

## **Peter Vitiello**

Section of Neonatal-Perinatal Medicine  
Department of Pediatrics  
The University of Oklahoma Health Sciences Center

### **Contact Information:**

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### **Research Interests:**

My research mission is to make innovative discoveries through collaboration, creativity, and rigor. My laboratory applies molecular, cellular and proteomic approaches to understand how oxidative perturbations and redox signaling influence tissue development, homeostasis and disease pathogenesis. We are specifically interested in redox-dependent molecular mechanisms of oxidative diseases including bronchopulmonary dysplasia and Friedreich's Ataxia.

### **Education:**

2007: Toxicology Ph.D., University of Rochester School of Medicine and Dentistry  
2002: Biology B.S., Lafayette College

### **Academic Appointments:**

2020-Present: Associate Professor, Department of Pediatrics, The University of Oklahoma Health Sciences Center (OUHSC)  
2020-Present: Director of Laboratory Research, Section of Neonatal-Perinatal Medicine, OUHSC  
2020-Present: Co-Director of the Center for Pregnancy & Newborn Research, OUHSC  
2020-Present: Adjunct Associate Professor, Department of Biochemistry & Molecular Biology, OUHSC  
2020-Present: Adjunct Associate Professor, Department of Physiology, The University of Oklahoma Health Sciences Center (OUHSC)  
2018-2020: Division Chief of Research, Department of Pediatrics University of South Dakota Sanford School of Medicine (USD SSOM)  
2018-2020: Associate Professor, Department of Pediatrics  
2009-2018: Assistant Professor, Department of Pediatrics University of South Dakota Sanford School of Medicine (USD SSOM)  
2017-Present: Associate Scientist, Environmental Influences on Health & Disease Group 2010-2017 Assistant Scientist, Children's Health Research Center  
2009-2010: Staff Scientist, Children's Health Research Center Sanford Research

2014-Present: Adjunct Professor, Department of Chemistry & Biochemistry South Dakota State University

2007-2009: Postdoctoral Fellow, Department of Pediatrics, Neonatology Division University of Rochester School of Medicine & Dentistry

### **Awards and Honors:**

2020: Outstanding Reviewer Award, Experimental Biology and Medicine

2019: Distinguished Researcher Award, USD SSOM Department of Pediatrics

2013-2014: T. Denny Sanford Pediatric Collaborative Research Award, Sanford Health

2012-2013: Faculty Research Grant, USD SSOM

2010-2011: Faculty Research Grant, USD SSOM

2009: Best Poster Presentation, European Respiratory Society Meeting

2008-2010: Pediatric Research Loan Repayment Program, NIH

2008: Harold Hodge Award, University of Rochester School of Medicine & Dentistry

2006: Bristol-Myers Squibb Travel Award, University of Rochester School of Medicine

2006: William F. Neuman Award, University of Rochester School of Medicine

2006: Gilbert B. Forbes Prize in Pediatrics, University of Rochester School of Medicine

### **Research Support:**

Current:

- 08/10/2017–06/30/202: NIH-NHLBI R01HL135112, “Hyperoxic modulation of thioredoxin signaling”, Role: PI

Past:

- 09/01/2018–08/31/2023: NIH-NIGMS P20GM103620, Center for Pediatric Research, Biochemistry Core, Role: Core Lead
- 02/01/2018–01/31/2019: The Finish Line Fund, “Redox signaling in Friedreich’s Ataxia”, Role: PI
- 08/01/2014–07/31/2019: NSF-EPSCoR 1355423, The 2020 vision: building research, education, and innovation partnerships for South Dakota, Role: Graduate Faculty
- 03/09/2012–08/31/2017: NIH-NICHD R25HD072596, Science educator research fellowship, Role: Co-PI
- 09/01/2013–08/31/2018: NIH-NIGMS P20GM103620, Center for Pediatric Research, Project 5: Thioredoxin signaling and pulmonary development during perinatal oxidative injury, Role: Project Leader
- 07/01/2012–06/30/2013: NIH-NIGMS P20GM103548, Preparation and multifaceted evaluation of non-natural isothiocyanates as novel anticancer agents, Role: Collaborator
- 09/01/2009–07/31/2014: NIH-NHLBI R01HL09714, Neonatal oxygen and susceptibility to respiratory viral infections, Role: Post-Doctoral Fellow
- 07/01/2003–06/30/2008: NIH-NIEHS T32ES07026, Training in environmental toxicology, Role: Graduate Student

## Selected Publications:

1. Dunigan-Russell K, Silverberg M, Lin VY, Li R, Wall S, Nicola T, Crowe DR, Vitiello PF, Agarwal A, Tipple TE. Club cell heme-oxygenase 1 deletion: effects in hyperoxia-exposed adult mice. *Oxid Med Cell Long* v2908271, 2020. PMID 32587658. PMC7303751.
2. Moutal A, White KA, Chefdeville A, Laufmann RN, Vitiello PF, Feinstein D, Weimer JM, Khanna R. Dysregulation of CRMP2 post-translational modifications drive its pathological functions. *Mol Neurobiol* v56:6736-55, 2019. PMID 30915713. PMC6728212.
3. Norton A, Franse K, Daw T, Vitiello PF, and Kinkel MD. Larval rearing methods for small-scale production of healthy zebrafish. *East Biol* 33-46, 2019. PMID 31890349. PMC6936768.
4. Anderson RH, Lensing CJ, Forred BJ, Amolins MW, Aegerter CL, Vitiello PF, and Mays JR. Differentiating antiproliferative and chemopreventative modes of activity for electron-deficient aryl isothiocyanates against human MCF-7 cells. *ChemMedChem* v13:1695-1710, 2018. PMID 29924910. PMC6105534.
5. Olson J, Amolins M, Vitiello P. Creating a reliable, cost-effective ELISA simulation. *Am Biol Teach* v79:301-304, 2017. PMID 29033458. PMC5640158.
6. Forred BJ, Daugaard DR, Titus BK, Wood RR, Floen MJ, Booze ML, and Vitiello PF. Detoxification of mitochondrial oxidants and apoptotic signaling are facilitated by thioredoxin-2 and peroxiredoxin-3 during hyperoxic injury. *PLOS One* v12:e0168777, 2017. PMID 28045936. PMC5207683.
7. Booze ML, Hansen J, and Vitiello PF. A novel mouse model for the identification of thioredoxin-1 protein interactions. *Free Rad Biol Med* v99:533-43, 2016. PMID 27639450. PMC5107173.
8. Simpkins JA, Rickel KE, Madeo M, Ahlers BA, Carlisle GB, Nelson HJ, Cardillo AL, Vitiello PF, Pearce DA, Vitiello SP. Disruption of a cystine transporter downregulates expression of genes involved in sulfur regulation and cellular respiration. *Biol Open* v5:689-97, 2016. PMID 27142334. PMC4920189.
9. Forred BJ, Neuharth S, Kim D, Amolins M, Motamedchaboki K, Roux KJ, and Vitiello PF. Identification of redox and glucose-dependent Txnip protein interactions. *Oxid Med Cell Long* v5829063, 2016. PMID 27437069. PMC4942636.
10. Baack ML, Forred BJ, Jensen DN, Khan M, Larsen T, Wachal AL, and Vitiello PF. Consequences of a maternal high fat diet and late gestation diabetes on the developing rat lung. *PLOS One* v11:e0160818, 2016. PMID 27518105. PMC4982689.
11. Amolins MW, Ezrailson CM, Pearce DA, Elliott AJ, Vitiello PF. Evaluating the effectiveness of a laboratorybased professional development program for science educators. *Adv Physiol Educ* v39:341-51, 2015. PMID 26628658. PMC4669365.

12. Maas T, Amolins M, Vitiello P. Science achievement in secondary school students across rural and urban South Dakota locales. *SD Med* v68:197-9, 2015. PMID 26058258. PMC455340.
13. Floen MJ, Forred BJ, Bloom EJ, Vitiello PF. Thioredoxin-1 redox signaling regulates cell survival in response to hyperoxia. *Free Rad. Biol. Med.* v75:167-77, 2014. PMID 25106706. PMC4174305.
14. McKenzie CW, Klonoski JM, Maier T, Trujillo G, Vitiello PF, Huber VC, and Lee L. Enhanced response to pulmonary *Streptococcus pneumoniae* infection is associated with primary ciliary dyskinesia in mice lacking *Pcdp1* and *Spf2*. *Cilia* v2:18, 2013. PMID 24360193. PMC3878133.
15. O'Reilly MA, Yee M, Buczynski BW, Vitiello PF, Keng PC, Welle SL, Finkelstein JN, Dean DA, and Lawrence BP. Neonatal oxygen increases sensitivity to influenza A virus infection in adult mice by suppressing epithelial expression of *Ear1*. *Am J Pathol* v181:441-51, 2012. PMID 22677423. PMC3409430.
16. Staversky RJ, Vitiello PF, O'Reilly MA. Epithelial-specific ablation of Bcl-XL increases susceptibility to oxygen without disrupting lung development. *Am J Physiol Lung Cell Mol Physiol* v43:376-85, 2009. PMID 19880821. PMC2933553.
17. Vitiello PF, Wu YM, Staversky RJ, O'Reilly MA. P21Cip1 protects against oxidative stress by suppressing ER dependent activation of mitochondrial death pathways. *Free Rad Biol Med* v46:33-41, 2009. PMID 18948188. PMC2631574.
18. Vitiello PF, Staversky RJ, Keng PC, O'Reilly MA. PUMA inactivation protects against oxidative stress through p21/Bcl-XL inhibition of Bax death. *Free Rad Biol Med* v44:367-74, 2008. PMID 18215742. PMC2276618.
19. Gehen SC, Vitiello PF, Bambara RA, O'Reilly MA. Down-regulation of PCNA potentiates p21-mediated growth inhibition in response to hyperoxia. *Am J Physiol Lung Cell Mol Physiol* v292:L716-24, 2007. PMID 17085526.
20. Yee M, Vitiello PF, Roper JM, Staversky RJ, Wright TW, McGrath-Morrow SA, Maniscalco WM, Finkelstein JN, O'Reilly MA. Type II epithelial cells are a critical target for hyperoxia-mediated impairment of postnatal lung development. *Am J Physiol Lung Cell Mol Physiol* v291:L1101-11, 2006. PMID 16861382.
21. Staversky RJ, Vitiello PF, Gehen SC, Helt CE, Rahman A, Keng PC, O'Reilly MA. P21Cip1/Waf1/Sdi1 protects against hyperoxia by maintaining expression of Bcl-XL. *Free Rad Biol Med* v41:601-9, 2006. PMID 16863993.
22. Vitiello PF, Staversky RS, Gehen SC, Johnston CJ, Finkelstein JN, Wright TW, O'Reilly MA. P21Cip1 protection against hyperoxia requires Bcl-XL and is uncoupled from its ability to suppress growth. *Am J Pathol* v168:1838-47, 2006. PMID 16723699.
23. O'Reilly MA, Vitiello PF, Gehen SC, Staversky RJ. P21(Cip1/Waf1/Sdi1) does not affect expression of base excision DNA repair enzymes during chronic oxidative stress. *Antioxid Redox Signal* v7: 719-25, 2005. PMID 15890018.

24. Vitiello PF, Rausch, MP, Horowitz KM, Kurt RA. Secondary lymphoid-tissue chemokine induced modulation of T cells. *Immunol Invest* v32:235-49, 2004. PMID 15195699.
25. Vitiello PF, Shainheit MG, Allison EM, Adler EP, Kurt RA. Impact of tumor-derived CCL2 on T cell effector function. *Immunol Lett* v91:239-45, 2004. PMID 15019295.
26. Kurt RA, Back M, Harma S, Adler E, Vitiello PF, Wisner KP, Tackitt S, Urba WJ. Altered chemokine receptor sensitivity in FVBN202 rat neu transgenic mice. *Breast Cancer Res Treat* v77:225-32, 2003. PMID 126029222.