

# MSPE

## Research Examples

### Tips

1. Specify *where* you worked on your research and with *whom* you worked.
2. Always refer to mentors with proper titles (i.e. John Doe, MD, PhD, **NOT** Dr. John Doe).
3. Use proper formats and citations in referring to articles, journals, bacterial organisms, etc.
  - o Name of journal in *italics*, title of article in “quotes”
4. Include any presentations, abstracts, manuscripts, etc. that resulted from your research.

### Example 1

- Research Block: Worked in an applied physics laboratory at the University of Windsor under the mentorship of Charles Kent Smith, MD and Lynda Montgomery, MD, MEd
  - o Designed and built a bench-top prototype of an ultrasound probe for rapid triage and diagnosis of pulmonary trauma in a non-hospital setting; An artificial human thorax was constructed with matching acoustic properties of normal parenchyma, pulmonary edema, and pneumothorax; A percussion hammer and ultrasound sensor were interfaced with a computer in order to analyze the signals
  - o Initial spectral analysis of signals suggests a computer algorithm can distinguish between healthy lung parenchyma and pneumothorax based on reproducible frequency peaks and bandwidth of signal
  - o Mr. A has submitted a first-author abstract for publication on this research
- Summer Research: Worked Stanford University School of Medicine, Departments of Allergy and Immunology and of Gastroenterology
  - o Investigated the immunological aspects of eosinophilic esophagitis, pediatric inflammatory bowel disease, and primary sclerosing cholangitis
  - o Contributed to two peer reviewed papers that were published in the *Journal of Immunology*

### Example 2

- Research Block: Worked with Robert Haynie, MD, PhD, and Steven Ricanati, MD, at MetroHealth Medical Center on the epidemiological factors of obesity and hypertension among adolescents
  - o Explored the association of continuity of care and the diagnosis of hypertension among pediatric patients; Investigated temporal trends in the diagnosis of pediatric obesity over the last seven years; Examined when within the course of chronic disease that family history is assessed
  - o Presented research at Irwin H. Lepow Medical Student Research Day at Case Western Reserve University and gave a poster presentation at the Annual Childhood Obesity Conference in April 2016; Produced three papers from this work, one as first-author; One paper, “Diagnosis of obesity in children and adolescents: 1999-2015,” was published in *Pediatrics*, and two papers have been submitted for publication

### Example 3

- Research Block: Worked in the lab of Marjorie Greenfield, MD, and Margaret Larkins-Pettigrew, MD, MEd, MPPM, at University Hospitals Case Medical Center
  - o Used *Caenorhabditis elegans* to study the relationship between anesthetic sensitivity and specific protein subunits in Complex I of the mitochondrial electron transport chain
  - o Performed RNA interference experiments in *C. elegans* targeting the gene *gas-1* and the gene sequence W10D5.2; Following RNAi, mitochondria from nematodes was isolated and oxidative phosphorylation assays were performed; RNAi knockdown was assessed by RT-qPCR and anesthetic sensitivity assays were performed using the general anesthetic halothane; Results showed that *gas-1* RNAi decreased Complex I-dependant respiration rates and increased sensitivity to anesthetic
  - o Resulted in one abstract and one manuscript; One first-author abstract has been submitted for publication