

## Michael T. Dellinger, Ph.D.

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 UT Southwestern Medical Center  
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### A. POSITIONS AND APPOINTMENTS

2011 - Present Research Director, The Lymphatic Malformation Institute ([www.lmiresearch.org](http://www.lmiresearch.org))  
 2014 - Present Assistant Professor, Department of Surgery, UT Southwestern Medical Center

### B. EDUCATION

|             |   |
|-------------|---|
| 1999 - 2002 | Bachelor of Science, Molecular and Cellular Biology, University of Arizona  |
| 2002 - 2008 | Doctor of Philosophy, Molecular and Cellular Biology, University of Arizona |

### C. TRAINING

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|-------------|--|
| 1999 - 2002 | Undergraduate Research Assistant, Plant Sciences, University of Arizona<br><i>Mentor: Dr. Jian-Kang Zhu</i>                                    |
| 2002 - 2008 | Graduate Research Assistant, Molecular and Cellular Biology, University of Arizona<br><i>Mentors: Dr. Robert Erickson and Dr. Marlys Witte</i> |
| 2008 - 2014 | Postdoctoral Researcher, Surgical Oncology, UT Southwestern Medical Center<br><i>Mentor: Dr. Rolf Brekken</i>                                  |

### D. EXPERIENCE AND HONORS

#### Professional Memberships

|                |   |
|----------------|---|
| 2005 - Present | Member, International Society of Lymphology                       |
| 2014 - Present | Member, International Society for the Study of Vascular Anomalies |
| 2012 - Present | Member, NAVBO   |

#### Honors

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|------|--|
| 2002 | Graduated Magna cum laude from University of Arizona   |
| 2005 | International Society of Lymphology Presidential Prize for Outstanding Basic Research in Lymphology  |
| 2006 | Lymphatic Research Foundation-Susan G. Komen Breast Cancer Foundation Scholarship  |
| 2007 | International Society of Lymphology Presidential Prize for Outstanding Basic Research in Lymphology  |
| 2008 | Lymphatic Research Foundation Travel Award   |
| 2008 | Young Investigator Award, 3 <sup>rd</sup> Mayo Clinic Angiogenesis Symposium   |
| 2010 | Best Basic Science Award, UT Southwestern Department of Surgery Research Symposium   |
| 2011 | Best Basic Science Award, UT Southwestern Department of Surgery Research Symposium   |
| 2012 | Outstanding Poster Award, NAVBO Developmental Vascular Biology Workshop  |
| 2016 | John Mulliken Award for Best Scientific Paper, 21st International Workshop on Vascular Anomalies   |
| 2017 | Invited Speaker Selected by Graduate Students in the Cell Biology Program at the University of Oklahoma Health Science Center (April 5, 2017; Oklahoma City, OK) |

#### Service

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|----------------|---|
| 2011 – Present | Ad-hoc reviewer for several journals: <i>Lymphology</i> , <i>PLoS ONE</i> , <i>Cancer Research</i> , <i>The Journal of Clinical &amp; Cellular Immunology</i> , <i>OMICS Group International</i> , <i>BMC Cancer</i> , <i>Nature Communications</i> , <i>The New England Journal of Medicine</i> , <i>Journal of Pediatric Hematology and Oncology</i> , <i>British Journal of Pharmacology</i> |
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|                |   |
|----------------|---|
| 2013           | <u>Conference Organizer</u> , First International Conference on Generalized Lymphatic Anomaly and Gorham-Stout Syndrome. (June 7-8, 2013; Bethesda, MD) |
| 2014 – Present | Member of Editorial Board, <i>Lymphology</i>  |
| 2014 – Present | Organizer of the Harold C. Simmons Cancer Center Angiogenesis Seminar Series (UT Southwestern Medical Center)   |
| 2014 – 2016    | Organizer of the Department of Surgery Research Seminar Series (UT Southwestern Medical Center)   |
| 2014 – Present | Member, Development and Cancer Program in the Harold C. Simmons Cancer Center   |
| 2015 – Present | Member, Genes, Development, and Disease Graduate Program (UT Southwestern Medical Center)   |
| 2015 – Present | Member, Hamon Center for Regenerative Science and Medicine  |
| 2015           | Member of the organizing committee of the 25 <sup>th</sup> World Congress of Lymphology   |
| 2016           | <u>Conference Organizer</u> , 2nd International Conference on Generalized Lymphatic Anomaly and Gorham-Stout Syndrome. (June 10-11, 2016; Atlanta, GA)  |
| 2017 – Present | Member, Education Committee for NAVBO   |
| 2017 – Present | Member, Steering Committee for the Genes, Development, and Disease Graduate Program (UT Southwestern Medical Center)                                    |

### Invited Speaker

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|------|--|
| 2009 | 3 <sup>rd</sup> International Symposium on Cancer Metastasis and the Lymphovascular System: Basis for rational therapy (May 6-9, 2009; San Francisco, CA)    |
| 2011 | 4 <sup>th</sup> International Symposium on Cancer Metastasis and the Lymphovascular System: Basis for rational therapy (May 12-14, 2011; New York, NY)       |
| 2013 | Joint International Oncology (Sentinel Node and Cancer Metastasis) Congress (May 27-29, 2013; San Francisco, CA)   |
| 2013 | 1 <sup>st</sup> International Conference on Generalized Lymphatic Anomaly and Gorham-Stout Syndrome (June 7-8, 2013; Bethesda, MD)                           |
| 2014 | American Society of Pediatric Hematology Oncology (May 14-17, 2014; Chicago, IL)   |
| 2014 | Inaugural International Lymphangiomatosis & Gorham's Disease Alliance Patient & Family Conference (June 13-14, 2014; Dallas, TX)                             |
| 2015 | Pathway to Excellence Seminar Series; Baylor College of Dentistry (July 1, 2015; Dallas, TX)   |
| 2015 | American Thoracic Society Rare Lung Disease Webinar (August 5, 2015)   |
| 2015 | 25 <sup>th</sup> World Congress of Lymphology (September 7-11, 2015; San Francisco, CA)  |
| 2015 | Genes, Development and Disease Graduate Student Retreat; UT Southwestern Medical Center (October 2, 2015; Dallas, TX)  |
| 2015 | Cell Biology and Immunology Departmental Seminar; UNT Health Science Center (November 12, 2015; Fort Worth, TX)  |
| 2016 | 2nd International Conference on Generalized Lymphatic Anomaly and Gorham-Stout Syndrome (June 10-11, 2016; Atlanta, GA)                                      |
| 2017 | Invited Speaker Selected by Graduate Students in the Cell Biology Program at University of Oklahoma Health Science Center (April 5, 2017; Oklahoma City, OK) |
| 2017 | Cancer Metastasis Through the Lymphovascular System: Biology and Treatment. (April 20-22, 2017; San Francisco, CA)   |
| 2017 | Lymphatic Forum 2017: Exploring the lymphatic continuum. (June 8-10, 2017; Chicago, IL)  |
| 2018 | 45 <sup>th</sup> Annual Meeting of the Texas Genetics Society. (March 22-24, 2018; College Station, TX)  |
| 2018 | International Symposium on Somatic Mosaicism in Vascular Malformations (May 10-11, 2018; Madrid, Spain)  |
| 2018 | 20 <sup>th</sup> International Vascular Biology Meeting. (June 3-7, 2018; Helsinki, Finland)   |
| 2018 | Medical, Surgical, and Minimally Invasive Management of Vascular Anomalies and Overgrowth Syndromes (September 28-29, 2018; Atlanta, GA)                     |

### **E. PUBLICATIONS**

#### Peer Reviewed Publications

1. **Dellinger MT**, Hunter RJ, Bernas MJ, Witte MH, Erickson RP. 2007. *Chy-3* mice are *Vegfc* haploinsufficient and exhibit defective dermal superficial to deep lymphatic transition and dermal lymphatic hypoplasia. *Developmental Dynamics* 236, 2346-2355. PMID: 17584866.
2. **Dellinger MT**, Hunter RJ, Bernas MJ, Erickson RP, Gale NW, Yancopoulos GD, Witte MH. 2008. Defective remodeling of the lymphatic vasculature in Angiopoietin-2 knockout mice. *Developmental Biology* 319, 309-320.

PMCID: PMC2536689.

3. **Dellinger MT**, Thome K, Bernas MJ, Erickson RP, Witte MH. 2008. Novel *FOXC2* missense mutation identified in a patient with lymphedema-distichiasis syndrome and review. *Lymphology* 41, 98-102. PMID: 19013876.
4. Witte MH, Erickson RP, Khalil M, **Dellinger M**, Bernas M, Grogan T, Nitta H, Feng J, Duggan D, Witte CL. 2009. Lymphedema-distichiasis syndrome without *FOXC2* mutation: evidence for chromosome 16 duplication upstream of *FOXC2*. *Lymphology* 42, 152-160. PMID: 20218083.
5. Roland CL, Dineen SP, Lynn KD, Sullivan LA, **Dellinger MT**, Sadegh L, Sullivan JP, Shames DS, Brekken RA. 2009. Inhibition of vascular endothelial growth factor reduces angiogenesis and modulates immune cell infiltration of orthotopic breast cancer xenografts. *Molecular Cancer Therapeutics* 8, 1761-1771. PMID: 19567820.
6. Zhu J, Lee BH, **Dellinger M**, Cui X, Zhang C, Wu S, Nothnagel EA, Zhu JK. 2010. A cellulose synthase-like protein is required for osmotic stress tolerance in *Arabidopsis*. *The Plant Journal* 63, 128-140. PMID: PMC3061338.
7. Kanady JD, **Dellinger MT**, Munger SJ, Witte MH, Simon AM. 2011. Connexin37 and Connexin43 deficiencies in mice disrupt lymphatic valve development and result in lymphatic disorders including lymphedema and chylothorax. *Developmental Biology* 354, 253-266. PMID: PMC3134316.
8. **Dellinger MT** and Brekken RA. 2011. Phosphorylation of Akt and ERK1/2 is required for VEGF-A/VEGFR2-induced proliferation and migration of lymphatic endothelium. *PLoS ONE* 6(12):e28947. PMID: PMC3236226.
9. Gerber DE, Gupta P, **Dellinger MT**, Toombs JE, Peyton M, Duignan I, Malaby J, Bailey T, Burns C, Brekken RA, Loizos N. 2012. Stromal platelet-derived growth factor receptor  $\alpha$  (PDGFR $\alpha$ ) provides a therapeutic target independent of tumor cell PDGFR $\alpha$  expression in lung cancer xenografts. *Molecular Cancer Therapeutics* 11, 2473-2482. PMID: PMC3495993.
10. Li X, Zhou Q, Hanus J, Anderson C, Zhang H, **Dellinger M**, Brekken R, Wang S. 2013. Inhibition of multiple pathogenic pathways by histone deacetylase inhibitor SAHA in a corneal alkali-burn injury model. *Molecular Pharmaceutics* 10, 307-318. PMID: PMC3697033.
11. Konstantinidou G, Ramadori G, Torti F, Kangasniemi K, Ramirez RE, Cai Y, Behrens C, **Dellinger MT**, Brekken RA, Wistuba II, Heguy A, Teruya-Feldstein J, Scaglioni PP. 2013. RHOA-FAK is a required signaling axis for the maintenance of KRAS-driven adenocarcinomas. *Cancer Discovery* 3, 444-457. PMID: PMC3625467.
12. Bennett KM, Afanador MD, Lal CV, Xu H, Persad E, Legan SK, Chenaux G, **Dellinger M**, Savani RC, Dravis C, Henkemeyer M, Schwarz MA. 2013. Ephrin-B2 Reverse Signaling Increases  $\alpha$ 5 $\beta$ 1 Integrin Mediated Fibronectin Deposition and Reduces Distal Lung Compliance. *Am J Respir Cell Mol Biol.* 49, 680-687. PMID: PMC3824044 [Available on 2014/10/1].
13. Wang L, Chang J, Varghese D, **Dellinger M**, Kumar S, Best AM, Ruiz J, Bruick R, Peña-Llopis S, Xu J, Babinski DJ, Frantz DE, Brekken RA, Quinn AM, Simeonov A, Easmon J, Martinez ED. 2013. A small molecule modulates Jumonji histone demethylase activity and selectively inhibits cancer growth. *Nature Communications*. 4:2035. PMID: PMC3724450.
14. **\*Dellinger MT**, Meadows SM, Wynne K, Cleaver O, Brekken RA. 2013. VEGFR2 directly regulates the development of the lymphatic vasculature. *PLoS ONE* 8(9):e74686. PMID: PMC3759473. (\* corresponding author)
15. Aguilera KY, Rivera LB, Hur H, Carbon JG, Toombs JE, Goldstein CD, **Dellinger MT**, Castrillon DH, Brekken RA. 2013. Collagen signaling enhances tumor progression after anti-VEGF therapy in a murine model of pancreatic ductal adenocarcinoma. *Cancer Research* 74, 1032-1044. PMID: PMC3944405 [Available on 2015/2/15].
16. Dbouk HA, Weil LM, Perera GK, **Dellinger MT**, Pearson G, Brekken RA, Cobb MH. 2014. Actions of the protein kinase WNK1 on endothelial cells are differentially mediated by its substrate kinases OSR1 and SPAK. *Proc Natl Acad Sci USA* 111, 15999-6004. PMID: 25362046.
17. Kirane A, Ludwig KF, Sorrelle N, Haaland G, Sandal T, Ranaweera R, Toombs JE, Wang M, Dineen SP, Micklem D, **Dellinger MT**, Lorens JB, Brekken RA. 2015. Warfarin blocks Gas6-mediated Axl activation required for pancreatic cancer epithelial plasticity and metastasis. *Cancer Research* 75, 3699-36705. PMID: 26206560.
18. Regan E, Sibley RC, Cenik BK, Silva A, Girard L, Minna JD, **Dellinger MT**. 2016. Identification of Gene Expression Differences between Lymphangiogenic and Non-Lymphangiogenic Non-Small Cell Lung Cancer Cell Lines. *PLoS One*. 2016. 11(3):e0150963. PMID: PMC4780812.
19. Lammoglia GM, Van Zandt CE, Galvan DX, Orozco JL, **Dellinger MT**, Rutkowski JM. 2016. Hyperplasia, de novo lymphangiogenesis, and lymphatic regression in mice with tissue-specific, inducible overexpression of murine VEGF-D. *Am J Physiol Heart Circ Physiol.* [Epub ahead of print] PubMed PMID: 27342876.
20. Ludwig KF, Slone T, Cederberg KB, Silva AT, **Dellinger MT**. 2016. A new case and review of chylothorax in generalized lymphatic anomaly and Gorham-Stout disease. *Lymphology* 49:73-84.
21. Wang W, Wang H, Zhou X, Li X, Sun W, **Dellinger M**, Boyce BF, Xing L. 2017. Lymphatic endothelial cells produce M-CSF, causing massive bone loss in mice. *J Bone Miner Res.* 32:939-950.
22. Kontarakis Z, Rossi A, Ramas S, **Dellinger MT**, Stainier DYR. 2018. Mir-126 is a conserved modulator of lymphatic development. *Dev Biol.* 437, 120-130.

23. Hominick D, Silva A, Khurana N, Liu Y, Dechow PC, Feng JQ, Pytowski B, Rutkowski JM, Alitalo K, **Dellinger MT**. 2018. VEGF-C promotes the development of lymphatics in bone and bone loss. *eLIFE*. eLife 2018;7:e34323

### Review Articles

1. Witte MH, Bernas M, **Dellinger MT**, Duggan D, Erickson RP. 2006. Genetics of childhood lymphedema-angiodyplasia syndromes. *National Lymphedema Network* 18, 25-27.
2. Witte MH, **Dellinger MT**, McDonald D, Boccardo F, Campisi C, Sleeman J, Gershenwald J. 2011. Lymphangiogenesis and Hemangiogenesis: Potential Targets for Therapy. *Journal of Surgical Oncology* 103, 489-500. PMID: 21480241.
3. Witte MH, **Dellinger MT**, Papendieck CM, Boccardo F. 2012. Overlapping biomarkers, pathways, processes and syndromes in lymphatic development, growth and neoplasia. *Clinical and Experimental Metastasis*. 29, 707-727. PMID: 22798218.
4. \***Dellinger MT**, Garg N, Ferry T, Kelly J, Olsen BR. 2013. First International Conference on Generalized Lymphatic Anomaly and Gorham-Stout Syndrome. *BoneKey* doi:10.1038/bonekey.2013.210. (\*corresponding author)
5. \***Dellinger MT**, Garg N, Olsen BR. 2014. Viewpoints on vessels and vanishing bones in Gorham-Stout disease. *Bone* 63, 47-52. PMID: 24583233. (\*corresponding author)
6. Iacobas I, Klepper L, Kelly J, Ferry T, **Dellinger MT**. 2016. Meeting report for the 2<sup>nd</sup> International Conference on Generalized Lymphatic Anomaly and Gorham-Stout Disease. *IBMS Bone Key (In Press)*.

### Book Chapters

1. Witte MH, **Dellinger MT**, Bernas MJ, Jones KA, Witte CL. 2007. Molecular lymphology and genetics of lymphedema-angiodyplasia syndromes. In: Földi M, Földi E, (Eds.). Földi's Textbook of Lymphology. Urban & Fischer. p. 497-523.
2. Witte MH, **Dellinger MT**, Bernas MJ, Witte CL. 2009. Heme/Lymphvasculogenesis, Hem/Lymphangiogenesis, Hem/Lymphangiotumorigenesis, and Tumor Hem/Lymphangiogenesis: Need for a Terminology Adjustment. In: Leong SL (Ed.). From Local Invasion to Metastatic Cancer. Humana Press. p. 77-92.
3. **Dellinger MT**, Bernas MJ, Witte MH. 2011. Lymphatic Biology and Pathobiology. Dieter RS, Dieter RA, Dieter RA, (Eds.). Venous and Lymphatic Diseases. McGraw-Hill Professional. p. 17-35.

### Meeting Abstracts (Oral Presentations)

1. **Dellinger MT**, Hunter RJ, Bernas MJ, Erickson RP, Witte MH. Lymphatic phenotype of *Chy-3* mice: comparison to *Vegfc<sup>+/+</sup>* mice. *20<sup>th</sup> International Congress of Lymphology* (September 26-October 1, 2005; Salvador, Brazil).
2. **Dellinger MT**, Hunter RJ, Bernas MJ, Erickson RP, Witte MH. Lymphatic phenotype of Angiopoietin-2 knockout mice. *21<sup>st</sup> International Congress of Lymphology* (September 26-29, 2007; Shanghai, China).
3. **Dellinger MT**. Overexpression of VEGF-C in bone causes a phenotype that resembles Gorham-Stout disease. Gordon Research Conference: Basic Science and Disease Mechanisms in Multiple Organ Systems (March 20-25, 2016; Ventura, CA)
4. **Dellinger MT**. Overexpression of VEGF-C in bone causes a phenotype that resembles Gorham-Stout disease. *21<sup>st</sup> International Workshop on Vascular Anomalies* (April 26-29, 2016; Buenos Aires, Argentina).
5. **Dellinger MT**. Overexpression of VEGF-C in bone causes a phenotype that resembles Gorham-Stout disease. *19<sup>th</sup> International Vascular Biology Meeting* (October 30 – November 3, 2016; Boston, MA).
6. **Dellinger MT**. Excessive PI3K/mTOR signaling causes lymphatic hyperplasia and dysfunction in mice. *22<sup>nd</sup> International Workshop on Vascular Anomalies* (May 29 – June 1, 2018; Amsterdam, Netherlands).

### Meeting Abstracts (Poster Presentations)

1. Hunter RJ, Witte MH, **Dellinger MT**, Kriederman B, Zeigler R, Suri C, Gale N, Yancopoulos G. The generalized hypo-dysplastic lymphatic phenotype of *Ang2<sup>+/+</sup>* mice persists throughout adulthood and is fully rescued by Angiopoietin-1 knock-in. *20<sup>th</sup> International Congress of Lymphology* (September 26-October 1, 2005; Salvador, Brazil).

2. Zhu J, Lee BH, **Dellinger MT**, Nothagel EA, Zheng X, Zhu JK. A cellulose synthase-like protein, SOS6 is required for osmotic stress tolerance in *Arabidopsis*. *Plant Biology* (August 5-9, 2006; Boston, MA).
3. **Dellinger MT**, Hunter RJ, Bernas MJ, Erickson RP, Witte MH. Lymphatic phenotype of *Chy-3* mice. *Gordon Research Conference: Molecular mechanisms in lymphatic function and disease* (September 3-8, 2006; Les Diablerets, Switzerland).
4. Bernas MJ, Witte MH, **Dellinger MT**, Liu LC, Jenkins T, Garrafa EM, Caruso A, Leong SPL. Isolation of human lymphatic endothelial cells. *2<sup>nd</sup> International Symposium on Cancer Metastasis and the Lymphovascular System* (May 2-5, 2007; San Francisco, CA).
5. **Dellinger MT**, Hunter RJ, Bernas MJ, Erickson RP, Gale NW, Yancopoulos GD, Witte MH. Defective remodeling of the lymphatic vasculature in Angiopoietin-2 knockout mice. *2<sup>nd</sup> International Symposium on Cancer Metastasis and the Lymphovascular System* (May 2-5, 2007; San Francisco, CA).
6. **Dellinger MT**, Witte MH, Simon AM. Lymphatic defects and chylothorax in mice deficient in Cx37 and Cx43. *International Gap Junction Conference* (August 4-9, 2007; Copenhagen, Denmark).
7. **Dellinger MT**, Hunter RJ, Bernas MJ, Erickson RP, Gale NW, Yancopoulos GD, Witte MH. Defective remodeling of the lymphatic vasculature in Angiopoietin-2 knockout mice. *Gordon Research Conference: Molecular mechanisms in lymphatic function and disease* (March 2-7, 2008; Ventura, CA).
8. Dineen SP, Roland CL, Lynn KD, Payton LA, **Dellinger MT**, Carbon JG, Toombs JE, Brekken RA. Novel anti-VEGF therapy affects stroma in orthotopic breast cancer xenografts. *3<sup>rd</sup> Mayo Clinic Angiogenesis Symposium* (October 24-26, 2008; Rochester, MN).
9. Simon AM, **Dellinger MT**, Kanady JD, Munger SJ, Witte MH, Sellitto C. Cx37 and Cx43 are necessary for lymphatic valve development. *International Gap Junction Conference* (July 25-30, 2009; Sedona, AZ).
10. **Dellinger MT**, Dineen S, Roland C, Brekken RA. Inhibition of VEGF-A activation of VEGFR2 blocks lymphangiogenesis by preventing the activation of ERK. *Metastasis and the Tumor Microenvironment* (September 12-15, 2010; Philadelphia, PA).
11. **Dellinger MT** and Brekken RA. Phosphorylation of Akt and ERK1/2 is required for VEGF-A/VEGFR2-induced proliferation and migration of lymphatic endothelium. *Gordon Research Conference: Molecular Mechanisms in Lymphatic Function & Disease* (March 4-9, 2012; Ventura, CA).
12. **Dellinger MT**, Hirashima M, Brekken RA. VEGFR2 directly regulates the development of the lymphatic vasculature. *NAVBO Developmental Vascular Biology Workshop V* (October 14-18, 2012; Pacific Grove, CA).

## F. RESEARCH SUPPORT

### Ongoing Research Support

Dellinger, Michael (PI) 1/1/2015 - unspecified  
 Foster Family Foundation Donation  
 Role: PI  
 Amount: \$45,000

Dellinger, Michael (PI) 2/1/2014-1/31/2017  
 Start-up package UT Southwestern Medical Center  
 Role: PI  
 Amount: \$350,000

### Completed Research Support

Dellinger, Michael (PI) 3/1/2016 – 2/28/2018  
 Lymphatic Malformation Institute  
 The major goal of this project is to develop an animal model of Gorham-Stout disease  
 Role: PI  
 Amount: \$277,147

Dellinger, Michael (PI) 9/1/2014 – 8/31/2015  
 NIH Lung Cancer SPORE  
 Career Development Award  
 Role: PI  
 Amount: \$25,000

Dellinger, Michael (PI) 1/1/2015 – 12/31/2015  
Lymphatic Malformation Institute  
The major goal of this project is to develop an animal model of Gorham-Stout disease  
Role: PI  
Amount: \$80,925

Dellinger, Michael (PI) 1/1/2010-12/31/2012  
W81XWH-10-1-0052  
Department of Defense Breast Cancer Research Program Postdoctoral Fellowship  
The major goal of this project was to characterize the effect of an anti-VEGF-A antibody on tumor lymphangiogenesis and metastasis  
Role: PI

Terada, Lance (PI) 09/01/2009-08/31/2014  
5 T32 HL098040 05  
Training Program In Lung Biology and Disease  
The major goal of this project is to train basic and clinical researchers to perform pulmonary biology research.  
Role: Trainee