

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Clanton, Thomas L.		Professor of Internal Medicine, Pulmonary and Critical Care Division	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Gustavus Adolphus College, St. Peter, MN	B.A.	1971	Chemistry
University of Nebraska Medical School Omaha, NE	Ph.D.	1980	Physiology/Biophysics
The Ohio State University, Columbus, OH	Postdoc	1980-82	Physiology-Neural Control of Breathing

**Positions and Appointments**

1982-88 Assistant Professor of Internal Medicine, Physiology and Allied Medicine, The Ohio State University  
Director, Pulmonary Diagnostic Laboratory, The Ohio State University Hospitals, Columbus, OH.

1988- 98 Associate Professor of Internal Medicine, Physiology and Allied Medicine.  
Associate Director, Pulmonary Diagnostic Laboratory, Pulmonary Rehabilitation Program

1998- present Professor of Internal Medicine, Division of Pulmonary, Critical Care & Sleep  
Professor of Physiology and Cell Biology

**Awards/Responsibilities Relevant to Proposal**

1980-81 Parker B. Francis Fellow  
1-0 American Heart Association Fellow  
1990-95 New Investigator Award, NIH 1985-90  
1996 - present Editorial Board: Journal of Applied Physiology  
1997-01 Regular Member National Institutes of Health, HLBI, Respiratory and Applied Physiology Study Section  
2000 - 2004 Graduate Studies Chair, Biophysics Program  
2000 - 2004 HLRI Confocal and Multiphoton Microscopy Core Lab Director  
2001 - present Director of the Ohio State University Biophysics Program  
2002 - present Associate Director of the Dorothy M. Davis Heart & Lung Research Institute (Graduate Programs and Biophysics)  
2002 - Elizabeth Gross Award for Faculty Excellence in Teaching and Mentorship in Biophysics  
2004 Davis Heart & Lung Research Institute Mentorship Award.

**B. Selected publications since 1996 (total > 80)**

Andersen, KA, PT Diaz, VP Wright, **TL Clanton**. N-tert-butyl-phenylnitron: a free radical trap with unanticipated effects on diaphragm function. *J Appl Physiol* 80(3):862-868, 1996.

Waugh, JB, TB Opt'Holt, JE Gadek, **TL Clanton**. High dose furosemide alters gas exchange in a model of acute lung injury. *J.Crit. Care*, 11(3):129-137, 1996.

Pacht, ER, PT Diaz, **TL Clanton**, J Hart, JE Gadek. Alveolar lining fluid glutathione is not reduced in asymptomatic HIV-seropositive subjects. *Am J Resp. Crit. Care Med*, 155(1):374-377, 1997.

Narayan, M, LJ Berliner, AJ Merola, PT Diaz, **TL Clanton**. Biological reactions of peroxynitrite: evidence for an alternative pathway of salicylate hydroxylation. *Free Radic. Res*. 27(1):63-72,1997.

Pacht, ER., P Diaz, **T Clanton**, J Hart, JE Gadek. Alveolar fluid glutathione decreases in asymptomatic HIV-positive subjects over time. *Chest* 112:785-88, 1997.

Pacht E, P Diaz, **T Clanton**, J Hart, J Gadek. Serum vitamin E decreases in HIV-seropositive subjects over time. *Lab. Clin. Med*. 130:293-296, 1997.

Diaz PT, MJ Costanza, VP Wright, MW Julian, JA Diaz, **TL Clanton**. Dithiothreitol improves recovery from in vitro diaphragm fatigue. *Med. Sci. Sports Exe.* 30(3):421-426, 1998.

- Mohanraj, P, JA Merola, V Wright, **TL Clanton**. Antioxidants protect rat diaphragmatic muscle function under hypoxic conditions. *J. Appl. Physiol*, 84(6):1960-1966, 1998.
- Wewers, MD, PT Diaz, ME Wewers, MP Lowe, HN Nagaraja, **TL Clanton**. Cigarette smoking in HIV infection induces a suppressive inflammatory environment in the lung. *Am J Respir Crit Care Med*.158(5 Pt 1):1543-9, 1998.
- Khrantsov V, LJ Berliner ,**TL Clanton**, NMR spin trapping: detection of free radical adducts using a phosphorus-containing nitrene spin trap, *Magn. Reson .Med*. 42(2):228-234,1999.
- Diaz, PT, MA King, ER Pacht, HN Nagaraja, MD Wewers, JE Gadek, D Neal, HN Nagaraja, J Drake, **TL Clanton**. Pathophysiology of diffusion impairment in human immunodeficiency virus infection. *Am J Respir Crit Care Med*. 160 (1):272-7, 1999.
- Clanton TL**, Klawitter PF, Zuo L. Oxidants and skeletal muscle function: physiologic and pathophysiologic implications. *Proc. Soc. Exp. Biol. Med*. 222(3):253-262, 1999.
- Diaz, PT, MA King, ER Pacht, JE Gadek, HN Nagaraja, J. Drake, **TL Clanton**. Increased susceptibility to pulmonary emphysema among HIV-seropositive smokers. *Ann Intern. Med*. 132(5):369-372, 2000 .
- Waugh, JB, T. B. Op't Holt, LE Olson, JE Gadek, **TL Clanton**. Surfactant treatment impairs gas exchange in a canine model of acute lung injury. *J. Crit. Care Medicine*, 28(8):2887-2892, 2000.
- Zuo, L, FL Christofi, VP Wright, CY Liu, AJ Merola, LJ Berliner, **TL Clanton** Intra- and extracellular measurement of reactive oxygen species produced during heat stress in diaphragm muscle *Amer. J. Physiol. (Cell)* 279(4):C1058-1066, 2000.
- Berliner, LJ,VV Khrantsov, H Fujii,**TL Clanton**. Unique applications of spin traps. *Free Rad. Biol. Med*. 30(5), 489-499, 2001.
- Khrantsov, VV, VA Reznikov, LJ Berliner, AK Litkin, IA Grigor'ev, **TL Clanton**. NMR spin trapping: detection of free radical reactions with a new fluorinated DMPO analog. *Free Rad. Biol. Med*. 30(10)1099-1107, 2001.
- Khrantsov, VV, LJ Berliner, **TL Clanton**. New Approaches in Spin Labeling and Spin Trapping. Part Two: NMR Detects Free Radicals, In: Supramolecular Structure and Function 7 (G.Pifat, ed.), Kluwer Academic/Plenum Publishers, pp.107-118, 2001.
- Clanton, TL**, VP Wright, PJ Reiser, PT Klawitter, N Prabhakar. Physiologic and Genomic Consequences of Intermittent Hypoxia: Selected Contribution: Improved anoxic tolerance in rat diaphragm following intermittent hypoxia. *J. Appl. Physiol*. 90: 2508-2513, 2001.
- Clanton, TL**, PF Klawitter. Physiologic and Genomic Consequences of Intermittent Hypoxia: Invited Review: Adaptive responses of skeletal muscle to intermittent hypoxia, the known and the unknown. *J. Appl. Physiol*. 90: 2476-2487, 2001.
- Khrantsov, VK, VA Reznikov, LJ Berliner, AK Litkin, IA Grigor'ev, **TL Clanton**. NMR spin trapping: detection of free radical reactions with a new fluorinated DMPO analog, in Supramolecular Structure and Function 7, (G. Pifat-Mrzljak, ed, Kluwer Academic/Plenum Publishers, New York) pp. 107-117, 2001.
- Zuo, L, **TL Clanton** Detection of reactive oxygen and nitrogen species in tissues using redox-sensitive fluorescent probes. *Methods in Enzymology* 325: 307-325, 2002
- Bhatt, N.Y. ,Kelley, T.W., Khrantsov V., Wang Y., Lam G.K., **Clanton, T.L.** , Marsh, C.B. M-CSF-induced Erk activation involves PI 3-kinase and ROS in human monocytes *J. Immunol*. 169(11):6427-34, 2002
- ATS/ERS Statement on Standardization of Respiratory Muscle Tests. **T.L. Clanton**, lead author of "Tests of Respiratory Muscle Endurance." Ed. A.Grassino, J.Moxham, *Amer J Resp Crit Care Med* 166:559-569, 2002
- Potapenko, D.G., **T.L. Clanton**, E.G. Bagryanskaya, N.P Gritsan, V.A. Reznikov, V.V. Kharntsov. Nonradical mechanism of (bi)sulfite reactions with DEPMPO: cautionary note for SO<sub>3</sub><sup>•-</sup> radical spin trapping. *Free Radical Biology & Med*, 32 (2), 196-206, 2003
- Zuo L, S. Pasniciuc, V.P. Wright, A.J. Merola, **T.L. Clanton**. Sources for superoxide release: lessons from blockade of electron transport, NADPH oxidase and anion channels in diaphragm. *Antioxidants & Redox Signaling*, 5(5):667-675, 2003
- Klawitter, P.F., H.N.Murray, **T.L. Clanton**, M.G. Angelos. Reactive oxygen species generated during myocardial ischemia enable energetic recovery during reperfusion. *Am J Physiol Heart Circ Physiol* 2002 283: H1656-H1661
- Wewers, M.D., S. Lemeshow, S. Kim, **T.L. Clanton**, J. Drake, T. Bees, J. Hart, P.T. Diaz. Plasma viral load correlates with lung CD8 lymphocyte counts in asymptomatic HIV infection. *In press, Chest* 2005
- Diaz PT, Wewers MD, Pacht E, Drake J, Nagaraja HN, **Clanton TL**. Respiratory symptoms among HIV seropositive individuals. *Chest*, 123(6):1977-82.2003.
- Klawitter, P.F. **T.L. Clanton**. Tension-time index, fatigue and energetics in isolated rat diaphragm: a new experimental model. *J. Appl. Physiol*. 96(1):89-95, 2004

- Potapenko, D.I., E.G. Bagryanskaya, V.V. Reznikov, **T.L. Clanton** and V.V. Khramtsov, 2003, NMR and EPR studies of the reaction of nucleophilic addition of (bi)sulfite to the nitron spin trap DMPO *Magn.Reson.Chem.* 41:603-608, 2004
- Stoner, J., Angelos, M.G., **Clanton, T.L.** Myocardial contractile function during post-ischemic low flow reperfusion: critical thresholds of NADH and O<sub>2</sub> delivery. *Am. J. Physiol, Heart and Circulation* 286(1):H375-80, 2004.
- Bobko, A.A., Bagryanskaya, E.G., Reznikov, V.A., Kolosova, N.G., **Clanton, T.L.**, Khramtsov, V.V., Redox sensitive mechanism for NO scavenging by nitronyl nitroxides. *Free Rad. Biol. Med.* 36, 248-258,2004.
- Zuo, L, F.L. Christofi, V.P. Wright, S. Bao, **T.L. Clanton.** Lipoxigenase-dependent extracellular superoxide release in skeletal muscle *J. Appl Physiol*, 97:661-668, 2004
- Potapenko, D.I., E.G.Bagrayanskaya, A.Y.P. Tcentalovich, V.V.Reznikov, **T.L. Clanton**, V.V. Khramtsov. Reversible reaction of thiols and thyl radicals with nitron spin traps. *J.Phys.Chem. B* 108:9315-9324, 2004.
- Zuo, L., **Clanton, T.L.** Reactive oxygen formation in the transition to hypoxia in skeletal muscle. *In press, Epub Amer. J. Physiol. (Cell)*, 2005.
- Wright, V.P., Klawitter, P., Iscru, D.F, Merola, A.J., **Clanton, T.L** Superoxide scavengers augment contractile but not energetic responses to hypoxia in rat diaphragm. *Epub in press, J. Appl. Physiol.* 2004.
- Ptoapennko, D.I., Bagryanskaya, E.G., Grigoriev, I.A., Masimov, A.M., Reznikov, V.A., Platonov, V.E., **Clanton, T.L.**, Khramtsov, V.V. Quantitative determination of SH-groups using 19F NMR spectroscopy and disulphide of 2,3,5,6-tetrafluoro-4-mercapto-benzoic acid *Submitted, Free Radical Biology & Medicine* 2004

### C. Research Support

#### Current Funding

##### **PO-1 Training Grant (Director: M. Wewers) 2000-2005**

NIH  
"Molecular Mechanisms of Lung Inflammation"  
Role: Assistant Director  
PostDoctoral Training for Physician and Ph.D Scientists in areas related to the pathogenesis of lung disease. There is no research support on this grant for Dr. Clanton's laboratory.

##### **RO1-53333-09 Feb 2001- Jan 2005 (Currently in No-cost extension)**

NHLBI  
"Redox mechanisms of respiratory muscle stress adaptation"  
To understand the mechanisms by which reactive oxygen is generated during cell stress in muscle and how it is influencing cell function. (no overlap)  
Role: PI (50%)  
This is the predecessor of the current proposal. We were unable to complete the competitive renewal because of time conflicts with training grant applications in the past year.

#### Completed Funding

**1R21 GM58772** 02/1999-01/2001

NIGMS  
"NMR detection of free radicals"  
To determine the feasibility of new NMR methodologies for detecting free radical activity in living tissue.  
P.I. T. Clanton 20%

#### Pending Funding

##### **National Heart Association Grant in Aid**

"Myocardial adaptations to intermittent hypoxia"  
To determine the functional and genomic basis of lost ischemic tolerance after intermittent hypoxia exposure  
Submitted Jan. 2005

##### **NSF IGERT Training Grant "An Interdisciplinary Program In Redox Bioscience"**

P.I. T.L. Clanton 20% Submitted Oct, 2004  
\$3,300,000 An NSF training grant to build an interdisciplinary program across OSU, Univ of Iowa and Univ. of NC A & T for developing the next generation of free radical biologists, chemists and physicists. The proposal is at the final evaluation stage. There is no research support on it.