

## Erin M. Burns, M.S., Ph.D.

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### EDUCATION

- 2009-2013      **The Ohio State University, Columbus, OH**  
*Doctor of Philosophy*, Integrated Biomedical Sciences  
Advisor: Tatiana M. Oberyszyn, Ph.D.  
Dissertation: Men and women are not just from different planets: the role of sex-based differences in the prevention of non-melanoma skin cancer
- 2007-2009      **Ball State University, Muncie, IN**  
*Biotechnology Certificate*  
*Master of Science*, Biology  
Advisor: Heather A. Bruns, Ph.D.  
Thesis: Simvastatin treatment modulates the immune response, increasing the survival of mice infected with *Staphylococcus aureus*
- 2003-2007      **Ball State University, Muncie, IN**  
*Bachelor of Arts*, Biology; Chemistry and Spanish minors

### PROFESSIONAL EXPERIENCE

- July 2013-present      **Department of Dermatology, University of Alabama at Birmingham**  
National Cancer Institute (NIH) Postdoctoral Fellow, UAB Cancer Prevention and Control Training Program, Mentors: Nabih Yusuf, Ph.D. and Craig A. Elmets, M.D.
- July 2009-June 2013      **Department of Pathology, The Ohio State University**  
Graduate Research Associate, Biomedical Sciences Graduate Program
- May 2009-Aug 2009      **Research and Development, Dow AgroSciences, Indianapolis, IN**  
Summer Internship Program, Mentor: Kerrm Yau, Ph.D.
- Aug 2008-May 2009      **Department of Biology, Ball State University**  
Graduate Assistant, Introduction to Recombinant DNA and RNA Techniques, Biotechnology Program
- May 2008-Aug 2008      **Department of Biology, Ball State University**  
Biotechnology Graduate Internship, Mentor: Susan A. McDowell, Ph.D.

### PROFESSIONAL MEMBERSHIPS

- 2011-present      Member, Society for Investigative Dermatology (SID)  
2012-present      Associate Member, Sigma Xi

### PUBLICATIONS

- Burns, EM**, KL Tober, P Nagarajan, JA Riggerbach, DF Kusewitt, GS Young, and TM Oberyszyn. Size is not a reliable predictor of tumor grade in a murine UVB-induced carcinogenesis model. (In preparation)

- Burns, EM** and N Yusuf. Toll-like receptors and skin cancer. (Submitted to *Frontiers Immunology*)
- Min, W, I Ahmad, ME Chang, **EM Burns**, and N Yusuf. Baicalin protects keratinocytes from ultraviolet radiation-induced inflammatory damage. (Submitted)
- Min, W, I Ahmad, ME Chang, **EM Burns**, and N Yusuf. Baicalin protects keratinocytes from Toll like receptor-4-mediated DNA damage and inflammation following ultraviolet irradiation. (In revision)
- Min, W, B Lin, X Yu, **EM Burns**, N Yusuf, Q Qian, and D Luo. Proteomic analysis and functional studies of Baicalin on proteins associated with skin cancer. (In revision)
- Burns, EM**, KL Tober, JA Rigggenbach, DF Kusewitt, GS Young, and TM Oberyszyn. (2013) Tumorigenesis and treatment efficacy are altered with continued UVB exposure in a murine model of cutaneous squamous cell carcinoma. *J Skin Cancer* 2013:246848.
- Burns, EM**, KL Tober, JA Rigggenbach, DF Kusewitt, GS Young, and TM Oberyszyn. (2013) Differential effects of topical vitamin E and C E Ferulic treatments on ultraviolet light B-induced cutaneous tumor development in Skh-1 mice. *PLOS ONE* 8(5):e63809.
- Burns, EM**, LK Smelser, JE Then, TE Stankiewicz, M Kushdilian, SA McDowell, and HA Bruns. (2013) Short term statin treatment improves survival and differentially regulates macrophage-mediated responses to *Staphylococcus aureus*. *Curr Pharmaceut Biotech* 14(2): 233-241.
- Burns, EM**, KL Tober, JA Rigggenbach, JS Schick, KN Lamping, GS Young, DF Kusewitt, and TM Oberyszyn. (2013) Preventative topical diclofenac treatment differentially decreases tumor burden in male and female Skh-1 mice in a model of UVB-induced cutaneous squamous cell carcinoma. *Carcinogenesis* 34(2): 370-377.
- Sullivan, NJ, KL Tober, **EM Burns**, JS Schick, JA Rigggenbach, TA Mace, MA Bill, GS Young, TM Oberyszyn, and GB Lesinski. (2012) UV light B-mediated inhibition of skin catalase activity promotes Gr-1(+)Cd11b(+) myeloid cell expansion. *J Invest Dermatol* 132 (3 Pt 1): 695-702.

## ABSTRACTS AND PRESENTATIONS

### Oral Presentations

- 11<sup>th</sup> Annual Postdoctoral Research Day. Title: The effects of vitamin D receptor polymorphisms on non-melanoma skin cancer risk in an Alabama population. Birmingham, AL, February 2014.
- 27<sup>th</sup> Annual Edward F. Hayes Graduate Research Forum. Title: Preventative topical diclofenac treatment differentially decreases tumor burden in male and female Skh-1 mice in a model of UVB-induced cutaneous squamous cell carcinoma. Columbus, OH, March 2013.
- 2012 Society for Investigative Dermatology Annual Meeting. Title: Diclofenac decreases tumor burden in male and female mice in two models of UVB-induced cutaneous squamous cell carcinoma. Raleigh, NC, May 2012.
- 26<sup>th</sup> Annual Edward F. Hayes Graduate Research Forum. Title: Sex-specific cutaneous differences affect treatment strategies of UVB-induced squamous cell carcinoma. Columbus, OH, February 2012.

2011 Society for Investigative Dermatology Annual Meeting. Title: Sex differences in UVB-induced cutaneous tumor development in Skh-1 mice following topical antioxidant/anti-inflammatory treatment. Phoenix, AZ, May 2011.

Autumn Immunology Conference. Title: Immune responses of *S. aureus*-infected mice pre-treated with simvastatin. Chicago, IL, November 2008.

*Poster Presentations and Abstracts*

**Burns, EM**, L Bush, HM Nasr, E Steifel, IA Tamimi, G McGwin, CB Hurst, CA Elmets, and N Yusuf. The effects of vitamin D receptor polymorphisms on non-melanoma skin cancer risk in an Alabama population. UAB Comprehensive Cancer Center 16<sup>th</sup> Annual Research Retreat, Birmingham, AL, November 2013.

**Burns, EM**, KL Tober, JA Rigggenbach, DF Kusewitt, GS Young, and TM Oberyszyn. Size is not a reliable predictor of tumor grade in a murine UVB-induced carcinogenesis model. 2013 International Investigative Dermatology Meeting, Edinburgh, Scotland, May 2013.

**Burns, EM**, KL Tober, JA Rigggenbach, and TM Oberyszyn. Diclofenac decreases tumor burden in male and female mice in two models of UVB-induced cutaneous squamous cell carcinoma. 10<sup>th</sup> International Skin Carcinogenesis Conference, Columbus, OH, June 2012.

**Burns, EM**, KL Tober, JA Rigggenbach, and TM Oberyszyn. Diclofenac decreases tumor burden in male and female mice in two models of UVB-induced cutaneous squamous cell carcinoma. 2012 SID Annual Meeting, Raleigh, NC, May 2012.

**Burns, EM**, KL Tober, JA Rigggenbach, KN Lamping, GS Young, and TM Oberyszyn. The effects of antioxidant and anti-inflammatory topical treatments in male SKH-1 mice in two models of ultraviolet light B-induced squamous cell carcinoma. 11<sup>th</sup> Annual OSUMC Trainee Research Day, Columbus, OH, April 2012.

**Burns, EM**, KL Tober, JA Rigggenbach, KN Lamping, GS Young, and TM Oberyszyn. Topical treatment with Diclofenac decreases tumor burden in male SKH-1 mice in two models of ultraviolet light B-induced squamous cell carcinoma. OSUCCC-James Annual Scientific Meeting, Columbus, OH, March 2012.

**Burns, EM**, KL Tober, NJ Sullivan, JS Schick, JA Rigggenbach, GS Young, GB Lesinski, and TM Oberyszyn. Sex differences in UVB-induced cutaneous tumor development in Skh-1 mice following topical antioxidant/anti-inflammatory treatment. 2011 SID Annual Meeting, Phoenix, AZ, May 2011.

Sullivan, NJ, KL Tober, **EM Burns**, JS Schick, JA Rigggenbach, MA Bill, GS Young, TM Oberyszyn, GB Lesinski. Catalase potentiates a sex discrepancy in myeloid-derived suppressor cell expansion in a mouse model of ultraviolet light-induced skin cancer. 2011 SID Annual Meeting, Phoenix, AZ, May 2011.

**Burns, EM**, NJ Sullivan, KL Tober, GS Young, GB Lesinski, and TM Oberyszyn. Sex differences in UVB-induced cutaneous tumor development in Skh-1 mice following topical antioxidant/anti-inflammatory treatment. 10<sup>th</sup> Annual OSUMC Trainee Research Day, Columbus, OH, April 2011.

Sullivan, NJ, KL Tober, **EM Burns**, JS Schick, JA Rigggenbach, MA Bill, GS Young, TM Oberyszyn, GB Lesinski. Higher Male Myeloid-Derived Suppressor Cell Expansion in a Mouse Model of UVB-Induced Skin Cancer. TRC3, Seven Springs, PA, February 2011.

**Burns, EM**, NJ Sullivan, KL Tober, GS Young, GB Lesinski, and TM Oberyszyn. Sex

differences in UVB-induced cutaneous tumor development in Skh-1 mice following topical antioxidant/anti-inflammatory treatment. OSUCCC-James Annual Scientific Meeting, Columbus, OH, February 2011.

Glassburn, JE, T Stankiewicz, **E Burns**, S McDowell, and HA Bruns. The effects of simvastatin on innate immune responses. Autumn Immunology Conference, Chicago, IL, November 2010.

Tober, KL, **EM Burns**, JA Riggerbach, JS Schick, NJ Sullivan, and TM Oberyszyn. Altering the sex differences observed in the response to cutaneous ultraviolet light exposure. 9<sup>th</sup> International Skin Carcinogenesis Conference, University Park, PA, June 2010.

**Burns, EM**, SA McDowell, and HA Bruns. Simvastatin modulates the immune response, increasing the survival of mice infected with *Staphylococcus aureus*. Student Symposium, Ball State University, March 2009.

**Burns, EM** and SA McDowell. Effects of mevalonate replenishment on simvastatin-treated HEK293 cells. Student Symposium, Ball State University, March 2008.

## AWARDS AND HONORS

Graduate Student of the Year, Department of Pathology, The Ohio State University, May 2013.

2<sup>nd</sup> Place Oral Presentation, 27<sup>th</sup> Annual Edward F. Hayes Graduate Research Forum, Columbus, OH, March 2013.

Selected for participation in the debut of the Society for Investigative Dermatology PhD Retreat, Raleigh, NC, May 2012.

Finalist, 26<sup>th</sup> Annual Edward F. Hayes Graduate Research Forum, Columbus, OH, February 2012.

Albert M. Kligman Travel Fellowship to attend the Annual Meeting of the Society for Investigative Dermatology, \$750, May 2011.

Outstanding Graduate Student in Laboratory Sciences, Ball State University, April 2009.

Keys-Litten-Smith Overall Graduate Winner—Student Symposium, Ball State University, March 2008.

## GRANTS

Effects of *Staphylococcus aureus* infection and simvastatin treatment on immune responses *in vivo*. Graduate Research Grant 2009. Ball State University Research Committee. \$495.

Immune responses of *S. aureus*-infected mice pre-treated with simvastatin. Student Travel Grant 2008. Ball State University ASPIRE Grant Program. \$100.

## SERVICE

Judge, UAB Graduate Biomedical Science Poster Session, November 2013

Volunteer, IBGP Recruitment, March 2013, February 2012

Judge, Carroll High School Science Day, February 2012

Judge, Worthington Local Science Fair, February 2012