**Ryan Maloney**
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## Objective:

**Profile**

- Approximately 8 years of research and medical experience.
- Identified as a community leader capable of organizing small and large groups for community and/or scientific events.
- Goal-driven, prepared to work with a group to ensure the completion of objectives in an effective and timely manner.
- Organized, highly-motivated, and prepared to do what it takes to better assist my community
- Proven ability to work independently and/or harmoniously with others

## Education:

**B.A., Biochemistry,** Magna Cum Laude, Barrett Honors College, Arizona State University
**PhD. –** currently pursuing a graduate degree from Arizona State University

## Relevant Experience & Accomplishments:

**Researcher, Low-level laser therapy as an alternative therapy to prevent the onset of capsular contracture following breast augmentation, in collaboration with Dr. James Baker (Present)**

- Capsular contracture is the development of a fibrotic network engulfing the foreign body (breast implant) following breast augmentation. Laser therapy has been demonstrated to induce the upregulation of anti-inflammatory cytokines IL-10 ultimately suppressing the release of pro-inflammatory cytokines. Therefore, it was proposed that laser therapy may have an affect towards the suppression of the immune response in reaction to the foreign body implanted, preventing and treating capsular contracture.

**Researcher, Evaluating laser therapy's efficacy of treating sensorineural hearing loss, in collaboration with Dr. Ruth Bentler, University of Iowa (Present)**

- Sensorineural hearing loss is the consequential symptom of improperly functioning hair cells. Laser therapy has been demonstrated to increase mitochondrial ATP production by reducing (Gaining electrons) the terminal enzyme cytochrome c oxidase. The activation of more ATP results in an intra-cellular oxidative shift activating redox-sensitive transcription factors which bind to promoter regions on DNA promoting gene expression. It is proposed that laser therapy activates certain genes within hair cells resulting in the expression of vital genes enabling the synthesis of vital enzymes and proteins.

**Researcher, Evaluating low-level laser therapy as an adjunctive instrument in the closure of chronic non-healing wounds, and evaluating laser therapy at 405nm as an effective tool in the suppression of Methicillin-Resistant *S. aureus,* in collaboration with Dr. Stephanie Wu, Rosalind Franklin University, (Present)**

- Laser therapy has been properly demonstrated to induce the upregulation of vascular endothelial growth factor (VEGF), suppress pro-inflammatory cytokines, and induce the proliferation of fibroblast cells. Therefore, I am serving as the principle investigator evaluating laser therapy's efficacy at stimulating the closure of chronic non-healing wounds under highly ischemic conditions. The pilot study is a non-randomized, non-controlled study.
- Bacteria produce and accumulate endogenous porphyrins, light absorbing molecules to carry out basic metabolic reactions. Porphyrins absorb visible light within the blue-violet spectrum, stimulating the production and release of highly reactive free radicals. Therefore, the pilot study is evaluating laser light at 405nm efficacy at suppressing plaque count numbers of *S. aureus* compared to a non-laser treated control.

**United Nations Bio-Bridge Regenerative Medicine Conference-Delegate (2008)**

- Discussed with scientific research experts in the field of biotechnology the importance of alternative therapeutic regimens for tissue regeneration.
- Presented low-level-laser therapy as an alternative and effective means to treat chronic wounds, as well as discuss the impact laser therapy could have on the induction of stem cell differentiation and proliferation.
- Discussed at the general assembly hall, the biochemical mechanism employed by laser therapy when treating ischemic and hypoxic chronic wounds. Discussed the upregulation of vascular endothelial growth factor (VEGF), increased fibroblast activation, upregulation of growth factors, and finally activation of blood platelets inducing the synthesis of cytokines and growth factors.

**Publication, *Podiatry Management* (2008)**

- Co-authored with world renowned podiatrist Dr Stephanie Wu, professor and chair for the Clear Foundation at Rosalind Franklin University
- The article outlines the biochemical mechanism employed by low-level laser therapy and cites a myriad of research conducted to demonstrate laser therapy's efficacy of accelerating the closure of ischemic wounds.
- As the featured article of the journal, it perhaps provided some insight for those clinicians struggling to treat severe wounds.

**Publication, American Society for Laser Medicine and Surgery Journal (2008)**

- Three abstracts were published based on the data collected from three placebo-controlled, randomized, double-blind, multi-site studies I served as primary investigator for.
- The three abstracts demonstrated laser therapy's efficacy at treating sensorineural hearing loss, reducing inflammation and pain following breast augmentation, and emulsification of adipose panicles.

**Speaker, American Society for Laser Medicine and Surgery (2008)**

- Presented the data on three clinical trials that exemplified the diversity of low-level laser therapy. The presentations included laser therapy's ability to treat sensorineural hearing loss, reduce inflammation and pain following breast augmentation, and emulsification of adipose panicles.

**Speaker, California Cosmetic Surgeons Society Meeting (2008)**

- Following a placebo-controlled, randomized, double-blind, multi-site study examining laser therapy's ability to safely and non-invasively emulsify adipose tissue and induce the reduction in overall inches in patients, it was statically proven that test subjects achieved an average 4.35 inch loss. The presentation was to discuss these findings and present the medical community with an alternative method to reducing adipose tissue volume.

**Researcher, Photosynthetic capabilities of microorganisms inhabiting the Sea of Cortez, under the guidance of Dr. Susan Neurer, Arizona State University (2007)**

- Utilizing the Biochemical Oxygen Demand (BOD) technique, I organized and participated in this study evaluating the photosynthetic capabilities of microorganisms inhabiting the Sea of Cortez.

**General Chemistry Instructor, Arizona State University (2005-2007)**

- It was my responsibility to educate students on proper general chemistry lab techniques and help educate lab students to design, implement, and carry-out chemistry laboratory investigations. Moreover, I also served as a tutor reviewing complex material discussed in lecture, and providing students with an alternative point-of view to ensure their mastery of basic and complex topics.
- In addition to educating the students, it was my duty to write and grade weekly quizzes, grade laboratory reports, ensure student safety, and provide lecture reviews for struggling students.

**Researcher, Neuroimmunology research- Studying the immunopathology of Systemic Lupus, under the guidance of Dr. Steven Hoffman, Arizona State University (2003 and 2004)**

- Utilizing antibody staining techniques, it was my responsibility to detect the presence of Major Histocompatiblility Complex Class I and II (MHC I and II) along the blood brain barrier of Systemic Lupus diseased murine models. Literature demonstrated that the permeability of the BBB is increased amongst patients suffering from Lupus, and it was imperative to analyze the

immunopathology of murine model brain specimens using confocal microscopy.

**Researcher, Evaluation of University-level General Chemistry Questions Exploring the Complexity of Common Misconceptions, under the guidance of Dr. James Burke, Arizona State University (2002 and 2003)**

Assisting graduate students, it was my responsibility to evaluate word-use regarding questions centered on the more complex curriculum for university-level general chemistry. Moreover, it was my responsibility to assist in the developing questions that would suppress the onset of general misconception that are formulated by students when reading questions testing a student knowledge of complex concepts of general chemistry.