

Rance Berg, PhD  
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Microbiology, Immunology & Genetics  
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## Area of Expertise

My laboratory has a long-standing interest in understanding the cellular and molecular aspects of immune responses against pathogenic microorganisms. Specifically, the gram-positive bacterium, *Listeria monocytogenes*, is utilized to dissect the roles of T cells, NK cells, NK-T cells, dendritic cells, monocytes, neutrophils, and macrophages during the innate and adaptive immune responses to this pathogen. Elucidating the proliferative capacity, cytokine/chemokine secreting potential, localization, and ultimate fate of these and other immune effector cells allows us to understand how the immune system coordinately responds to, and controls, pathogens.

We are also actively studying how cytokine/chemokine networks, oxidative stress, and enzymes that regulate the production of reactive oxygen and nitrogen species modulate immune responses and clearance of pathogens.

## Qualifications

BS in Biology, DePaul University

PhD in Microbiology & Immunology, University of Colorado Health Sciences Center

## Recent Publications

### **The essential role of neutrophils during infection with the intracellular bacterial pathogen *Listeria monocytogenes***

Witter, A. R., Okunnu, B. M. & Berg, R. E., 1 Sep 2016, In: *Journal of Immunology*. 197, 5, p. 1557-1565 9 p.

### **Extracellular superoxide dismutase enhances recruitment of immature neutrophils to the liver**

Break, T. J., Witter, A. R., Indramohan, M., Mummert, M. E., Dory, L. & Berg, R. E., 2016, In: *Infection and Immunity*. 84, 12, p. 3302-3312 11 p.

### **Chronic psychological stress suppresses contact hypersensitivity: Potential roles of dysregulated cell trafficking and decreased IFN- $\gamma$ production**

Hall, J. M. F., Witter, A. R., Racine, R. R., Berg, R., Podawiltz, A., Jones, H. & Mummert, M. E., 1 Feb 2014, In: *Brain, Behavior, and Immunity*. 36, p. 156-164 9 p.

### **Interleukin-23 (IL-23) deficiency disrupts Th17 and Th1-related defenses against *Streptococcus pneumoniae* infection**

Kim, B. J., Lee, S., Berg, R. E., Simecka, J. W. & Jones, H. P., Oct 2013, In: *Cytokine*. 64, 1, p. 375-381 7 p.

### **Extracellular superoxide dismutase inhibits innate immune responses and clearance of an intracellular bacterial infection**

Break, T. J., Jun, S., Indramohan, M., Carr, K. D., Sieve, A. N., Dory, L. & Berg, R. E., 1 Apr 2012, In: *Journal of Immunology*. 188, 7, p. 3342-3350 9 p.

### **Inflammatory monocyte recruitment is regulated by interleukin-23 during systemic bacterial infection**

Indramohan, M., Sieve, A. N., Break, T. J. & Berg, R. E., 2012, In: *Infection and Immunity*. 80, 12, p. 4099-4105 7 p.

### **Specific depletion reveals a novel role for neutrophil-mediated protection in the liver during *Listeria monocytogenes* infection**

Carr, K. D., Sieve, A. N., Indramohan, M., Break, T. J., Lee, S. & Berg, R. E., Sep 2011, In: *European Journal of Immunology*. 41, 9, p. 2666-2676 11 p.

### **IL-22 production is regulated by IL-23 during *Listeria monocytogenes* infection but is not required for bacterial clearance or tissue protection**

Graham, A. C., Carr, K. D., Sieve, A. N., Indramohan, M., Break, T. J. & Berg, R. E., 2011, In: *PLoS ONE*. 6, 2, e17171.

**A novel immunoregulatory function for IL-23: Inhibition of IL-12-dependent IFN- $\gamma$  production**

Sieve, A. N., Meeks, K. D., Lee, S. & Berg, R. E., Aug 2010, In: European Journal of Immunology. 40, 8, p. 2236-2247 12 p.

**IL-23 is required for protection against systemic infection with *Listeria monocytogenes***

Meeks, K. D., Sieve, A. N., Kolls, J. K., Ghilardi, N. & Berg, R. E., 15 Dec 2009, In: Journal of Immunology. 183, 12, p. 8026-8034 9 p.

## **Sponsored Projects**

**Delineating the Impact of ecSOD on Phagocytic and Myeloid-Derived Suppressor Cells During Infection - Graduate Student, Timothy Break**

Berg, R.

Sigma Xi

27/01/12 → 26/01/13

**Effects of ecSOD on Neutrophil Maturation and Function**

Berg, R.

American Association of Immunologists

1/09/15 → 31/08/16

**Effects of Recombinant Superoxide Dismutase and Inhibition of Endogenous Superoxide Dismutase on *Listeria monocytogenes* Infection (For: Christian Ponder)**

Berg, R.

Intramural Research(UNTHSC)

15/10/15 → 15/02/16

**Inhibition of neutrophil responses by ecSOD**

Berg, R. & BERG, R. E.

National Institute of Allergy and Infectious Diseases

1/01/14 → 31/12/17

**Inhibition of Neutrophil Responses by ecSOD**

Berg, R.

NIAID: Allergy and Infectious Diseases

1/01/14 → 31/12/17

**Mechanisms of host protection during infection via the mitochondrial unfolded protein response**

Berg, R.

University of Texas at Arlington

1/10/18 → 31/07/21

**Redox Status of HMGB1 Mediate Immunity to *Listeria Monocytogenes***

Berg, R.

Intramural Research(UNTHSC)

1/03/15 → 31/08/16

**Regulation of monocyte recruitment and function by the IL-23/IL-17 axis**

Berg, R. & BERG, R. E.

National Institute of Allergy and Infectious Diseases

7/02/12 → 31/01/15

**Regulation of Monocyte Recruitment and Function by the IL-23/IL-17 Axis**

Berg, R.

NIAID: Allergy and Infectious Diseases

7/02/12 → 31/01/15

**Regulation of Neutrophil Function by ecSOD**

Berg, R.

Intramural Research(UNTHSC)

15/01/12 → 14/01/13

**Role of CD8+ T Cells in Innate Immune Responses**

Berg, R.

National Institute of Allergy and Infectious Diseases

1/07/05 → 31/05/09

**Role of CD8+ T Cells in Innate Immune Responses**

Berg, R. & BERG, R. E.

National Institute of Allergy and Infectious Diseases

1/04/03 → 31/03/05

**Role of Corticotropin Releasing Hormone in Stress-Induced Susceptibility Against Streptococcus Pneumoniae**

Jones, H. & Berg, R.

Intramural Research(UNTHSC)

15/01/10 → 14/01/11

**The Impact of Varying Levels of ecSOD Activity on Neutrophil Recruitment and Function (For: Timothy Break)**

Berg, R.

Intramural Research(UNTHSC)

1/04/13 → 31/03/14

**The Impact of Varying Levels of ecSOD Activity on Neutrophil Recruitment and Function(For: Timothy Break)**

Berg, R.

Intramural Research(UNTHSC)

3/12/12 → 2/12/13