Omar Khalid, Ph.D.
Phone: 714-746-1656
okhalid@choc.org

EDUCATION

University of Southern California, Los Angeles, California
Ph.D. in Pharmaceutical Sciences ***May 2009***

California State University Fullerton, Fullerton, California
B.S. in Biochemistry, Magna Cum Laude ***August 2003***
Minor in Mathematics

RESEARCH EXPERIENCE

Jan. 2013- Present Staff Scientist I Children's Hospital of Orange County (CHOC)

- Bioinformatic Analysis of Whole Genome Experiments including Microarray and RNAseq using R, Perl, and Unix
- iPSC and NSC culture work
- immunoblotting, PCR, and QPCR
- Experience working with the Biospherix Xvivo Cell Production Facility
- Database Management – working with Backtrack and SQL
- Web Design
- SOP development
- Laboratory Safety Manager which communicates to the Institutional Biosafety Committee and helps ensure that the lab is following proper safety protocols
- Medical Intelligence Meetings Attendee – monthly meetings to discuss latest advances in medical technology, an opportunity to network and collaborate
- Research Week Committee Member – Develop activities that put the spotlight on research activities at CHOC

Mar. 2010 – Jan. 2013 Postdoctoral Fellow University of California, Los Angeles
Research in Epigenetics and it's role in stem cell differentiation Using a Bioinformatic Approach

- Bioinformatic Analysis of Whole Genome Experiments including ChIP-seq, ChIP-Chip, and Microarray Using R, Perl, and Unix
- Human and Mouse Embryonic Stem Cell Work
- Chromatin Immunoprecitation to assess epigenetic complex occupancy
- Co-IP of protein complexes
- In vivo studies of mouse models
- IHC and IHC-IF on human and mouse tissues
- Laboratory Manager for Chemical, Biohazard, and Radioactive safety

May 2009 – Mar. 2010 Postdoctoral Fellow University of Southern California
Research on Transcription Regulation and Epigenetics

- Development of peptidomimetics to abrogate protein-protein interactions
- Macromolecular interactions to study new compound design
- Manipulation by knockdown and induction of transcription factors in various cell lines using lentivirus systems
- Chromatin Immunoprecipitation assays

May 2005 – May 2009 Research Assistant University of Southern California
Research on Transcription Regulation and Epigenetics within Prostate Cancer, Breast Cancer, and Bone

- Bioinformatic analysis of microarray expression of target genes using unsupervised clustering
- Live cell imaging and mobility assays on different hormone based drugs
- Immunoprecipitation and Chromatin Immunoprecipitation
- Confocal Microscopy (Immunofluorescence)

- Cell culture preparation ,protein extraction and probe design for EMSA
- Immunoblotting for expression of transcription factors
- Maxipreps and minipreps for plasmid synthesis
- Transfections and Luciferase assays detecting Androgen Receptor activity

Aug. 2003 – May 2005 Research Assistant University of Southern California

Drug Design and Drug Discovery for Cancer Models and HIV

- Study of pharmacophore modeling and scaffold design for compounds
- Development of highthroughput assays for drug development
- Cell culture preparation for protein extraction, RNA extraction, and transfection
- RNA to cDNA synthesis and real-time PCR on drug treated vs. control samples
- Cytotoxicity assays for platinum-based drugs on different cancer cell lines
- Immunoblotting for expression of proteins
- Protein purification, isolation, and characterization
- Develop biomarkers for cancer therapeutics, pharmacogenomics
- Trained incoming lab students

Jun. 2002 – Aug. 2002 Laboratory Assistant Albert Einstein College of Med, Bronx, NY

Proteomics Core Facility, Proteomic analysis of Carcinoma

- 2-D gel analysis of proteins
- 2-D gel mapping, tryptic digests, and zip tip protein purification
- MALDI-TOF MS analysis of proteins differentially expressed with control vs. cancerous
- Database analysis of data obtained from the MS

Jan. 2001 – Aug. 2003 Laboratory Assistant CSU, Fullerton

Protein Biochemistry in identification of glycosylated proteins

- Collection and maintenance of in vivo model systems – *Ascidia Ceratodes*
- Light microscopy
- Protein extraction and purification
- Development of activation assays
- Ion Exchange chromatography
- Lectin Affinity chromatography
- SOP development and training of incoming students

Jun. 2002 – Aug. 2003 Editor in Chief Dimensions Journal CSU, Fullerton

Dimensions provides undergraduate students the opportunity to become published in a peer-reviewed journal while acquiring familiarity with the submission process. The Journal is organized, written, and edited by students in the College of Natural Sciences and Mathematics, and includes both full research articles and abstracts.

- Responsible for organizing and soliciting articles for the journal
- Collaborated with section editors and graphic designers to develop the journal

TEACHING EXPERIENCE

June 2010-Present Adjunct Faculty ISP/SCUHS

- Human Biology 101 instructor, October 2010-Present
  - Laboratory and Lecture Instructor
  - General course description: This course is a comprehensive examination of the human organism in the context of the principles and structures characteristic of all living things. It begins with a survey of these principles and structures. The remainder of the course focuses on the molecular biology, biochemistry, cell biology, histology, and genetics of the human organism.

- Human Biology 102 instructor, October 2010-Present
  - Laboratory and Lecture Instructor

- General course description: This course is a comprehensive examination of the human organism. It focuses on histology, anatomy, and physiology of the major organ systems found in the human body. Nutrition and evolution are also discussed. Students gain a basic understanding of the structure and function of the human body on a variety of levels of organization.

- Biochemistry Instructor, October 2010-Present
  - Laboratory and Lecture Instructor
  - General course description: Students gain an understanding of the structure and functions of biological macromolecules in the context of cellular integrity, dynamics and metabolism. Students learn the principles of enyzymology, bioenergetics, catabolism, anabolism, regulation of gene expression, biotechnology, hormone regulation of mammalian metabolism and the pre-biotic evolution of life on earth.

- Chemistry for Health Profession Instructor, October 2010-Present
  - Laboratory and Lecture Instructor
  - General course description: This course focuses on the chemistry of carbon, hydrogen, nitrogen and oxygen containing compounds and examines the structures, properties, nomenclature, reactivity and, in some cases, synthesis of simple organic molecules. The structures and functions of biological macromolecules and common biochemical pathways are also examined as well as their relationship to patient health.

- Microbiology Instructor, June 2010-July 2010
  - Laboratory Instructor
  - General course description: This course is designed to convey general concepts, methods, and applications of microbiology for heath sciences. Topics include: immunology, bacteriology, virology, and mycology; the morphology, biochemistry, and physiology of microorganisms including bacteria, viruses, and fungi; the diseases caused by these microorganisms and their treatments, and the immunologic, pathologic, and epidemiological factors associated with diseases.

Jan 2012 – Jan 2013 Seminar Instructor for Oral Biology UCLA

- Instructor for Advanced Oral Biology: Pathobiology.
  - General description: Led seminars that instructed the dental residents and graduate students on the mechanisms involved in apoptosis, cell cycle, and their relationship to cancer.
- Advanced Oral Biology Seminars
  - General description: Led discussion with dental residents and graduate students in oral biology pertaining to the latest topics in research. Gave positive feedback and instruction on how to read through and understand primary literature.

January 2008 – May 2010 Laboratory Mentor University of Southern California

- Performed and taught general biochemical techniques for a research lab setting. Techniques included immunoblotting, microscopy, PCR, and QPCR.
- Trained incoming graduate students, post-doctoral fellows, and volunteers in various technique and safety.

August 2006 – January 2007 General Chemistry Laboratory Instructor Fullerton College

- General course description: This course develops the concepts of chemical bonding in order to appreciate the size, shape, polarity and macroscopic behavior of molecules. Students master the quantitative and qualitative aspects of chemical reactions and perform these reactions in a safe laboratory environment.
- Performed and taught all general chemistry labs pertinent to first semester general chemistry

Jun. 2004 – August 2005 Laboratory Mentor University of Southern California, STAR Program

- General program description: Science, Technology And Research (STAR) program provides high school students in grades 11 and 12 the opportunity to learn science and inquiry-based scientific analysis through an intensive hands-on mentored research experience in a USC research laboratory during the senior academic year as part of their science curriculum.
- Mentored high school students in a laboratory setting. Helped students develop skills in cell culture, drug testing, and downstream biochemical techniques.
- Helped students develop analytical skills to examine the data that they acquire.
- General coach in guidance for their health professions careers.

Jan. 2001 – August 2003 Tutor California State University Fullerton

- Tutored students in various courses for the Natural Sciences including Chemistry, Physics, Biology, Biochemistry, Organic Chemistry, and Calculus
- One on one interaction with students going over problems in their respective subjects

Jun. 2000 – August 2000 Mathematics Teaching Assistant Anaheim High School

- Assisted in mathematics instruction ranging from basic math to Algebra for incoming students.
- Prepared lecture materials and presented lectures with supervision
- Assisted students one on one in mathematics instruction
- Helped students develop problem solving and critical thinking skills

PUBLICATIONS

1. A Novel, Long-Lived, and Highly Engraftable Immunodeficient Mouse Model of Mucopolysaccharidosis Type 1 (reference number: MTM-00136). Mendez D, Stover A, Rangel A, Brick DJ, **Khalid O**, Nethercott H, Torres M, Wong A, Cooper J, Jester J, Monuki E, McGuire C, Le S, Kan S, Dickson P, Schwarz PH. Molecular Therapy - Methods & Clinical Development (Accepted for publication in January 2015).

2. Gene expression signatures affected by alcohol-induced DNA methylomic deregulation in human embryonic stem cells. **Khalid O**, Kim JJ, Kim HS, Lee C, Vu C, Horvath S, Spigelman I, Kim Y Stem Cell Res. 2014 May;12(3):791-806. doi: 10.1016/j.scr.2014.03.009. Epub 2014 Apr 12. (**Khalid and Kim contributed equally to this work).**

3. Genome-wide transcriptomic alterations induced by ethanol treatment in human dental pulp stem cells (DPSCs). **Khalid O**, Kim JJ, Duan L, Hoang M, Elashoff D, and Kim Y. Genomics Data Volume 2 Dec. 2014 pgs 127-131. **(Khalid, Kim, and Duan contributed equally to this work).**

4. Gene expression signatures affected by ethanol and/or nicotine in normal human normal oral keratinocytes (NHOKs) Kim JJ, **Khalid O**, Duan L, Kim R, Elashoff, and Kim Y. Genomics Data – In Press (Kim, Khalid, and **Duan contributed equally to this work).**

5. Discovery of Consensus Gene Signature and Intermodular Connectivity Defining the Stemness of hESCs Kim JJ, **Khalid O**, Namazi AH, Tu TG, and Kim.Y. (Manuscript accepted at Stem Cells, Feb. 2014) **(Kim and Khalid contributed equally to this work).**

6.Differential effects of RUNX2 on the androgen receptor in prostate cancer: synergistic stimulation of a gene set exemplified by SNAI2 and susbsequent invasiveness Gillian H. Little, Sanjeev K. Baniwal, Helty Adisetiyo, Susan Groshen, Nyam-Osor Chimge, Sun Young Kim, **Omar Khalid**, Debra Hawes, Jeremy O. Jones, Jacek Pinski, Dustin E. Schones, and Baruch Frenkel. Cancer Res; Published OnlineFirst March 19, 2014; doi:10.1158/0008-5472.CAN-13-2003

7. A novel regulatory factor recruits the nucleosome remodeling complex to wingless integrated (Wnt) signaling gene promoters in mouse embryonic stem cells. Kim JJ., Khalid O, Vo S, Sun HH, Wong DT., Kim Y. J Biol Chem. 2012 Nov 30;287(49):41103-17. doi: 10.1074/jbc.M112.416545. Epub 2012 Oct 16. **(Kim and Khalid contributed equally to this work).**

8. Cdk2ap2 is a Novel Regulator for Self-Renewal of Murine Embryonic Stem Cells. Deshpande A, **Khalid O**, Kim JJ, Kim Y, Lindgren A, Clark A, Wong D. Stem Cells Dev. 2012 May 1. [Epub ahead of print] **(Deshpande and Khalid contributed equally to this work).**

9. Recruitment of coregulator G9a by Runx2 for selective enhancement or suppression of transcription. Purcell DJ, **Khalid O**, Ou CY, Little GH, Frenkel B, Baniwal SK, Stallcup MR. J Cell Biochem. 2012 Jul;113(7):2406-14. doi: 10.1002/jcb.24114. **(Purcell and Khalid contributed equally to this work).**

10. Opposing effects of Runx2 and estradiol on breast cancer cell proliferation: invitro identification of reciprocall regulated gene signature related to clinical letrozole responsiveness. Chimge NO, Baniwal SK, Luo J, Coetzee S, **Khalid O**, Berman B, Tripathy D, Ellis MJ, Frenkel B. Clin Cancer Res. 2011 Dec 13

11. Double Edge: CDK2AP1 in Cell-cycle Regulation and Epigenetic Regulation.Wong DT, Kim JJ, **Khalid O**, Sun HH, Kim Y. J Dent Res. 2011 Aug 24.

12. Runx2 transcriptome of prostate cancer cells: insights into invasiveness and bone metastasis. Baniwal SK, **Khalid O**, Gabet Y, Shah RR, Purcell DJ, Mav D, Kohn-Gabet AE, Shi Y, Coetzee GA, and Frenkel B, Mol. Cancer Sep 2010.

13. Regulation of Adult Bone Turnover by Sex Steroids. Frenkel B, Hong A, Baniwal SK, Coetzee GA, Ohlsson C, **Khalid O**, and Gabet Y JCP Aug 2010.

14. Repression of Runx2 by Androgen Receptor (AR) in Osteoblasts and Prostate Cancer Cells: AR Binds Runx2 and Abrogates its Binding to DNA Baniwal SK, **Khalid O,** Sir D, Buchanan G, Coetzee GA, and Frenkel B Molecular Endocrinology 2009 **(Baniwal and Khalid contributed equally to this work).**

15. Modulation of Runx2 Activity by Estrogen Receptor a: Implications for Osteoporosis and Breast Cancer **Khalid O**, Baniwal SK, Purcell DJ, Leclerc N, Gabet Y, Stallcup MR, Coetzee GA, Frenkel B.Endocrinology 2008

16. Chromatin Analysis leads to the Identification of Enhancers and a Functional Variant at 8q24 Linked to Prostate Cancer. Jia L, Landan G, Pomerantz M, Jaschek R, Herman P, Reich D, Yan C, **Khalid O**, Kantoff P, Oh W, Manak JR, Berman BP, Henderson BE, Frenkel B, Haiman CA, Freedman M, Tanay A, Coetzee GA. PLoS Genetics 2009.

17. Chromatin Remodeling and Androgen Receptor-mediated Transcription Jia L, **Khalid O**, Frenkel B, and Coetzee GA. (In Press), Book Chapter 2009.

18.Locus-Wide Chromatin Remodeling and Enhanced Androgen Receptor-Mediated Transcription in Recurrent Prostate Tumor Cells Jia L, Shen HC, Wantroba M, **Khalid O**, Liang G, Wang Q, Gentzschein E, Pinski JK, Stanczyk FZ, Jones PA, and Coetzee GA. MCB 2006.

POSTERS and ORAL PRESENATIONS

Deep Sequencing technology as applied to autism spectrum disorders. Khalid O, Brick DJ, Nethercott H, Fortunato E, Klassen H, Stover A, Banuelos M, Herculian S., Montesano S, Mendez D, Schwartz PH. Society for Neuroscience 2013 Oral Presentation – Nanosymposium Genetic Correlates of Autism.

Reciprocal Inhibtion of the androgen receptor and Runx2: implications to the control of bone turnover. Khalid O, Baniwal SK, Coetzee GA, Frenkel B. ASBMR 2009 Oral Presentation.

Analysis of platinum-based drug resistance gene expression in bladder cancer. Neamati N, Khalid O, Plasencia C, Kim J, Deng J, Quinn D, Takebayashi Y. AACR 2005 Poster Presentation.

PATENTS

Runx-mediated action of nuclear receptors (Provisional Patent 2007-2008)

GRANTS

NIH T32 training Postdoctoral Fellowship (June 2010 – February 2013)
The Role of Transcription Factors RUNX2 and AR in Prostate Cancer, Department of Defense, predoctoral grant (2006-2009) for $97,732.00
The Role of Her2 and p53 in Breast Cancer, NIH/U.S.C., predoctoral grant (2005-2006) for $25,000

AWARDS AND HONORS

2014	Invited Speaker at California State University Fullerton
2012	UCLA School of Dentistry Poster Presentation Award, First Place
2010	Invited McNair Speaker for Career Building Workshop Feb. 26, 2010
2009	Invited Speaker at California State University Fullerton
2007-2008	Distinguished Merit Award (Norris Cancer Center Poster Session)
2006-2009	Department of Defense Predoctoral Fellowship
2005-2006	NIH Breast Cancer Predoctoral Fellowship
2003	Sally Casanova Predoctoral Scholar
2001-2003	MARC Scholar, California State University Fullerton
2002	McNair Scholar, California State University Fullerton
1999-2003	President's Scholar, California State University Fullerton

PROFESSIONAL MEMBERSHIPS:

AADR member, 2011
ISSCR member 2011
American Society for Bone and Mineral Research, 2009
American Chemical Society 2002-2003