini- and midipreps
- Trained and supervised undergraduate researcher for assistance in cloning project
- Responsible for making competent cells for lab

BAXTOR, INC.

Dec. 2002 - Sept. 2005

Senior Research Associate

- Collaborated with scientists and other associates in the Toxicogenomics and In Vitro groups of the Toxicology Department
- Performed experiments, organized data and analyzed results while managing deadlines
- Optimized both quality and high throughput efficiency for specific duties including the collection of tissues for studies in rats
- Isolated total RNA from these tissues, as well as from formalin-fixed paraffin embedded tissues, using manual and automated procedures
- Submitted RNA samples for microarray analysis on various platforms such as cDNA in-house, Affymetrix and Agilent microarray chips to support safety assessment of pre-clinical drug development
- Analyzed genomic biomarkers as indicators for potential toxic effects of various compounds
- Used sensitive state-of-the-art equipment: Zymark SciClone Robot, Agilent Bioanalyzer, Eppendorf Biophotometer, Applied Biosystems Sequence Detection System (TaqMan)
- Served as a liaison between Research and In Vivo groups, as well as with the Microarray group
- Independently operated the PatchXpress automated patch-clamp robot for cardio toxicity screening
- Managed and maintained hERG ion channel transfected HEK cells in vitro for use in the PatchXpress
- Assisted in assay development with sodium channel transfected CHO cells
- Trained new staff in lab techniques and contributed to studies outside scope of job description
- Collaborated with outside suppliers as well as with FDA for specific projects

NEW JERSEY NATIONAL RESEARCH CENTER

June 2000 - June 2002

Undergraduate Researcher

- Assisted in graduate-level experiments resulting in the development of monoclonal antibodies as a reagent for detecting specific subtypes of Immunoglobulin G in Rhesus Macaques
- Exemplary work and contributions recognized by receiving financial interest in marketable product
- Studied viral genetic variability of envelope domain for certain Rhesus Macaque monkey that improved health after the initial decrease of CD4 cells when inoculated with SHIV 89.6 (Simian HIV)
- Collected necessary data, organized and maintained laboratory DNA clone bank

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Sept. 1999 - Mar. 2000

Undergraduate Research Intern

- Assisted in post-doctoral project in the Department of Plant Biology to identify a conserved gene between plant species
- Discovered homologous gene in tomato and corn applying plaque assays and DNA in situ hybridization

PUBLICATIONS & ABSTRACTS

W. Wang, **A. M. Keywick**, J. Y. Chong. 2007. The p65 isoform of Nrf1 is a dominant negative inhibitor of ARE-mediated transcription. *J Biol Chem* 282, 24670-8.

A. Keywick, J. Pretorius, M.E. Cosenza, C. A. Afshari, H. Hamadeh. Gene expression of Trefoil Factor 2 from formalin fixed paraffin embedded stomach tissues of rats. Cambridge Healthtech Institute qPCR Conference. 2005. (abstract)

R.T. Dunn, II, E.S. Galambos, L. Healy, R. Morgan, J. Yamada, H. Hamadeh, **A. Keywick**, M.E. Cosenza, and C. Afshari. Utilization of Multiple Endpoints to Investigate Differential Toxicity Produced by Topoisomerase II Inhibitors, Doxorubicin and Etoposide. Society of Toxicology Meeting. 2005. (abstract)

OTHER PROFESSIONAL EDUCATION

- Target Organ Toxicity: American College of Toxicology Meeting 2003
- Tools for Functional Genomics: Society of Toxicology Meeting 2004
- Metabonomics: American College of Toxicology Meeting 2004
- Advance Applications, Experimental Design and Analysis Methods in Quantitative PCR: Cambridge Healthtech Institute qPCR Conference 2005

OTHER HIGH-END PROFICIENCIES

- Extensive experience with MS Office (Word, Excel, PowerPoint, Outlook Express)
- GMP-specific SOP writing for official use
- Ability to keep accurate updated electronic freezer inventory and laboratory notebook records
- 2+ years training and supervising experience

LEADERSHIP ACTIVITIES

- Molecular and Cellular Biology Club, *President, Treasurer, Secretary*
- Southern California Chapter Society of Toxicology, *Member*
- Amgen Emergency Response Team, *Certified Member*
- Amgen Women's Interactive Network, *Networking and Communications Committee Member*
- Association for Women in Science, *Member*

EXTRACURRICULAR & SPECIAL INTERESTS

- NEMA Belly Dancing Troop
- Ninpo Tai Jutsu
- Ski or Snowboard Club, *Member*
- Intramural Court Volleyball

*References furnished upon request.
Salary Negotiable.
Willing to Relocate & Travel.*