

Shannon K. Boi, M.S.

Email: sboi@uab.edu

EDUCATION:

Ph.D. Immunology – Summer 2015 – Present
University of Alabama at Birmingham
Birmingham, AL
GPA: 4.0/4.0

Ph.D. Immunology – Fall 2014 – Summer 2015
University of Iowa
Iowa City, IA
GPA: 4.0/4.0
Transfer with PI to UAB

M.S. Biological Sciences – May 2014
Concentration: Biochemical and Biophysical Studies
Northern Illinois University
DeKalb, IL
GPA: 3.92/4.0

B.S. Biological Sciences – May 2012
Minor: Chemistry
Northern Illinois University
DeKalb, IL
Cum Laude Graduate

WORK AND RESEARCH EXPERIENCE

Research Assistant. Graduate Biomedical Sciences – Immunology Theme, University of Alabama at Birmingham/ Interdisciplinary Graduate Program in Immunology, University of Iowa (August 2014 – Present).

My current research focuses on understanding the impact of obesity on the adaptive immune response to renal tumors, in the presence or absence of immunotherapy. We are particularly interested in the role of regulatory T-cells and Th17 cells that may exacerbate impaired immunotherapeutic tumor clearance in the presence of an obesogenic environment.

Graduate/Research Assistant. Department of Biological Sciences, Northern Illinois University (August 2012 - May 2014).

My research focused on understanding the mechanisms by which Toll-like receptor (TLR) signaling communicates with various other pathways. We were interested in the identification of novel TLR target genes in monocytes that subsequently exacerbate inflammatory conditions, particularly in lymphomas.

Undergraduate Researcher, Department of Biological Sciences, Northern Illinois University (January 2011 – May 2012).

Assisted graduate students with research focused on engineering a homo-ethanol fermentative pathway using non-transgenic *Escherichia coli*.

HONORS/AWARDS:

- Innovation in Basic Science Research Award, University of Illinois Rockford Medical School; Rockford, IL (April 2013)
- 2014 AAAS Honorable Mention in the field of Developmental Biology, Physiology, and Immunology (March 2014)
- American Association of Immunologists (AAI) Trainee Poster Award. AAI Annual Meeting, May 2017, Washington, D.C.

EDUCATIONAL ACTIVITIES

- **Teaching Assistant** - BIOS213 Introductory Bacteriology Lab (Fall 2012 – Spring 2014)
- **Lecturer** - Sections in BIOS440 Immunobiology (Undergraduate lecture) (Fall 2013)
 - Organization & Expression of Lymphocyte Receptor Genes

TRAINING AND LEADERSHIP EXPERIENCES:

- Bailey Rhoads (NIU Undergraduate Research Rookie), mentored 2012-2014
- Joel Dennison (NIU Undergraduate Researcher), mentored 2013-2014
- Rachael Orlandella (UAB Rotating Graduate Student), mentored 2015/2016

RESEARCH GRANTS AND SUPPORT

Current Funding:

NCI (NIH) Predoctoral Research Fellowship, Cancer Prevention and Control Training Program, University of Alabama at Birmingham; Birmingham, AL

Grant: 5-R25-CA47888

Period of Support: August 2016 – August 2017

Past Funding:

NCI (NIH) Predoctoral Research Fellowship, Cancer Prevention and Control Training Program, University of Alabama at Birmingham; Birmingham, AL

Grant: 5-R25-CA47888

Period of Support: July 2015 – August 2016

Graduate Research Assistantship, University of Iowa; Iowa City, IA

Period of Support: Fall 2014 – Summer 2015

NIU Department of Biological Sciences Graduate Student Research Grant (**PI: S Boi**, \$500)
“GLI3 mediates Toll-like Receptor Signaling in the Tumor Microenvironment”

Period of Support: Fall 2013 – Spring 2014

Graduate Teaching Assistantship, Northern Illinois University; DeKalb, IL

Period of Support: Summer 2013 – Spring 2014

NIU Department of Biological Science Graduate Student Research Grant (**PI: S Boi**, \$500)

“The Role of GLI Transcription Factors in Pro-Inflammatory Responses of Toll-Like Receptors”

Period of Support: Fall 2012 – Spring 2013

Graduate Teaching Assistantship, Northern Illinois University; DeKalb, IL

Period of Support: Fall 2012 – Spring 2013

PUBLICATIONS

1. **Boi, SK** and Elsawa, SF. Epigenetic regulation of Toll-Like Receptor signaling: Implications for Cancer Development. *Medical Epigenetics*. July 23, 2013;1:19-30.
2. Jackson DA, Smith TD, Amarsaikhan N, Han W, Neil MS, **Boi SK**, Vrabel A, Tolosa EJ, Alamada LL, Fernandez-Zapico ME, and Elsawa SF. Modulation of the IL-6 Receptor α Underlies GLI2-Mediated Regulation of Ig Secretion in Waldenström Macroglobulinemia Cells. *Journal of Immunology*. 2015 Sep 15;195(6):2908-16.
doi: 10.4049/jimmunol.1402974; PMID: PMC4561187
3. **Boi SK**, Buchta CM, Pearson NA, Francis MF, Meyerholz D, Grobe JL, and Norian LA. Obesity alters immune and metabolic profiles: new insight from obese-resistant mice on high fat diet. *Obesity*. 2016 Oct; 24(10):2140-9. PMID: 27515998.
4. **Boi SK**, Moore JX, Royston KJ, and Demark-Wahnefried, W. Letter to the Editor: Vagal Blocking (vBloc) Therapy: a New Era of Clinical Therapy for Extreme Obesity. *Obesity Surgery*. 2016. DOI: 10.1007/s11695-016-2484-6.
5. **Boi SK**, Buchta CM, Miller BJ, Milhem MM, and Norian LA. Obesity does not exacerbate the pro-tumorigenic systemic environment in sarcoma subjects. 2017. (Manuscript accepted, pending revisions).
6. Bertrand LA, Thomas L, Li P, Buchta CM, **Boi SK**, Orlandella RM, Brown JA, Nepple KG, and Norian LA. Obesity as defined by waist circumference but not body mass index is associated with higher renal mass complexity. 2017. (Manuscript under review).
7. **Boi SK**, Orlandella RM, Gross BP, and Norian LA. Addition of anti-CTLA4 checkpoint blockade therapy enhances Ad5-TRAIL efficacy against metastatic renal cell carcinoma. 2017. (Manuscript in preparation).

MEMBERSHIPS

- American Society of Hematology (ASH), member 2013-2014
- American Association of Immunologists (AAI), member 2016 - Present
- UAB Comprehensive Cancer Center Young Supporter's Board, member 2016 – Present

CONFERENCE PAPERS

1. Marshalek M, **Boi S**, Liu L, Kocanda M, Rajashankar S, Abdel-Motaleb I, Elswa S, and Korampally V. Novel Route towards Large Scale Synthesis of Bright, Water Dispersible Core-Shell Fluorescent Dye Doped Organosilicate Nanoparticles. 2014 IEEE International Conference on Electro/Information Technology. Milwaukee, WI (2014).

PRESENTATIONS

1. **Boi SK**, Rhoads BR, and Elswa SF. Toll-like receptor signaling regulates GLI3 in monocytes in the tumor microenvironment. NIU Phi Sigma Research Symposium. DeKalb, IL (2013). *Poster presentation*.
2. **Boi SK**, Rhoads BR, and Elswa SF. Toll-like receptor signaling regulates GLI3 in monocytes in the tumor microenvironment. 18th Annual University of Illinois Rockford Research Day. Rockford, IL (2013). *Poster presentation*.
3. **Boi SK**, Rhoads BR, and Elswa SF. Toll-like receptor signaling regulates GLI3 in monocytes in the tumor microenvironment. NIU Graduate Student Research & Artistry Conference. DeKalb, IL (2013). *Poster presentation*.
4. Rhoads BR, **Boi SK**, and Elswa SF. Toll-like Receptor-mediate regulation of GLI proteins. NIU Undergraduate Research & Artistry Day. DeKalb, IL (2013). *Poster presentation*.
5. **Boi SK**, Fernandez-Zapico ME, and Elswa SF. The Transcription Factor GLI3 Is a Novel Candidate Effector Of Toll-Like Receptor 4 (TLR4) Signaling In Monocytes. 55th Annual American Society of Hematology (ASH) Meeting and Exposition. New Orleans, LA (2013). (Abstract #2269). *Poster presentation*.
6. Amarsaikhan N, Dennison J, **Boi SK**, Neil MS, and Elswa SF. GLI transcription factors: Novel modulators of IgM secretion in Waldenström macroglobulinemia. 55th Annual American Society of Hematology (ASH) Meeting and Exposition. New Orleans, LA (2013). (Abstract #1771). *Poster presentation*.
7. **Boi SK**, Dennison JR, Rhoads BR. Transcription Factor GLI3 Is a Novel Candidate Effector of Toll-Like Receptor 4 Signaling. 2014 AAAS Annual Meeting. Chicago, IL (2014). *Poster presentation*.
8. **Boi SK**, Rhoads BR, Dennison JR, and Elswa SF. Transcription Factor GLI3 Is a Novel Candidate Effector of Toll-Like Receptor 4 Signaling. NIU Phi Sigma Research Symposium. DeKalb, IL (2014). *Poster presentation*.
9. Jackson DA, Amarsaikhan N, Dennison JR, Neil MS, **Boi SK**, and Elswa SF. GLI2 modulates IgM secretion via regulation of IL-6R alpha. NIU Phi Sigma Research Symposium. DeKalb, IL (2014). *Poster presentation*.
10. **Boi SK**, Rhoads BR, Dennison JR, and Elswa SF. Transcription Factor GLI3 Is a Novel Candidate Effector of Toll-Like Receptor 4 Signaling. 19th Annual University of Illinois Rockford Research Day. Rockford, IL (2014). *Poster presentation*.
11. Jackson DA, Amarsaikhan N, Dennison JR, Neil MS, **Boi SK**, and Elswa SF. GLI2 modulates IgM secretion via regulation of IL-6R alpha. 19th Annual University of Illinois Rockford Research Day. Rockford, IL (2014). *Poster presentation*.
12. Rhoads BR, **Boi SK**, and Elswa SF. Toll-like Receptor-mediated regulation of GLI expression. NIU Undergraduate Research & Artistry Day. DeKalb, IL (2014). (Abstract #31). *Poster presentation*.
13. **Boi SK**, Buchta CM, Miller BJ, Milhem MM, and Norian LA. Comprehensive systemic cytokine/chemokine analysis in sarcoma patients reveals decreasing Th2 response with

- increasing BMI. Autumn Immunology Conference. Chicago, IL (2015). (Abstract #128). *Oral and poster presentation*.
14. **Boi SK**, Buchta CM, Miller BJ, Milhem MM, and Norian LA. Comprehensive systemic cytokine/chemokine analysis in sarcoma patients reveals decreasing Th2 response with increasing BMI. UAB GBSO: Graduate Student Research Symposium. Birmingham, AL (2016). *Poster presentation*.
 15. **Boi SK**, Orlandella RM, and Norian LA. Improving immunotherapeutic efficacy against metastatic tumors in a pre-clinical model of murine renal cell carcinoma. 18th Annual UAB Comprehensive Cancer Center Research Retreat. Birmingham, AL (2016). (Abstract #307). *Poster presentation*.
 16. Orlandella RM, **Boi SK**, and Norian LA. Understanding the effects of calorie restriction mimetics on renal cell carcinoma progression and CD8+ T cell immunity. 18th Annual UAB Comprehensive Cancer Center Research Retreat. Birmingham, AL (2016). (Abstract #335). *Poster presentation*.
 17. **Boi SK**, Orlandella RM, and Norian LA. Improving immunotherapeutic efficacy against metastatic tumors in a pre-clinical model of murine renal cell carcinoma. Autumn Immunology Conference. Chicago, IL (2016). *Oral and poster presentation*.
 18. Orlandella RM, **Boi SK**, and Norian LA. Understanding the effects of calorie restriction mimetics on renal cell carcinoma progression and CD8+ T cell immunity. Autumn Immunology Conference. Chicago, IL (2016). *Oral and poster presentation*.
 19. **Boi SK**, Orlandella RM, and Norian LA. Improving immunotherapeutic efficacy against metastatic tumors in a pre-clinical model of murine renal cell carcinoma. American Association of Immunologists (AAI) 2017 Meeting. Washington, D.C. (2017). *Poster presentation*.
 20. Orlandella RM, **Boi SK**, and Norian LA. Understanding the effects of a calorie restriction mimetic on renal cancer progression and CD8+ T cell immunity. American Association of Immunologists (AAI) 2017 Meeting. Washington, D.C. (2017). *Poster presentation*.