

## CURRICULUM VITAE

### GEORGE RICHARD DUBYAK

#### 1. Personal Data

**Home Address** 3311 Avalon Road  
Shaker Heights, Ohio 44120

**Office Address** Department of Physiology and Biophysics  
Case Western Reserve University  
School of Medicine, Robbins Building, Room E520  
Cleveland, Ohio 44106  
216-368-5523  
[george.dubyak@case.edu](mailto:george.dubyak@case.edu)

**Date of Birth** January 18, 1953  
**Place of Birth** Philadelphia, Pennsylvania  
**Marital Status** Married: Maureen McDevitt Dubyak  
Daughters: Meghan (b. 08/11/82); Katherine (b. 11/12/84)  
**Citizenship** USA

#### Education

1970-74 B.S., Biology, summa cum laude  
St. Joseph's University  
Philadelphia, Pennsylvania

1974-79 Ph.D., Physiology, Department of Physiology  
University of Pennsylvania  
Philadelphia, Pennsylvania  
Thesis Advisor: Arnost Kleinzeller, M.D., D.Sc.  
Thesis: Regulation of Sugar Transport in Adipocytes

1979-82 Post-doctoral Fellow, Department of Biochemistry and Biophysics  
University of Pennsylvania  
Philadelphia, Pennsylvania  
Advisor: Antonio Scarpa, M.D., Ph.D.

#### 2. Professional Appointments

1982-86 Research Assistant Professor  
Department of Biochemistry and Biophysics  
University of Pennsylvania  
School of Medicine  
Philadelphia, Pennsylvania

1986-90      Assistant Professor  
Department of Physiology and Biophysics  
Case Western Reserve University  
School of Medicine  
Cleveland, Ohio

1990-1998    Associate Professor (Award of Tenure, 1990)  
Department of Physiology and Biophysics  
Case Western Reserve University  
School of Medicine

1998-present   Professor  
Department of Physiology and Biophysics  
Case Western Reserve University  
School of Medicine

1987-present   Assistant/ Associate/ Full Professor of General Medical Sciences (Oncology)  
Secondary Appointment  
Division of General Medical Sciences  
Case Western Reserve University  
School of Medicine

1988-present   Assistant/ Associate/ Full Professor of Pharmacology  
Secondary Appointment  
Department of Pharmacology  
Case Western Reserve University  
School of Medicine

2004-present   Professor of Pathology  
Secondary Appointment  
Department of Pharmacology  
Case Western Reserve University  
School of Medicine

**3. Licensure and Board Certification:** Not applicable

#### **4. Memberships in Professional Societies**

American Physiological Society  
American Society for Biochemistry and Molecular Biology  
American Society for Pharmacology and Experimental Therapeutics  
Biophysical Society  
American Association of Immunologists

#### **5. Honors**

1970-74	Presidential Scholarship St. Josephs University
1976-79	National Research Council Cell and Molecular Biology Pre-Doctoral Fellowship
1980-82	Muscular Dystrophy Association Post-Doctoral Fellowship
1986	Mellon Foundation Award Support of New Faculty Case Western Reserve University
1989-94	Established Investigator, American Heart Association
1990	Outstanding Preclinical Faculty Award Student Committee on Medical Education Case Western Reserve University
2000	Faculty Appreciation Award Biomedical Research Graduate Student Association Case Western Reserve University
2003	Kaiser-Permanente Award for Outstanding Teaching (Pre-Clinical) Case Western Reserve University School of Medicine
2007	Alpha Omega Alpha Medical Honor Society, Faculty Member
2008	Designation as 'Master Teacher', Academy of Scholar Educators Case Western Reserve University School of Medicine
2017	Mentor of the Year, Post-baccalaureate Research Education Program Case Western Reserve University School of Medicine

## **5A. Invited Speaker at Universities, Research Centers, and Conferences**

1983	Gordon Research Conference on Excitation-Contraction Coupling Invited Speaker
1985	Gordon Research Conference on Excitation-Contraction Coupling Session Chairman
1985	Molecular Pharmacology Group, Smith, Kline, and French Laboratories
1985	Department of Physiology, University of Pennsylvania
1985	Department of Physiology, Temple University
1986	Department of Physiology, Thomas Jefferson Medical College
1986	Department of Pharmacology, Case Western Reserve University
1986	Thrombosis Research Center, Temple University
1987	Department of Heart and Hypertension, Cleveland Clinic Research Foundation
1988	Department of Biochemistry, Case Western Reserve University
1988	Department of Pathology, Case Western Reserve University
1989	New York Academy of Sciences Symposium "Biological Membranes in Cancer Cells", Torgiano, Italy
1989	Department of Biochemistry, George Washington University
1989	Conference Chairman, Organizer, and Speaker New York Academy of Sciences Symposium "The Biological Effects of Extracellular ATP", Philadelphia. PA.
1990	Department of Environmental Health Sciences, Case Western Reserve Univ.
1990	Department of Pathology, University of Michigan
1990	Department of Heart and Hypertension, Cleveland Clinic Research Foundation
1991	Department of Pediatrics, Case Western Reserve University
1991	Lankenau Medical Research Institute, Philadelphia, PA
1991	Conference on Lung Cell Biology

"Signal Transduction in Lung Cells", Woods Hole, MA  
 1992 Institute for Environmental Medicine, University of Pennsylvania  
 1992 American Red Cross National Center, Rockville, MD  
 1993 Hospital for Sick Children, Toronto, Canada  
 1993 Department of Cell Biology, Cleveland Clinic Research Foundation  
 1995 Symposium on P2 Receptor Structure and Function, Invited Speaker  
 ASPET Satellite Colloquium, Atlanta  
 1996 Rammelkamp Research Center, MetroHealth Medical Center, Cleveland  
 1996 Department of Neuroscience, Case Western Reserve University  
 1996 Department of Biomolecular Chemistry, University of Wisconsin  
 1996 Department of Physiology, University of Pennsylvania  
 1996 Purines '96 Colloquium, Keynote Speaker, Milan, Italy  
 1996 Department of Molecular Cardiology, Case Western Reserve University  
 1997 Symposium on P2-Nucleotide Receptor Biology, Invited Speaker  
 Pharmacology '97, San Diego CA  
 1997 Department of Physiology and Biophysics, University of Massachusetts  
 1997 Abbott Laboratories, Abbott Park IL  
 1997 Department of Physiology and Biophysics, University of Alabama-Birmingham  
 1997 Department of Medicine, Case Western Reserve University  
 1997 Blood Club, Ireland Cancer Center, Case Western Reserve University  
 1998 Department of Pediatrics, Case Western Reserve University  
 1998 Cystic Fibrosis Center, University of North Carolina at Chapel Hill  
 1998 Department of Physiology, University of Pennsylvania  
 1998 Abbott Laboratories, Abbott Park IL  
 1998 Gordon Research Conference on Medicinal Chemistry  
 Invited Speaker  
 1998 Immunology Group, Pfizer Inc, Groton CT  
 1999 Western Pharmacology Society Symposium, Invited Speaker, Maui, Hawaii  
 1999 Department of Biomolecular Chemistry, University of Wisconsin-Madison  
 1999 Department of Pathology, Case Western Reserve University  
 2000 Department of Neurosciences, Case Western Reserve University  
 2000 Department of Physiology & Biophysics, Case Western Reserve University  
 2000 Dept of Cell Biology, Lerner Research Institute of the Cleveland Clinic  
 2000 International Society for Autonomic Neuroscience Satellite Symposium on  
 "Purines and the Autonomic Nervous System", Invited Speaker  
 University College London, England  
 2000 1<sup>st</sup> International Workshop on Nucleotides and Their Receptors  
 in the Immune System, Invited Speaker  
 University of Ferrara, Italy  
 2000 Department of Physiology and Biophysics, Wright State University  
 2000 Department of Pharmacological and Physiological Sciences  
 University of Saint Louis  
 2001 Immunology Seminar Series, Case Western Reserve University  
 2001 Rheumatoid Arthritis and Inflammatory Diseases Group, Pfizer Inc., Groton CT  
 2001 Aventis Pharmaceuticals, Bridgewater NJ  
 2001 Department of Physiology, University of Western Ontario, London, ON, Canada  
 2001 Department of Physiology, University of North Carolina at Chapel Hill  
 2002 Abbott Laboratories, Abbott Park IL  
 2002 Rheumatoid Arthritis and Inflammatory Diseases Group, Pfizer Inc., Groton CT  
 2002 Third International Workshop on Ecto-ATPases, Invited Speaker

Woods Hole MA

2002 Department of Biochemistry, University of Missouri- Columbia

2003 NY Academy of Sciences Mini-symposium on “Purinergic Receptors  
in Inflammation, Pain, and Beyond, New York, NY

2003 Department of Pharmacology, Dartmouth Medical College

2003 American Society of Nephrology, Minisymposium on Regulation of Renal  
Function by Extracellular Nucleotides, Invited Speaker

2004 American Society of Physiology Annual Meeting  
Washington, DC  
Refresher Course on Cellular Homeostasis  
Invited Speaker: Ion Homeostasis: Update on Cellular Mechanisms

2004 Department of Physiology and Pharmacology, Northeast Ohio Universities  
College of Medicine

2004 Rheumatoid Arthritis and Inflammatory Diseases Group, Pfizer Global, Ann  
Arbor, MI

2004 Purines 2004: 4<sup>th</sup> International Symposium of Nucleosides and Nucleotides,  
Plenary Speaker, Chapel Hill NC

2004 Inflammation Research Association  
Minisymposium Session Chair – Novel Inflammatory Mediators  
The Sagamore at Lake George, Bolton Landing NY

2004 Abbott Bioresearch Center, Worcester MA

2005 Amgen, Seattle, WA

2005 19<sup>th</sup> North American Cystic Fibrosis Conference, Baltimore MD  
Invited Speaker: Minisymposium on Purinergic Signaling

2006 Department of Pathology, University of Michigan

2006 Department of Biology, John Carroll University

2006 Case Cardiovascular Research Seminar Series, Case Western Reserve Univ

2007 Department of Pathology, Case Western Reserve Univ.

2007 Immunology Seminar Series, Case Western Reserve Univ

2008 Department of Pharmacology, Case Western Reserve Univ

2008 Purines 2008 Conference, Copenhagen, Denmark  
Invited Speaker

2008 Department of Physiology & Pharmacology, University of Western Ontario,  
London, Ontario Canada

2008 Department of Cell Biology, Cleveland Clinic Foundation, Cleveland, OH

2008 Schepens Eye Institute, Boston MA

2009 Department of Physiology & Biophysics, University of Miami, Miami FL

2009 Cystic Fibrosis Center, University of North Carolina – Chapel Hill, Chapel Hill  
NC

2009 Department of Pediatrics-Pulmonary Division, Case Western Reserve Univ,  
Cleveland OH

2009 Murdough Family Center for Psoriasis Symposium, Cleveland OH

2009 Department of Neuroscience, Albert Einstein College of Medicine, New York,  
NY

2010 Rammelkamp Research Institute. MetroHealth Medical Center, Cleveland, OH

2010 Department of Medicine – Division of Endocrinology, Case Western Reserve  
Univ, Cleveland OH

2010 Department of Physiology, University of Pennsylvania, Philadelphia, PA

2010 Department of Pathology, Case Western Reserve Univ, Cleveland OH

2011 Department of Pathobiology, Cleveland Clinic Foundation, Cleveland, OH

2011	Department of Pharmacology, University of Toledo, Toledo OH
2011	Department of Cellular & Molecular Physiology University of North Carolina, Chapel Hill NC
2011	Gordon Research Conference on Phagocytes, Invited Speaker Davidson College, Davidson NC
2012	School of Dental Medicine, University of Pennsylvania, Philadelphia PA
2012	MSTP, The Ohio State University, Columbus OH
2013	Department of Medicine – Division of Nephrology, Case Western Reserve Univ, Cleveland OH
2013	Department of Medicine – Division of Endocrinology, Case Western Reserve Univ, Cleveland OH
2013	CWRU Nobel Prize Summary Symposium, Case Western Reserve Univ, Cleveland OH
2014	Center for AIDS Research/ Center for Global Health, Case Western Reserve Univ, Cleveland OH
2014	Department of Pharmacology, University of Virginia, Charlottesville VA
2014	Rammelkamp Research Institute. MetroHealth Medical Center, Cleveland, OH
2015	Symposium to honor Dr. Mortimer Civan, Department of Physiology, University of Pennsylvania, Philadelphia PA
2016	Institute of Immunology, University of California at Irvine, Irvine CA
2016	Department of Pharmacology, Case Western Reserve Univ, Cleveland OH
2016	Immunology Training Program, University of Michigan, Ann Arbor MI
2017	Department of Biochemistry & Molecular Biology, University of Maryland, Baltimore MD
2017	Department of Immunology, Cleveland Clinic Foundation, Cleveland, OH

## 6. Professional Service

### Editorial Boards and Reviewer Pools:

1987-1993	Archives of Biochemistry and Biophysics
1991-1996	The Journal of Biological Chemistry (Editorial Board) (First Term)
1997- 2002	The Journal of Biological Chemistry (Editorial Board) (Second Term)
1997- 2005	The Journal of Immunology (Primary Reviewer Pool)
2002-2005	Molecular Endocrinology (Editorial Board)
2005-2009	The Journal of Immunology (Editorial Board)
2010-2015	The Journal of Biological Chemistry (Editorial Board) (Third Term)
1998-Present	The American Journal of Physiology – Cell (Editorial Board)
2002-Present	Molecular Pharmacology (Editorial Board)
2006-Present	Purinergic Signalling (Editorial Board)
2010-Present	Science – Signaling (Editorial Board)

### *Ad Hoc* Journal Review:

Nature Communications  
 Science  
 Immunity  
 Proceedings of the National Academy of Science

Scientific Reports  
 Journal of Clinical Investigation  
 Circulation  
 Blood  
 Science Signaling  
 European Journal of Physiology (Pflugers' Archiv)  
 European Journal of Immunology  
 Journal of Pharmacology and Experimental Therapeutics  
 Biochemistry  
 Journal of Leukocyte Biology  
 Biochimica et Biophysica Acta  
 Endocrinology  
 European Journal of Pharmacology  
 Neuroscience Letters  
 Journal of Laboratory and Clinical Medicine  
 Immunopharmacology  
 Molecular and Cellular Neurosciences  
 Biological Signals  
 FASEB Journal  
 FEBS Letters  
 Biochemical Pharmacology  
 Journal of Cellular Physiology  
 British Journal of Pharmacology  
 Circulation Research  
 Journal of Cell Science  
 Journal of Neuroscience  
 Journal of Neurochemistry  
 PLoSOne  
 PloS-Pathogens  
 Cellular Microbiology  
 Cell Death and Differentiation

**Regular Membership on Grant Review Study Sections or Allocation Councils:**

1986-1990	Research Study Section American Heart Association, Northeast Ohio Affiliate
1997-1998	Allocations Committee American Heart Association, Northeast Ohio Affiliate
1998-2002	Research Committee American Heart Association, Ohio Valley Affiliate
1993-1997	CBY 2 (Cellular Biology and Physiology II) Study Section National Institutes of Health
1997-2002	Molecular Signaling I Study Section American Heart Association, National

***Ad Hoc* Service on Study Sections or Program Project Reviews:**

1989	NIH, Special Toxicology Study Section
1990	NIH/ NHLBI: 2 site visits
	NIH/ NIGMS: 1 site visit

1992	NIH/ Cell Biology and Physiology II (CBY2) Study Section
1995	NIH/ NHLBI: 1 site visit
2005	NIH/ Atherosclerosis and Inflammation in the Cardiovascular Sciences (AICS) Study Section (Feb 24, 2005)
2005	NIH/ NHLBI: 1 PPG Review (Oct 21, 2005)
2005	NIH/ NHLBI: T32 Training Grant Review Panel (Nov 17-18, 2005)
2006	NIH/ NHLBI: 1 PPG Review (May 4, 2006)
2008	NIH/ NHLBI: Atherosclerosis and Inflammation in the Cardiovascular Sciences (AICS) Study Section (June 2008)
2009	NIH/ K00 Reviews
2009	NIH Scientific Meeting Reviews
2011	NIH/NHLBI: 1PPG Review (May 3, 2011)
2013	NIH Ad Hoc Review, CMI-A Study Section (March 12, 2013)
2013	NIH/NHLBI: 1PPG Review (May 23, 2013)
2014	NIH, Immunology IRG Special Emphasis Panel for Immune Mechanism, ZRG1 IMM-N (03) (April 14, 2014)
2014	NIH/NHLBI: 1PPG Review (Jan 29, 2014)
2015	NIH, Immunology Fellowship (F07-T20L) & AREA (IMM-T81A) Review (Oct 22-23, 2015)
2017	NIH, Immunology Fellowship (2017/05 ZRG1 F07-J (20) L) Review (Mar 21, 2017)

## **7. Service on Departmental/ Medical School/ University Committees:**

### **Department of Physiology and Biophysics**

#### **School of Medicine, Case Western Reserve University**

1986-1987	Seminar Committee
1987-1993	Student Admissions (Co-chair, 1991-1993)
1988-1990	Common Facilities
1989-pres	Medical Education (Chair)
1992-1993	Internal Review Committee, Chair
1991-1993	Faculty Appointment, Promotion, and Tenure
1994-1996	Steering Committee
1998-2002	Steering Committee
2004-2005	Seminar Committee
2005	Departmental Retreat Organization Committee, Chair
1994-2011	Student Admissions (Co-Chair 94-98)
2007-2012	Faculty Search Committee
1993-present	Graduate Studies, Director of Student Advancement
2003-present	Committee for Appointment, Promotion, and Tenure

### **Department of Pharmacology**

#### **School of Medicine, Case Western Reserve University**

1991-1995	Preliminary Exam Committee
2006-2012	Student Admissions
2005-pres	Molecular Therapeutics Training Program Advisory Committee



2005-pres      Committee for Appointment, Promotion, and Tenure

**Department of Pathology  
School of Medicine, Case Western Reserve University**

2011-2012      Search Committee, Immunology Program Director

**School of Medicine  
Case Western Reserve University**

1990-1992      Veterans’ Administration Medical Center Research Review Committee  
 1990-1993      Faculty Council Research, (Chair, 1992-1993)  
 1992-1993      Two *ad hoc* Dean’s committees for review of authorship disputes  
                       and alleged misconduct at VAMC-Wade Park  
 1990-1995      Committee on Students  
 1994-1996      Three *ad hoc* Dean’s committees for review of new graduate programs in the  
                       School of Medicine  
 1997-1999      Committee on Medical Education  
 1996-2001      Faculty Council, Member-at-large  
 1996-2001      Advisory Council of Cleveland Health Sciences Library  
 1998-2002      Nominating Committee  
 1999-2000      Search Committee, Chair of Microbiology and Molecular Biology  
 2001-2002      Search Committee, Vice-Dean of Medical Education  
 2002-2004      Cleveland Clinic Lerner College of Medicine Curriculum Steering Committee  
 1999-2006      Basic Sciences Curriculum Leadership Council  
 2005-2007      Search Committee, Chair of Physiology and Biophysics  
 2011-2012      Climate Survey Task Force, Elected Member  
 2012-2013      SOM Dean Review Committee, Appointed Member  
 2013-2014      Medical Education Building Planning Committee; Faculty &  
                       Alumni Space subcommittee  
 2013-2014      Basic Science WR2 Review Task Force  
 2014-2107      Committee on Budget, Finance, and Compensation  
 1990-present      Medical Scientist Training Program, Steering Committee  
 2003-2017      Medical Scientist Training Program, Co-Director  
 2005-present      Medical Curriculum Block Design Planning Committee- Block 2 “Human  
                       Blueprint”  
 2005-present      Medical Curriculum Block Design Planning Committee- Block 4 “Homeostasis”  
 2017-present      Biomedical Scientist Training Program, Director

**Case Western Reserve University**

1991-1993      University Radiation Safety Committee  
 2001-2002      Ad Hoc Inquiry/ Investigation Committee on Scientific Misconduct Case  
 2002-2005      Institutional Animal Care and Use Committee (IACUC)  
 2003-2004      Ad Hoc Inquiry/ Investigation Committee on Scientific Misconduct Case, Chair  
 2011              Ad Hoc Inquiry/ Investigation Committee on Scientific Misconduct Case, Chair  
 2012              Ad Hoc Inquiry/ Investigation Committee on Scientific Misconduct Case

**8. Past and Present Teaching Activities**

## **University of Pennsylvania School of Medicine**

1974-79      Laboratory Instructor, Physiology 501  
1979-83      Lecturer, Physiology 510  
1980-84      Lecturer, Biochemistry 521

## **Case Western Reserve University School of Medicine**

### **Department of Physiology and Biophysics**

1987-1989      PHOL 480, Systems Physiology  
1987-1993      PHOL 464, Cell Physiology  
1987-1998      PHOL 460, Introductory Molecular Biology  
1995-2001      PHOL 459, Cell Physiology  
2001-2011      PHOL 432, Cell Structure and Function  
2010-present      PHOL 532, Introduction of Cardiovascular Physiology  
2011-present      PHOL 481-482, Medical Physiology I/II  
2011-present      PHOL 483, Translational Physiology I  
1993-present      PHOL/PHRM/CLBY/NEUR 466, Cell Signaling (Course Director 1995-present)

### **Other Departments**

1988-1989      PHRM 413, Molecular Pharmacology  
1989-1990      PHRM 515, Endocrine Pharmacology  
1988-1989      BIOC 520, Biochemical Endocrinology  
1997              GENE 511, Specialized Topics in Human Genetics  
2000              CNS Pharmacology  
2011-present      IBMS500, On Being a Professional Scientist  
2013-present      PATH416, Fundamentals of Immunology  
2012-present      PATH465, Advanced Immunobiology

### **Biomedical Sciences Training Program**

2013-present      C3MB: Course Director  
1987-present      C3MB: CBIO 453, Cell Biology  
                            Course Coordinator 1992-1995  
                            Section Leader on Signal Transduction, 1992-present

### **Medical School Core Academic Program**

1987-2005      Homeostasis I: Cell Physiology Committee,  
                            Section Leader of Cell Physiology Committee, 1997-2005  
1987-1994      Gastrointestinal/ Endocrinology-I Committee  
1994-2007      Endocrinology/ Reproductive Biology I and II Committees  
2006-present      Block 2, Cell Physiology Coordinator, Lecturer, Medium Group Coordinator,  
                            Team-based Learning Coordinator  
2007-present      Block 4, Cell Physiology Coordinator, Lecturer, Medium Group Coordinator,  
                            Team-based Learning Coordinator

## **Medical School Flexible Program**

1989-1991 Special Topics in Physiology of Signal Transduction

### **Ph.D. Thesis Advisor (Case):**

1987-1989 Daniel S. Cowen, M.D., Ph.D.  
1987-1989 Theodore Marks, M.D., Ph.D. (co-advisor)  
1989-1992 Mingsheng Xie, Ph.D.  
1990-1994 Louise C. Nuttle, Ph.D.  
1992-1994 David Kusner, M.D., Ph.D.  
1994-1996 Kathleen A. Martin, Ph.D.  
1994-1998 Erin E. Clifford, M.D., Ph.D.  
1995-1998 Benjamin D. Humphreys, M.D., Ph.D.  
1996-2001 Reza D. Beigi, Ph.D.  
1998-2003 Lalitha Gudipaty, Ph.D.  
2000-2003 Philip A. Verhoef, M.D., Ph.D.  
2002-2004 J. Michelle Kahlenberg, M.D., Ph.D.  
1999-2004 Sheldon M. Joseph, Ph.D.  
2005-2008 Yan Qu, Ph.D.  
2004-2009 Shiyuan Ryan Hong, Ph.D.  
2004-2010 Domenick Prosdocimo, Ph.D.  
2005-2009 Andrew Blum, M.D., Ph.D.  
2009-2011 Katherine E. Trueblood, Ph.D.  
2010-2014 Christina Antonopoulos  
2011-2015 Michael Katsnelson  
2010-2016 Andrea Boyd Tressler  
2012-2017 Hana Russo

### **Post-Doctoral / Junior Faculty Advisor (Case)**

1990-1994 Chakib El-Moatassim, Ph.D.  
1994-1996 Jeffrey Schelling, M.D.  
1999-2001 Karen A. Parker, Ph.D., M.D.  
2004-2005 Sheldon M. Joseph, Ph.D.  
2015-present Mausita Kamarkar, Ph.D.

### **Post-Baccalaureate Research Advisor (Case)**

2008-2010 Jason Robinson (CWRU PREP Scholar)  
2013-2014 Gwendolyn Quintana (CWRU PREP Scholar)  
2015-2017 Kristen Lozado-Soto (CWRU PREP Scholar)

### **Undergraduate Thesis Research Advisor (Case)**

2009-2010 B. Corbett Walsh (Physics)  
2010-2012 Daniel Chopyk (Biochemistry)

### **Thesis Committees CWRU School of Medicine**

**PhD Dissertation Committee Member (including direct advisees): Current- 37 Total**

**(Including 1 as Thesis Advisor - underlined)**

**Physiology & Biophysics (10):** Drew Nassel; Yanlin (Kate) Fu; Stephan Nieuwoudt; Panjanporn Sangwung; Pamela Marcott (MSTP); Michael Glidden (MSTP), Jie Yang, Di Hu, David Litvin, Hui (Hanna) Zhang

**Biochemistry (2):** Colin Stomberski (MSTP), Nischay Rege (MSTP)

**Molecular Virology (1):** Ryan Stultz (MSTP)

**Neurosciences (4):** Jane Lindborg; Taylor Jay, Bradley Casali, Paul Cheng-Hathaway (MSTP)

**Nutrition (1):** Kirkland Wilson (MSTP)

**Pathology (16):** Hana Russo (MSTP)- Thesis Advisor; Jessica Perez;; Alex Tong; (MSTP); Anna Henry (MSTP); Alexandra McMillan (MSTP); Bryan Benson (MSTP); Anna Czapar (MSTP), Nelson Hsieh (MSTP); Steven Chirieleison (MSTP); Sirui Jiang (MSTP); Joseph Rathkey (MSTP), Douglas Oswald, Tristan deJesus, Sarah Groft

**Pharmacology (3):** Olga Gorelenkova; Deoye Tonade; Leslie Cuellar

**PhD Dissertation Committees CWRU School of Medicine**

**Previous (1986-2016): 148 Total (NOT including 21 direct thesis advisees)**

**Physiology and Biophysics (55):** R.Christopher Crumrine, J. Zheng, Frederick Racke, Sheila Andreatta-Van Leyen, Bartolomeo Giannattasio, David Gorski, Christopher Vincent, Min Xing, Tauriq Goraya, Jeffrey Overholt, Robert Rossero, W. Zhou, T. Zhu, John Hwa, L. Zhou, D. Suci, Donald Keenan, Enrique Corroneos, Jean Welter, Tatiana Ruhe, Bradley McConnell, Michael Kolman, Ute Kreibig, J. Xie, Wei Jin, Michael Hobert, Lisa Oleksa-Middleton, Ge Jin, Monica Gradinaru, Michael Murphy, Seong-Jae Kil, Beth Summers, Sidney Sit, Colleen Clancy, Andrea Cserey, Guosheng Huang, Rebecca Falin, Sunita Warriar, Radu Ianacu, Michelle Innocenti-Beidelschies, Mark Breckinridge, Bridget Christopher (MSTP), Obinna Nduibuizu (MSTP), Corttrell Kinney, Sarah Zilka (left program), Krekwit (Kirk) Shinlapawittayatorn, Jeffrey Lock, Andrew Caprariello, Seong Ki Lee, Sheela Toprani (MSTP); Prattana Samilsilp; Daniel Harris; Candida Desjardins (MSTP); Malcolm Hoshi (MSTP), Michelle Jennings (MSTP)

**Cell Biology (1):** G. Thomas Brown (MSTP)

**Molecular Medicine (2):** Laura Dixon, Sowmya Srikanthan

**Nutrition (1):** David DeSantis

**Neurosciences (11):** Brian Block (MSTP), Meredith Albrecht (MSTP), Jessica Koenigsnecht, Xiang Li, Jing Han, Erin Reed, Brent Cameron (MSTP), Sungho Lee (MSTP), Teresa Evans (MSTP); Julie Savage; Joseph Vithayathil (MSTP);

**Pharmacology (18):** Adisak Wongkajornsilp, Collen Tagliarino, Susan English, Edward Reineks (MSTP); James Bayer, (MSTP), Melissa Landis, Michael Davis (MSTP), Melissa Bentle, Jodi Thompson (MSTP), Krystina Papp, Yiping Rong, Molly Gallogly (MSTP), Ndiya Ogba, Marjorie Montanez-Wiscowitz (MSTP), Peter Levitt (MSTP, left program); Brad Casali (left program), Christopher Ryder (MSTP), Debarshi Mustafa (MSTP)

**Pathology (40):** M. Yan, D. Liu, David Wald (MSTP), Darrell Rubin (MSTP), Brenda Riviera (MSTP), Meghan Pennini, Kathleen Anderson, Jennifer Franko, Erica Keenan (MS), Austin Schenk (MSTP), Justin Hartupee (MSTP), Joshua Rosenblum (MSTP), Robert Mahon, Oge Ndum (MSTP-MS), Jeffrey Meisch, Colleen Lewis, Jason Molitoris (MSTP); Yi Liu, Sixto Leal (MSTP), Jill Marinis, Pauline Ogolla, Michael Strainic, Jeffrey Tomalka, Robert Koeth (MSTP), Henry Goodnough (MSTP), Joseph Mudd; Chao Fang; Ling Wu (MSTP); Charles Su (MSTP), Steven deJesus Carrion, Mausita Karmakar, Jenny Johnson, Jackelyn Golden, Brad

Martin (MSTP), James Ignatz-Hoover (MSTP), Jaffre Athman, Dixon Dorand (MSTP), Heather Clark (MSTP), Janice Jun; Gloria Tavera (MSTP)

**Genetics (3):** Marc Halushka (MSTP), Kristin Zapp-Brady; Bryan Carroll (MSTP)

**Molecular Biology (4):** Jason Yustein (MSTP), L. Xia, Anthony Lioi; Marisa Winkler (MSTP)

**Biomedical Engineering (9):** K. Kader, Brian Lestini (MSTP), Roei Lazebnick (MSTP), Thomas Cowen (MSTP), D. Leventhal (MSTP), Jeffrey Beamish (MSTP); Timothy Mariano (MSTP), Thomas Ladas (MSTP); Jennifer Bastijanac

**Biochemistry (3):** Aneta Reszko (MSTP), Anrushree Bhatnagar, Katherine Reineke

### **MS Dissertation Committees CWRU School of Medicine (Total 6)**

**MS- Physiology & Biophysics - Past (6):** Alex Gilewski; Maria Sandoval; Kathleen Lundberg; Allison Given, Aaron Brister, Anne Roe

## **9. Current, Pending, and Past Research Support**

### **Current Support: Case Western Reserve University**

2014-2017      National Multiple Sclerosis Society  
NMSS RG 5130A2/1 (PI: X. Li)  
Cellular and molecular mechanisms of the inflammasome in CNS inflammation  
G. Dubyak Role: Co-investigator (5% effort)

2014-2018      National Institutes of Health  
5R01EY014362-10-14 (PI: Eric Pearlman)  
Innate Immunity in Bacterial Keratitis  
G. Dubyak Role: Co-investigator (10% effort)

2015-2020      National Institutes of Health  
R01EY022052-04 (PI: Arne Rietsch)  
P. auruginosa Type III Secreted Effectors in Corneal Disease  
G. Dubyak Role: Co-Investigator (5 %)

2017-2019      National Institutes of Health  
R21AR069785-A1 (PI: Edward Greenfield)  
P2X7R: a novel therapeutic target for orthopaedic implant loosening  
Dubyak Role: Co-Investigator (7.5 %)

### **Past Support: University of Pennsylvania**

1983-1984      American Cancer Society Institutional Research Grant IN-135  
Calcium Homeostasis in Tumor Cells  
P.I. (20% Effort); \$6,030

### **Past Support: Case Western Reserve University**

1986-1987      American Heart Association, Northeast Ohio Affiliate  
Grant-in-Aid  
Receptor-mediated Signalling in Cultured Endothelial Cells

P.I. (40% Effort), \$19,027

1986-1991 National Institutes of Health  
 1 RO1 GM36387 (01-05)  
 Transmembrane Signalling in Smooth Muscle Cell Lines  
 P.I. (60% Effort), \$487,521 (Total Direct Costs)

1988-1993 National Institutes of Health  
 1 RO1 HL41206  
 Channel Regulation in Normal and Hypertensive Smooth Muscle  
 Co-P.I. (15% Effort), \$581,555 (Total Direct Costs)

1989-1994 American Heart Association (National)  
 Established Investigatorship 890201  
 ATP Receptors in Leukocytes and Endothelial Cells  
 Career Development (100% Effort); \$175,000 (Total Direct Costs)

1991-1994 American Heart Association (National)  
 Grant-in-Aid 91012060  
 Phospholipase D Regulation in Phagocytic Leukocytes  
 P.I. (20% Effort); \$117,500 (Total Direct Costs)

1991-1995 National Institutes of Health  
 2 RO1 GM36387 (06-09)  
 Signal Transduction by ATP/UTP Receptors  
 P.I. (55% Effort); \$469,578 (Total Direct Costs)

1994-1997 American Heart Association (National)  
 Grant-in-Aid 94017180  
 Phospholipase D Regulation in Phagocytic Leukocytes  
 P.I. (20% Effort); \$119,500 (Total Direct Costs)

1996-1998 CWRU Cystic Fibrosis Core Center  
 Feasibility Project  
 Sources of Extracellular ATP for Epithelial Regulation  
 (P.I. (20% Effort); \$80,000 (Total Direct Costs)

1999-2001 Abbott Laboratories  
 Sponsored Research  
 Molecular Studies of the P2X7 Nucleotide Receptor  
 P.I. (5% Effort); \$100,000 (Total Costs)

1999-2001 American Heart Association (National)  
 Grant-in-Aid 9950305N  
 Mechanisms of Nucleotide Release from Endothelial Cells  
 P.I. (20% Effort); \$142,633 (Total Direct Costs)

1997-2001 National Institutes of Health  
 RO1 GM36387 (10-13)  
 ATP Receptors in Macrophages and Monocytes

P.I. (50%), \$709,189 (Total Direct Costs)

2001-2005 Pfizer, Inc.  
Sponsored Research  
Inflammatory Signaling by the P2X7 Nucleotide Receptor  
P.I. (5% Effort); \$65,000 (Total Direct Costs)

2002-2006 National Institutes of Health  
RO1 GM36387 (14-18)  
Protease-Based Signaling by the P2X7 Nucleotide Receptor  
P.I. (35%), \$860,000 (Total Direct Costs) – No cost extension through 2007

2008-2009 National Institutes of Health  
P01-DE019089. (A. Weinberg, PI)  
Epithelial Immunity and Oral Complications in HIV  
Total Direct Costs: \$527,520  
Project 2 (Weinberg, PI) : “HBD-3-CXCR3: Molecular Mechanisms in Innate Immunity”  
G. Dubyak Role: Project 2 Co-investigator (5% effort)

2007-2009 AHA-0715129B Fellowship (Great Rivers Affiliate)  
PI: Shiyuan Hong 07/01/07 – 06/30/09  
Novel Regulation of the Proinflammatory P2X7 Nucleotide Receptor by Extracellular NAD  
G. Dubyak Role: Fellowship Sponsor and Mentor

2004-2010 National Institutes of Health  
T32-HL07653 (G. Dubyak, PD)  
Cleveland Training Program in Cardiovascular Research

2006-2011 National Institutes of Health  
RO1 GM36387 (18-21)  
Regulation of Caspase-1 Signaling and Inflammation by the P2X7 ATP Receptor  
G. Dubyak Role: P.I. (35%), \$920,000 (Total Direct Costs)  
12/01/2006 – 02/28/2011

2009-2014 National Institutes of Health  
P01-DE019759 (A. Weinberg, PI)  
Oral Mucosal Immunity in Vulnerable HIV Infected Populations  
Project 2 (Weinberg, PI): HBD-3-CXCR4: Molecular Mechanisms in Innate Immunity  
G. Dubyak Role: Project 2 Co-investigator (10% effort)

2011-2016 National Institutes of Health  
R01 GM36387 (22-25)  
Regulation of Caspase-1 Signaling and Inflammation by the P2X7 ATP Receptor  
G. Dubyak Role: P.I. (35%), \$984,364 (Total Direct Costs)  
03/01/2011 – 02/28/2016

2013-2015 American Heart Association

AHA 13PRE16860052 (M. Katsnelson, PI)  
Regulation of NLRP3 Inflammasome Activation and IL-1 $\beta$  Release by Loss of  
Lysosomal Integrity  
G. Dubyak Role: (Sponsor and Thesis Advisor)

### Current NIH-Funded Training Grant Programs: Case Western Reserve University

NIH T32-GM007250 "Medical Scientist Training Program" (C. Harding, PD): Co-PD and  
Trainer  
NIH T32-HL105338 "Cardiovascular Research Training Program" (M. Jain, PD): Co-PD and  
Trainer  
NIH T32-AI007024 "Training In Geographic Medicine and Infectious Disease"  
(J. Kazura, PD): Trainer  
NIH T32-AI098474 "Immunology Training Program" (C. Harding, PD): Trainer  
NIH T32-DK007470 "CWRU Nephrology Training Grant" (J. Sedor, PD): Trainer  
NIH T32-HL083823 "Research Training Program in Pulmonary Host Defense, Inflammation,  
and Immunity" (T. Kelley, PD): Trainer  
NIH T32-GM008803 "Predoctoral Training Program in Molecular Therapeutics" (J. Mieyal, PD):  
Trainer  
NIH T32-DK007319 "Metabolism Training Program" (H. Brunegraber, PD): Trainer  
NIH R25-HL03152 "Short-Term HLB Summer Research Opportunities" (P. MacDonald,  
PD): Trainer  
NIH R25-GM075207 "Case Postbaccalaureate Research Education Program" (P. MacDonald, PD):  
Trainer

## 10. Bibliography

### I. PEER-REVIEWED ORIGINAL RESEARCH PAPERS

1. J. Watrous, **G. Dubyak**, and B. Sawula. Effects of sea nettle toxin on glucose transport in hamster intestine. *Toxicon* 12:657-658, 1974.
2. A. Kleinzeller, **G.R. Dubyak**, and J.M. Mullin. Renal sugar transport in the winter flounder. II. Galactose transport systems. *Am. J. Physiol.* 231: 608-613. 1976.
3. A. Kleinzeller, **G.R. Dubyak**, P.M. Griffin, E.M. McAvoy, J.M. Mullin, and R. Rittmaster. Renal sugar transport in the winter flounder. III. Two glucose transport systems. *Am. J. Physiol.* 232: F227-234. 1977.
4. A. Kleinzeller and **G.R. Dubyak**. Renal sugar transport in the winter flounder. IV. Effect of calcium on sugar transport in teased renal tubules. *J. Cell. Physiol.* 93: 11-16. 1977.
5. A. Kleinzeller, **G.R. Dubyak**, J.M. Mullin, and E.M. McAvoy. The phlorizin effect on the transport of sugars at the antiluminal face of teased flounder tubules. *J. Exp. Zool.* 199: 391-394. 1977.
6. A. Scarpa, F.J. Brinley, T. Tiffert, and **G.R. Dubyak**. Antipyrylazo III, a "middle-range" Ca<sup>2+</sup> metallochromic indicator. *Biochemistry.* 17: 1378-1386. 1978.



7. **G.R. Dubyak** and A. Kleinzeller. The insulin-mimetic action of vanadate on adipocyte sugar transport. Dissociation from effects of vanadate as a (Na<sup>+</sup>, K<sup>+</sup>)ATPase inhibitor. *J. Biol. Chem.* 255: 5306-5312. 1980.
8. **G.R. Dubyak** and A. Scarpa. Sarcoplasmic Ca<sup>2+</sup> transients during the contractile cycle of single barnacle muscle fibers: Measurements with arsenazo III-injected fibers. *J. Muscle Res. Cell Motil.* 3: 87-112. 1982.
9. J. Croop, **G. Dubyak**, A. Scarpa, Y. Toyama, and H. Holtzer. Effect of TPA on myofibril integrity and Ca<sup>2+</sup> content in developing myotubes. *Devel. Biol.* 89: 460-474. 1982.
10. **G.R. Dubyak** and A. Scarpa. <sup>31</sup>P-NMR studies of single muscle cells isolated from barnacle depressor muscle. *Biochemistry.* 22: 3531-3536. 1983.
11. **G.R. Dubyak**. Inhibition of tension development and actomyosin ATPase activity in barnacle muscle by the Ca<sup>2+</sup> indicator dye antipyrylazo III. *J. Muscle Res. and Cell. Motil.* 6: 275-292. 1985.
12. **G.R. Dubyak** and M.B. DeYoung. Intracellular Ca<sup>2+</sup> mobilization by extracellular ATP in Ehrlich ascites tumor cells. *J. Biol. Chem.* 260: 10653-10661. 1985.
13. E.E. Reynolds and **G.R. Dubyak**. Activation of calcium mobilization and calcium influx by alpha<sub>1</sub>-adrenergic receptors in a smooth muscle cell line. *Biochem. Biophys. Res. Commun.* 130: 627-632. 1985.
14. **G.R. Dubyak**. Extracellular ATP activates polyphosphoinositide breakdown and Ca<sup>2+</sup> mobilization in Ehrlich ascites tumor cells. *Arch. Biochem. Biophys.* 245: 84-95. 1986.
15. E. Weiner, **G. Dubyak**, and A. Scarpa. Na<sup>+</sup>/H<sup>+</sup> exchange in Ehrlich ascites tumor cells: Regulation by extracellular ATP and 12-O-tetradecanoyl phorbol-13-acetate (TPA). *J. Biol. Chem.* 261: 4529-4531. 1986.
16. E.E. Reynolds and **G.R. Dubyak**. Agonist-induced calcium transients in cultured smooth muscle cells: Measurements with fura2-loaded monolayers. *Biochem Biophys. Res. Commun.* 136: 927-934. 1986.
17. J. Northrup, A. Weber, M.S. Mooseker, C. Franzini-Armstrong, M.F. Bishop, **G.R. Dubyak**, M. Tucker, and T.P. Walsh. Different calcium dependence of the capping and cutting activities of villin. *J. Biol. Chem.* 261: 9274-9281. 1986.
18. K. Yoshida, **G. Dubyak**, and V.T. Nachmias. Rapid effects of phorbol ester on platelet shape change, cytoskeleton, and calcium transient. *FEBS Letters.* 206: 273-278. 1986.
19. P. Mene', **G.R. Dubyak**, A. Scarpa, and M.J. Dunn. Stimulation of cytoplasmic free calcium and inositol phosphates by prostaglandins in cultured rat mesangial cells. *Biochem. Res. Commun.* 142: 579-586. 1987.
20. P. Mene', H.E. Abboud, **G.R. Dubyak**, A. Scarpa, and M.J. Dunn. Effects of PDGF on inositol phosphates, Ca, and contraction of cultured rat mesangial cells. *Am. J. Physiol.* 253: F458-463. 1987.
21. M. Kester, P. Mene', **G.R. Dubyak**, and M.J. Dunn. Platelet Activating Factor elevates cytosolic free calcium in cultured rat mesangial cells. *FASEB J.* 1: 215-219. 1987.
22. R.G. Appel, **G.R. Dubyak**, and M.J. Dunn. Effect of atrial natriuretic factor on cytosolic free calcium in rat glomerular mesangial cells. *FEBS Lett.* 224: 396-400. 1987.
23. C. Welsh, **G. Dubyak**, and J.G. Douglas. Relationship between phospholipase C activation and Prostaglandin E<sub>2</sub> and cyclic adenosine monophosphate production in rabbit tubular epithelial cells: Effects of angiotensin, bradykinin, and arginine vasopressin. *J. Clin. Invest.* 81: 710-719. 1988.
24. **G.R. Dubyak**, D.S. Cowen, and L.M. Meuller. Activation of inositol phospholipid breakdown in HL60 cells by P<sub>2</sub>-purinergic receptors for extracellular ATP. Evidence for mediation by both pertussis toxin-sensitive and pertussis toxin-insensitive mechanisms. *J. Biol. Chem.* 263: 18108-18117. 1988.

25. J.J. Moore, **G.R. Dubyak**, R.M. Moore, and D. Vander Kooy. Oxytocin activates the inositol phospholipid - protein kinase C system and stimulates prostaglandin production in human amnion cells. *Endocrinology*. 123: 1771-1777. 1988.
26. P. Mene', **G.R. Dubyak**, H.E. Abboud, A. Scarpa, and M.J. Dunn. Phospholipase C activation by prostaglandins and thromboxane A<sub>2</sub> in cultured mesangial cells. *Am. J. Physiol. (Fluids/Electrolytes)* 255: F1059-F1069. 1988.
27. M.S. Simonson, P. Mene', **G.R. Dubyak**, and M.J. Dunn. Identification and transmembrane signaling of leukotriene D<sub>4</sub> receptors in human mesangial cells. *Am J. Physiol. (Cell)* 255: C771-C780. 1988.
28. M.S. Simonson, S. Wann, P. Mene', **G.R. Dubyak**, M..Kester, Y. Nakazato, J.R. Sedor, and M.J. Dunn. Endothelin stimulates phospholipase C, Na<sup>+</sup>/H<sup>+</sup> exchange, c-fos expression, and mitogenesis in rat mesangial cells. *J. Clin. Invest.* 83: 708-712. 1989
29. D.S. Cowen, H.M. Lazarus, S.B. Shurin, S.E. Stoll, and **G.R. Dubyak**. Extracellular ATP activates calcium mobilization in human phagocytic leukocytes and neutrophil/monocyte progenitor cells. *J. Clin. Invest.* 83: 1651-1660 . 1989
30. D. VanderKooy, **G.R. Dubyak**, R.H. Moore, and J.J. Moore. ATP activates the phospholipase C cascade system in human amnion cells without increasing prostaglandin production. *Endocrinology* 124: 2005-2012. 1989.
31. J.S. Wiley and **G.R. Dubyak**. Extracellular adenosine triphosphate increases cation permeability of chronic lymphocytic leukemic lymphocytes. *Blood* 73: 1316-1323. 1989.
32. T.C. Knauss, P. Mene', S.A. Ricanati, M. Kester, **G.R. Dubyak**, S.N. Emancipator, and J.R. Sedor. Immune complexe activation of rat glomerular mesangial cells: dependence on the Fc region of antibody. *Am J. Physiol. (Fluid/Electrolytes)* 26: F478-F485. 1989
33. D.S. Cowen, M. Sanders, and **G.R. Dubyak**. P<sub>2</sub>-Purinergic receptors activate a guanine nucleotide-dependent phospholipase C in membranes from HL-60 cells. *Biochim. Biophys Acta.* 1053: 195-203. 1990.
34. D.S. Cowen, B. Baker and **G.R. Dubyak**. Pertussis toxin produces differential inhibitory effects on basal, P<sub>2</sub>-purinergic-, and chemotactic peptide-stimulated inositol phospholipid breakdown in HL-60 Cells and HL-60 cell membranes *J. Biol. Chem.* 265: 16181-16189. 1990.
35. R.C. Crumrine, **G. Dubyak**, and J.C. LaManna. Decreased protein kinase C activity during cerebral ischemia and after reperfusion in the adult rat. *J. Neurochem.* 55: 2001-2007. 1990.
36. T.N. Marks, **G.R. Dubyak**, and S.W. Jones. Calcium currents in the A7r5 smooth muscle cell-derived cell line. *Eur. J. Physiol. (Pflugers' Archiv)*. 417: 433-439. 1990.
37. D.S. Cowen, M. Berger, L. Nuttle, and **G.R. Dubyak**. Chronic treatment with P<sub>2</sub>-purinergic receptor agonists induces phenotypic modulation of the HL-60 and U937 human myelogenous leukemia cell lines. *J. Leukocyte Biol.* 50: 109-122. 1991.
38. M. Xie, L.S. Jacobs, and **G.R. Dubyak**. Regulation of phospholipase D and primary granule secretion by P<sub>2</sub>-purinergic- and chemotactic peptide-receptor agonists in induced during granulocytic differentiation of HL-60 cells. *J. Clin. Invest.* 88: 43-54. 1991.
39. M. Xie and **G.R. Dubyak**. Guanine nucleotide- and adenine nucleotide-dependent regulation of phospholipase D in electropermeabilized HL-60 cells. *Biochem. J.* 278: 81-89. 1991.
40. P. Mene', **G.R. Dubyak**, A. Scarpa, and M.J. Dunn. Regulation of cytosolic pH of cultured mesangial cells by prostaglandin F<sub>2a</sub> and thromboxane A<sub>2</sub>. *Am. J. Physiol (Cell)*. 260: C159-C166. 1991.
41. M. Pinzani, T.C. Knauss, G.F. Pierce, P. Hsieh, W. Kenney, **G.R. Dubyak**, and H.E..Abboud. Mitogenic signals for platelet-derived growth factor isoforms in cultured liver fat-storing cells. *Am. J. Physiol (Cell)* 260: C485-C491. 1991.

42. J.O. Hensold, **G. Dubyak**, and D.E. Houseman. Calcium ionophore, A23187, induces commitment to differentiation but inhibits subsequent expression of erythroid genes in murine erythroleukemia cells. *Blood*. 77: 1362-1370. 1991.
43. C. El-Moatassim and **G.R. Dubyak**. A novel pathway for the activation of phospholipase D by P<sub>2Z</sub> purinergic receptors in BAC1.2F5 macrophages. *J. Biol. Chem.* 267: 23664-23673. 1992.
44. **G.R. Dubyak**, S. Schomisch, M. Xie, and D. Kusner. Phospholipase D activity in phagocytic leukocytes is synergistically regulated by G-protein- and tyrosine kinase-based mechanisms. *Biochemical J.* 292: 121-128. 1993.
45. L.C. Nuttle, C. El-Moatassim, and **G.R. Dubyak**. Expression of the pore-forming P<sub>2Z</sub>-purinoreceptor in *Xenopus* oocytes injected with poly(A)<sup>+</sup>RNA from murine macrophages. *Molec.Pharmacol.* 44: 93-101. 1993.
46. C. El-Moatassim and **G.R. Dubyak**. Dissociation of pore-forming and phospholipase D activities via P<sub>2Z</sub>-purinergic receptors in BAC1.2F5 macrophages. Product inhibition of phospholipase D enzyme activity. *J. Biol. Chem.* 268: 15571-15578. 1993.
47. D.J. Kusner, S.J. Schomisch, and **G.R. Dubyak**. ATP-induced potentiation of G-protein dependent phospholipase D activity in a cell-free system from U937 promonocytic leukocytes. *J. Biol. Chem.* 268: 19973-19982. 1993.
48. M. Lam, **G.R. Dubyak**, and C. Distelhorst. Effect of glucocorticosteroid treatment on intracellular calcium homeostasis in mouse lymphoma cells. *Molec. Endocrinol.* 7: 686-693. 1993.
49. N. Abughali, **G. Dubyak**, and M.F. Tosi. Impairment of chemoattractant-stimulated hexose uptake in neonatal neutrophils. *Blood*, 1993.
50. F.K. Racke, L.G. Hammerland, **G.R. Dubyak**, and E.F. Nemeth. Functional expression of the parathyroid cell calcium receptor in *Xenopus* oocytes. *FEBS Lett.* 333: 132-136. 1993.
51. L.C. Nuttle and **G.R. Dubyak**. Differential activation of cation channels and non-selective pores by macrophage P<sub>2Z</sub>-purinergic receptors expressed in *Xenopus* oocytes. *J. Biol. Chem.* 269: 13988-13996. 1994.
52. M. Lam, **G. Dubyak**, L. Chen, G. Nunez, R.L. Miesfeld, and C.W. Distelhorst. Evidence that BCL-2 represses apoptosis by regulating endoplasmic reticulum-associated Ca<sup>2+</sup> fluxes. *Proc. Natl. Acad. Sci., USA* 91: 6569-6573. 1994.
53. J.R. Schelling, D.J. DeLuca, M. Konieczkowski, R. Marzec, J.R. Sedor, **G.R. Dubyak**, and S.L. Linas. Glucocorticoid uncoupling of angiotensin II-dependent phospholipase C activation in rat vascular smooth muscle cells. *Kidney International.* 46: 675-682. 1994.
54. D.J. Kusner and **G.R. Dubyak**. GTP[S] induces membrane localization of a cytosol-independent phospholipase D activity in a cell-free system from U937 promonocytic leukocytes. *Biochem. J.* 304: 485-491. 1994.
55. Y. Mitani, **G.R. Dubyak**, and F. Ismail-Beigi. Stimulation of GLUT1 glucose transporter expression in response to exposure to the calcium ionophore A23187. *Am. J. Physiol. (Cell)*. 269: C1228-C1234. 1995.
56. Y. Mitani, **G.R. Dubyak**, and F. Ismail-Beigi. Induction of GLUT1 mRNA in response to inhibition of oxidative phosphorylation: Role of increased cytosolic free calcium. *Am. J. Physiol. (Cell)*. 270: C235-C242. 1996.
57. J.R. Schelling, D.J. Gentry, and **G.R. Dubyak**. Annexin II inhibition of G-protein regulated inositol trisphosphate formation in rat aortic smooth muscle cells. *Am. J. Physiol. (Renal)*. 270: F682-F690. 1996.
58. D. Merlin, X. Guo, K. Martin, C. Laboisie, D. Landis, **G. Dubyak**, and U. Hopfer. Inhibitors of granule fusion block Cl secretion in mucin-secreting cell lines. Evidence for recruitment

- of purinergically stimulated Cl channels to the surface membrane. *Am. J. Physiol. (Cell)*. 270: C612-C619. 1996.
59. R. Ganapathi, A. Constantinou, N. Kamath, **G. Dubyak**, D. Grabowski, and K. Krivacic. Resistance to etoposide in human leukemia HL60 cells: Reduction in drug-induced DNA cleavage associated with hypophosphorylation of topoisomerase II phosphopeptides. *Molec. Pharmacol.* 50: 243-248. 1996.
  60. B.D. Humphreys and **G.R. Dubyak**. Induction of the P2Z/ P2X<sub>7</sub>-nucleotide receptor receptors and associated phospholipase D activity by lipopolysaccharide and  $\gamma$ -interferon in the THP-1 human monocytic cell line. *J. Immunol.* 157: 5627-5637. 1996.
  61. K. A. Martin, S.B. Kertesy, and **G.R. Dubyak**. Down-regulation of P<sub>2U</sub>-nucleotide receptor mRNA expression during in vitro differentiation of human myeloid leukocytes by phorbol esters or inflammatory activators. *Molecular Pharmacol.* 51: 97-108. 1997.
  62. J.R. Schelling, N. Nkemere, M. Koniesczkowski, K.A. Martin, and **G.R. Dubyak**. Angiotensin II activates the  $\beta$ 1-isoform of phospholipase C in vascular smooth muscle cells. *Am. J. Physiol. (Cell)*. 272: 1558-156. 1997.
  63. E.E. Clifford, K.A. Martin, P. Dalal, R. Thomas, and **G.R. Dubyak**. Stage-specific expression of P2Y receptor subtypes, ecto-apyrase, and ecto-5' nucleotidase in human myeloid progenitor leukocytes. *Am. J. Physiol. (Cell)*. 273: C973-C987. 1997
  64. **G.R. Dubyak** and S.B. Kertesy. Calphostin inhibits GTP $\gamma$ S-dependent phospholipase D and membrane-association of rhoA by a mechanism independent of protein kinase C catalytic activity. *Arch. Biochem. Biophys.* 341: 129-139. 1997.
  65. E.E. Clifford, K. Parker, B.D. Humphreys, S.B. Kertesy, and **G.R. Dubyak**. The P2X<sub>1</sub> receptor, an ATP-gated ion channel, is expressed in human platelets but not human blood leukocytes. *Blood* 91: 3172-3181. 1998.
  66. B.D. Humphreys, C. Virginio, A. Surprenant, J. Rice, and **G.R. Dubyak**. Isoquinolines as antagonists of the P2X<sub>7</sub> nucleotide receptor: High selectivity for the human versus rat receptor homologues. *Molec. Pharmacol.* 54: 22-32. 1998.
  67. B.D. Humphreys and **G.R. Dubyak**. Modulation of P2X<sub>7</sub> nucleotide receptor expression by pro-and anti-inflammatory stimuli in THP-1 monocytes. *J. Leukocyte Biol.* 64: 265-273. 1998.
  68. D.R. Grabowski, **G.R. Dubyak**, L. Rybicki, H. Hidaka, and R. Ganapathi. Tumor cell resistance to topoisomerase II poisons: Role for intracellular calcium in the sensitization by inhibitors of calcium-calmodulin dependent enzymes. *Biochem. Pharmacol.* 56: 345-349. 1998.
  69. M. Aoyama, D.R. Grabowski, **G.R. Dubyak**, A.I. Constantinou, L.A. Rybicki, R.M. Bukowski, M.K. Ganapathi, I.D. Hickson, and R. Ganapathi. Attenuation of drug-stimulated topoisomerase II-DNA cleavable complex formation in wild-type HL-60 cells treated with an intracellular calcium buffer is correlated with decreased cytotoxicity and site-specific hypophosphorylation of topoisomerase II *Biochem. J.* 336: 727-733, 1998.
  70. R. Beigi, E. Kobatake, M. Aizawa, and **G.R. Dubyak**. Detection of local ATP release from activated platelets using cell surface-attached firefly luciferase. *Am. J. Physiol. (Cell)*. 276: C267-C278, 1999.
  71. W.P. Schilling, T. Wasylyna, **G.R. Dubyak**, B.D. Humphreys, and W.G. Sinkins. Maitotoxin and P2z/P2x7 purinergic receptor stimulation activate a common cytolytic pore. *Am. J. Physiol. (Cell)*. 277: C766-C776. 1999.
  72. B.D. Humphreys, J. Rice, S.B. Kertesy, and **G.R. Dubyak**. SAPK/JNK activation and apoptotic induction by the macrophage P2X7 nucleotide receptor. *J. Biol. Chem.* 275: 26792-26798, 2000.

73. S. Balasubramanian C. Agarwal, T. Efimova, **G.R. Dubyak**, E. Banks, J. Welter, and R.L. Eckert. Thapsigargin suppresses phorbol ester-dependent human involucrin promoter activity by suppressing CCAAT-enhancer-binding protein alpha (C/EBPalpha) DNA binding. *Biochem. J.* 350:791-796, 2000
74. R. Beigi and **G.R. Dubyak**. Endotoxin activation of macrophages does not induce ATP release and autocrine stimulation of P2 nucleotide receptors. *J. Immunol.* 165: 7189-7198. 2000.
75. Y-C. Kim, S.G. Brown, T.K. Harden, J.L. Boyer, **G. Dubyak**, B.F. King, G. Burnstock, and K.A. Jacobson. Structure activity relationships of pyridoxal phosphate derivatives as potent and selective antagonists of P2X1 receptors. *J. Med. Chem.* 44: 340-349. 2001.
76. L. Gudipaty, B.D. Humphreys, G. Buell, and **G.R. Dubyak**. Regulation of P2X7 nucleotide receptor function in human monocytes by extracellular ions and receptor density. *Am J. Physiol. Cell.* 280: C943-C953. 2001
77. A.M. Alavi, **G.R. Dubyak**, and G. Burnstock. Immunohistochemical evidence for ATP receptors in human dental pulp. *J. Dental Res.* 80: 476-483. 2001.
78. C. Tagliarino, J. J. Pink, **G. R. Dubyak**, A. Nieminen, and D. A. Boothman. Calcium is a key signaling molecule in  $\beta$ -lapachone-mediated cell death. *J. Biol. Chem.* 276: 19150-1960. 2001.
79. M.S. Parcells, S-F. Lin, R.L. Dienglewicz, V. Majerciak, D.R. Robinson, H-C. Chen, Z. Wu, **G.R. Dubyak**, P. Brunovskis, H.D. Hunt, L.F. Lee, and H-J. Kung. Marek's disease herpes virus (MDV) encodes an interleukin-8 homologue (vIL-8). *J. Virol.* 75: 5159-5173. 2001.
80. L.C. Denlinger, P.L. Fiset, J.A. Sommer, J.J. Watters, U. Prabhu, R.A. Proctor, **G.R. Dubyak** and P.J. Bertics. Cutting Edge: The nucleotide receptor P2X7 contains multiple protein- and lipid-interaction motifs including a potential binding site for bacterial lipopolysaccharide. *J. Immunol.* 167; 1871-1876. 2001.
81. R.G. Ravi. S.B. Kertesy, **G.R. Dubyak**, and K.A. Jacobson. Potent P2X7 receptor antagonists: Tyrosyl derivatives synthesized using a sequential parallel synthetic approach. *Drug Dev. Res.* 54: 75-87. 2001.
82. W. Chen, R. G. Ravi, S.B. Kertesy, **G.R. Dubyak**, and K.A. Jacobson. Functionalized congeners of tyrosine-based P2X<sub>7</sub> receptor antagonists: Probing multiple sites for linking and dimerization. *Bioconjugate Chemistry.* 13:1100-1111. 2002.
83. D.H. Canaday, R. Beigi, R.F. Silver, C.V. Harding, W.H. Boom, and **G.R. Dubyak**. ATP and control of intracellular growth of *Mycobacteria* by T cells. *Infection and Immunity.* 70: 6456-6459. 2002.
84. P.A. Verhoef, M. Estacion, W. Schilling, and **G.R. Dubyak**. P2X7 Receptor-Dependent Blebbing and the Activation of Rho-effector Kinases, Caspases, and IL-1 $\beta$  Release. *J. Immunol.* 170: 5728-5738. 2003
85. L. Gudipaty, J. Munetz, P.A. Verhoef, and **G.R. Dubyak**. Essential role for Ca<sup>2+</sup> in the regulation of IL-1 $\beta$  secretion by the P2X7 nucleotide receptor in monocytes, macrophages, and HEK293 cells. *Am J. Physiol. Cell.* 285: C286-C299. 2003.
86. S.M. Joseph, M.R. Buchakjian, and **G.R. Dubyak**. Colocalization of ATP release sites and ecto-ATPase activity at the extracellular surface of human astrocytes. *J. Biol. Chem.* 278: 23331-23342. 2003.
87. L.C. Denlinger, J.A. Sommer, K. Parker, L. Gudipaty, P.L. Fiset, J.J. Watters, R.A. Proctor, **G.R. Dubyak** and P.J. Bertics. Mutation of a dibasic amino acid motif within the C-terminus of the P2X7 nucleotide receptor results in trafficking defects and impaired function. *J. Immunol.* 171: 1304-1311. 2003.
88. R.D. Beigi, S.B. Kertesy, G. Aquilina, and **G.R. Dubyak**. Oxidized ATP (oATP) attenuates proinflammatory signaling via P2 receptor-independent mechanisms. *Br. J. Pharmacol.* 140: 507-519. 2003.

89. J.M. Kahlenberg and **G.R. Dubyak**. Mechanisms of caspase-1 activation by P2X7 receptor-mediated  $K^+$  release. *Am J. Physiol. Cell.* 286: C1100-C1108. 2004.
90. P.A. Verhoef, S.B. Kertesy, M. Estacion, W.P. Schilling, and **G.R. Dubyak**. Maitotoxin induces biphasic IL-1 $\beta$  secretion and membrane blebbing in murine macrophages. *Mol. Pharmacol.* 66: 909-920. 2004.
91. S.M. Joseph, M.A. Pifer, R.J. Przybylski, and **G.R. Dubyak**. Methylene ATP analogs as modulators of extracellular ATP metabolism and accumulation. *Br. J. Pharmacol.* 142: 1002-1014. 2004.
92. J.M. Kahlenberg and **G.R. Dubyak**. Differing caspase-1 activation states in monocyte versus macrophage models of IL-1 $\beta$  processing and release. *J. Leukocyte Biol.* 70: 676-684. 2004.
93. N. N. Johnson-Farley, S.B. Kertesy, **G.R. Dubyak**, and D.S. Cowen. Enhanced activation of neuroprotective Akt and Extracellular-Regulated Kinase (ERK) pathways by simultaneous occupancy of  $G_q$ -coupled 5-HT $_{2A}$  receptors and  $G_s$ -coupled 5-HT $_{7A}$  receptors in PC12 cells. *J. Neurochem.* 92: 72-82. 2005.
94. S. Balasubramanian M.T. Sturniolo, **G.R. Dubyak**, and R.L. Eckert. Human epidermal keratinocytes undergo (-)-epigallocatechin-3-gallate-dependent differentiation but not apoptosis. *Carcinogenesis.* 26:1100-1108. 2005
95. J.M. Kahlenberg, K.C. Lundberg, S.B. Kertesy, Y.Qu, and **G.R. Dubyak**. Potentiation of caspase-1 activation by the P2X7 receptor is dependent on Toll-like receptor signals and requires NF $\kappa$ B-driven protein synthesis. *J. Immunol.*, 175:7611-7622. 2005.
96. P.A. Verhoef, S.B. Kertesy, K.C. Lundberg, J.M. Kahlenberg, and **G.R. Dubyak**. Inhibitory effects of chloride on the activation of caspase-1, IL-1 $\beta$  secretion, and cytolysis by the P2X7 receptor. *J. Immunol.*, 175:7623-7634. 2005.
97. E. De Vuyst, E. Decrock, L. Cabooter, **G.R. Dubyak**, C.C. Naus, W.H. Evans and L. Leybaert. Intracellular calcium changes trigger connexin-32 hemichannel opening. *EMBO J.* 125: 34-44, 2006
98. Z. Feng, **G.R. Dubyak**, M.M. Lederman, and A. Weinberg. Cutting Edge: Human  $\beta$ -defensin 3 - A novel antagonist of the HIV-1 co-receptor CXCR4. *J Immunol.* 177: 782-786. 2006
99. B.T. Carroll, **G.R. Dubyak**, M.M. Sedensky, and P.G. Morgan. Sulfated signal from ASJ sensory neurons modulates stomatin-dependent coordination in *Caenorhabditis elegans*. *J. Biol. Chem.* 281:35989-35996. 2006.
100. L. Franchi, T. Kanneganti, **G.R. Dubyak**, and G. Nunez. Differential requirement of P2X7 receptor and intracellular  $K^+$  for caspase-1 activation induced by intracellular and extracellular bacteria. *J. Biol. Chem.* 282: 18810-18818. 2007
101. Y.Qu, L. Franchi, G. Nunez, and **G.R. Dubyak**. Non-classical IL-1 $\beta$  secretion stimulated by P2X7 receptors is dependent on inflammasome activation and correlated with exosome release in murine macrophages. *J Immunol.* 179: 1913-1925. 2007
102. S. Hong, A. Brass, M. Seman, F. Haag, F. Koch-Nolte, and **G.R. Dubyak**. Lipopolysaccharide, IFN- $\gamma$ , and IFN- $\beta$  induce expression of the thiol-sensitive ART2.1 ecto-ADP-ribosyltransferase in murine macrophages. *J. Immunol.* 179: 6215-6227. 2007.
103. M.G. Strainic, J. Liu, P.N. Lalli, D. Huang, N. Muqim, V.S. Shapiro, **G. R. Dubyak**, P. S. Heeger, and M.E Medof. T cell costimulation: Obligatory role of local complement synthesis by APC•T cell partners. *Immunity.* 28: 425-435. 2008.
104. V.M. Brautigam, **G.R. Dubyak**, J.M. Crain, and J.J. Watters. The inflammatory effects of UDP-glucose in N9 microglia are not mediated by P2Y14 receptor activation. *Purinergic Signal.* 4:73-78. 2008.
105. A.E. Blum, S.M. Joseph, R.J. Przybylski, and **G.R. Dubyak**. Rho-family GTPases modulate  $Ca^{2+}$ -dependent ATP release from astrocytes. *Am J. Physiol. Cell.* 295:231-241. 2008.

106. Y.Qu, L. Ramachandra, L. Franchi, S. Mohr, C.V. Harding, G. Nunez, and **G.R. Dubyak**. P2X7 receptor-stimulated secretion of MHC-II-containing exosomes requires the ASC/NLRP3 inflammasome but is independent of caspase-1. *J.Immunol.* 182:5052-5062. 2009.
107. D.A. Prosdocimo, D.T. Douglas, A. Romani, W.C. O'Neill, and **G.R. Dubyak**. Autocrine ATP release coupled to extracellular pyrophosphate accumulation in vascular smooth muscle cells. *Am J. Physiol. Cell.* 296:C828-839. 2009.
108. S. Hong, N. Schwarz, A. Brass, M. Seman, F. Haag, F. Koch-Nolte, W.P. Schilling, and **G.R. Dubyak**. Differential regulation of P2X7 receptor activation by extracellular NAD and ecto-ARTs in murine macrophages and T cells. *J. Immunol.* 183: 578-592. 2009
109. S. Hong, A. Brass, M. Seman, F. Haag, F. Koch-Nolte, and **G.R. Dubyak**. Basal and inducible expression of the thiol-sensitive ART2.1 ecto-ADP-Ribosyltransferase in myeloid and lymphoid leukocytes . *Purinergic Signalling.* 5: 369-383. 2009.
110. L. Franchi, G. Chen, N. Marina-Garcia, A. Abe, S. Bao, Y. Qu, J.A. Shayman, J. Turk, **G. R. Dubyak**, and G Núñez. Calcium-independent phospholipase A2 is dispensable in inflammasome activation and its inhibition by bromoenol lactone. *J Innate Immunity.* 1:607-617. 2009.
111. A.E. Blum, B. Corbett Walsh, and **G.R. Dubyak**. Extracellular osmolarity modulates G protein-coupled receptor dependent ATP release from 1321N1 astrocytes. *Am J. Physiol. Cell.* 298: C386-396. 2010.
112. D.A. Prosdocimo, S.C. Wyler, A. Romani, W.C. O'Neill, and **G.R. Dubyak**. Regulation of vascular smooth muscle cell calcification by extracellular pyrophosphate homeostasis: modulation by cyclic AMP and hyperphosphatemia. *Am J. Physiol. Cell.* 298: C702-713. 2010.
113. L. Ramachandran, Y. Qu, Y. Wing, C.J. Lewis, B.A. Cobb, W.H. Boom, **G.R. Dubyak**, and C.V. Harding. Mycobacterium tuberculosis synergizes with ATP to induce release of microsomes and exosomes containing MHC-II molecules capable of antigen presentation. *Infection and Immunity*, 78: 5116-5125. 2010.
114. R.Villa-Bellosta, X. Wang, J.L. Millán, **G.R. Dubyak**, and W.C. O'Neill. Extracellular pyrophosphate metabolism and calcification in vascular smooth muscle. *Am J. Physiol. Heart.* 301: H61-H68. 2011.
115. Y. Qu, S. Misaghi, K. Newton, L.L. Gilmour, S. Louie, J.E. Cupp, **G.R. Dubyak**, D. Hackos, and V.M. Dixit. Pannexin-1 is required for ATP release during apoptosis but not inflammasome activation. *J.Immunol.* 186: 6553-6561. 2011.
116. K.E. Trueblood, S. Mohr, and **G.R. Dubyak**. Purinergic regulation of high glucose-induced caspase-1 activation in the rat retinal Muller cell line rMC-1. *Am J. Physiol. Cell.*, 301: C1213-C1223. 2011.
117. J. Qiu, C. Tsien, S. Thapalaya, A. Narayanan, C.C. Weihl, J.K. Ching, B. Eghtesad, K. Singh, S.L. Hazen, **G. Dubyak**, C. McDonald, A. Almasan, S.V.N. Prasad, S. Dasarathy. Hyperammonemia mediated autophagy in skeletal muscle contributes to sarcopenia of cirrhosis. *Am J. Physiol. Endocrinol Metab.* 303: E983-993. 2012. (PMC3469607).
118. Z. Feng, **G.R. Dubyak**, X. Jia, J. Lubkowski, and A. Weinberg. HBD-3 structure motifs important in CXCR4 antagonism. *FEBS Lett.* 280: 3365-3375. 2013.
119. C. Antonopoulos, C. El-Sanadi, W.J. Kaiser, E.S. Mocarski, and **G.R. Dubyak**. Pro-apoptotic chemotherapeutic drugs induce non-canonical processing and release of IL-1 $\beta$  via caspase-8 in dendritic cells. *J. Immunol.* 191:4789-4803. 2013.
120. A.K. Rosenthal C.M. Gohr, E. Mitton-Fitzgerald, M.K. Lutz, **G.R. Dubyak**, and L.M. Ryan. The progressive ankylosis gene product ANK regulates extracellular ATP levels in primary articular chondrocytes. *Arthritis Res Ther.* 15(5):R154. (PMID: 24286344). 2013.

121. A. Boyd-Tressler, S. Peneula, D.W. Laird, and **G.R. Dubyak**. Chemotherapeutic drugs induce ATP release via caspase-gated pannexin-1 channels and a caspase/pannexin-1 independent mechanism. *J Biol Chem.* .289:27246-27263 PMC4175357. 2014
122. B.N. Martin, C. Wang, T. Herjan, J. Willette-Brown, M.F. Gulen, H. Zhou, K. Bulek, L. Franchi, T. Sato, G. Narla, X-P. Zhong, E. Alnemri, J. Thomas, D. Klinman, K.Fitzgerald, M. Karin, G. Nunez, **G. Dubyak**, Y. Hu, and X. Li. IKK $\alpha$  negatively regulates ASC-dependent inflammasome activation. *Nature-Communications*, 5:4977 doi: 10.1038/ncomms5977. 2014.
123. M. Kamakar, M. Katsnelson M, N.G. Greene, A. Hise, A. Camilli, A. Kadioglu, **G.R. Dubyak**, and E. Pearlman. Neutrophil mediated IL-1 $\beta$  processing in Streptococcus pneumoniae corneal infection is dependent on the NLRP3/ASC inflammasome and caspase-1 activation. *J Immunol.* 194:1763-1775. 2015
124. M.A. Katsnelson, L.G. Rucker, H.M. Russo, and **G.R. Dubyak**. K<sup>+</sup> efflux agonists induce NLRP3 inflammasome activation independently of Ca<sup>2+</sup> signaling. *J. Immunol.* 194:3937-3952. 2015.
125. K. Lee, S. Shukla, M. Wu, N. Ayat, C. El Sanadi, A. Wen, J. Edelbrock, J. Pokorski, U. Commandeur, **G. Dubyak**, and N. Steinmentz. Stealth filaments: polymer chain length and conformation affect the in vivo fate of PEGylated potato virus X. *Acta Biomaterialia*, 19:166-179. 2015.
126. C. Antonopoulos, H.M. Russo, C. El Sanadi, W.J. Kaiser, E.S. Mocarski, and **G.R. Dubyak**. Caspase-8 as an effector and regulator of NLRP3 inflammasome signaling. *J. Biol. Chem.* 290: 20167-20184. 2015.
127. J.N. Kiselar, X. Wang, **G.R. Dubyak**, C. El Sanadi, S.K. Ghosh, K. Lundberg, and W.M. Williams. Modification of  $\beta$ -defensin-2 by dicarbonyls methylglyoxal and glyoxal inhibits antibacterial and chemotactic function *in vitro*. PLoSOne. 2015 Aug 5;10(8):e0130533. doi: 10.1371/journal.pone.0130533. eCollection 2015.
128. A.B. Lioi, B.M. Ferrari, **G.R. Dubyak**, A. Weinberg, and S.F. Sieg. hBD-3 increases CD86 expression on monocytes by activating the ATP-gated channel P2X7. *J. Immunol.* 195: 4438-4445. 2015.
129. M. Kamakar, M.A. Katsnelson M, **G.R. Dubyak**, and E. Pearlman. Neutrophil P2X7 receptors mediate NLRP3 inflammasome-dependent IL-1 $\beta$  secretion in response to ATP. *Nature-Communications*. Feb 15;7:10555. doi: 10.1038/ncomms10555. 2016.
130. B.N. Martin, C. Wang, Z. Kang, M.F. Gulen, J.A. Zepp, J. Zhao, J. D, C. Zhang, C. El-Sanadi, A. Sarkar, M.D. Wewers, J. Kaiser, E.S. Mocarski, **G.R. Dubyak**, R.M. Ransohoff, and X. Li. T cell-intrinsic ASC critically promotes Th17-mediated experimental autoimmune encephalomyelitis. *Nature-Immunology*. 17:583-92. 2016.
131. Yuan Y, Hakimi P, Kao C, Kao A, Boyd Tessler A, Hang X, Alhoraibi H, Slater E, Xia K, Cao P, Shue Q, Ching T-T, Hsu A-L, **Dubyak GR**, Kalhan SC, Hanson RW, and Feng Z. Reciprocal changes in phosphoenolpyruvate carboxykinase and pyruvate kinase with age are a determinant of aging in *C. elegans*. *J Biol Chem.* 297: 1307-1319. 2016.
132. M.A. Katsnelson, K. Lozada-Soto, H.M. Russo, B.A. Miller, and **G.R. Dubyak**. NLRP3 inflammasome signaling is activated by low-Level lysosome disruption but inhibited by extensive lysosome disruption: Roles for K<sup>+</sup> efflux and Ca<sup>2+</sup> influx. *Am J Physiol Cell Physiol.* 311: C83-C100. 2016.
133. H.M. Russo, J. Rathkey, A. Boyd-Tressler, M.A. Katsnelson, D.W. Abbott, and **G.R. Dubyak**. Active caspase-1 induces plasma membrane pores that precede pyroptotic lysis and are blocked by lanthanides. *J Immunol.* 197:1353-1367. 2016.



135. J-C Portillo, Y. Lopez Corcino, **G.R. Dubyak**, T.S. Kern, S. Matsuyama, and C.S. Subauste. Ligation of CD40 in human Müller cells induces P2X7 receptor-dependent death of retinal endothelial cells. *Investigative Ophthalmology & Visual Science*. 57:6278-6286. 2016.
136. J-C. Portillo, Y. L. Corcino, Y., Miao, J. Tang, N. Sheibani, T.S. Kern, **G.R. Dubyak**, and C.S. Subauste. CD40 in non-hematopoietic cells induces P2X7-dependent cytokine expression in macrophages/microglia and inflammation. *Diabetes* 66:483-493. 2017.
137. S.M. Chirieleison, R Marsh, P. Kumar, J.K. Rathkey, **G.R. Dubyak**, and D.W. Abbott. NOD signaling defects and cell death susceptibility cannot be uncoupled in X-linked inhibitor of apoptosis (XIAP)-driven inflammatory disease. *J Biol Chem*. 292: 9666-9679. 2017.
138. A.M. Boyd-Tressler, G.S. Lane, and **G.R. Dubyak**. Upregulated ectonucleotidases in FADD- and RIP1-deficient Jurkat leukemia cells counteract extracellular ATP/AMP accumulation via pannexin-1 channels during chemotherapeutic drug-induced apoptosis. *Mol Pharmacol*. 92:30–47. 2017.
139. J.K. Rathkey, B.L. Benson, S.M. Chirieleison, J.X. Yang, T.S. Xiao, **G.R. Dubyak**, A.Y. Huang, and D.W. Abbott. Live cell visualization of gasdermin D-driven pyroptotic cell death. *J Biol Chem*. Accepted for publication. 2017
140. H.M Russo, J.K Rathkey, D.A Prosdosimo. M.K. Jain, D.W. Abbott, and **G.R. Dubyak**. Active Gasdermin D mediates ROS-dependent pyroptotic death signaling during NLRP3 inflammasome activation. In review (2017)

## II. REVIEWS, BOOK CHAPTERS, EDITORIAL COMMENTARIES

1. A. Scarpa, F.J. Brinley, T. Tiffert, and **G. Dubyak**. Metallochromic indicators of ionized Ca<sup>2+</sup>. *Ann. N.Y. Acad. Sci.* 307: 86-110. 1978.
2. A. Scarpa and **G.R. Dubyak**. Measurements of intracellular free Ca<sup>2+</sup>. in: *Regulation of Phosphate and Mineral Metabolism*. S.G. Massry, J.M. Letteri, and E. Ritz, eds. Plenum Press. New York. pp. 443-459. 1982.
3. **G. Dubyak** and A. Scarpa. New, non-destructive biophysical methods for studying cell ion content, transport, and metabolism. in: *Membranes and Tumour Growth*. T. Galleotti, A. Cittidini, G. Neri, and S. Papa, eds. Elsevier/North Holland. Amsterdam. pp. 335-343. 1982.
4. A. Scarpa and **G. Dubyak**. Single cell spectroscopy. in: *Membranes and Transport in Biosystems*. UNESCO Workshop on Biomaterial. Volume 4. pp.33-37. 1982.
5. H. Holtzer, S. Forry-Schaudies, P. Antin, **G. Dubyak**, and V. Nachmias. The tumor promoter TPA and the carcinogen EMS induce in-coordinate synthesis of muscle proteins. in: *Gene Expression in Muscle*. S. Wolf and R.C. Strohman, eds. Plenum Press. New York. 1984.
6. H. Holtzer, S. Forry-Schaudies, P. Antin, and **G. Dubyak**. Interactions between intermediate filaments, microtubules, and myofibrils in fibrogenic and myogenic cells. *Ann. N.Y. Acad. Sci.* 445: 106-125. 1985.
7. **G.R. Dubyak** and A. Scarpa. Intracellular events triggered by extracellular ATP in Ehrlich ascites tumor cells. in: *Cell Membranes and Cancer*. T. Galleotti, A. Cittidini, G. Neri, S. Papa, and L. Smets, eds. Elsevier/North Holland. Amsterdam. pp. 151-160. 1985.
8. E. Weiner, **G.R. Dubyak**, and A. Scarpa. Intracellular pH changes induced by micromolar concentrations of extracellular ATP in Ehrlich ascites tumor cells. in: *Cell Membranes and Cancer*. T. Galleotti, A. Cittidini, G. Neri, S. Papa, and L. Smets, eds. Elsevier/North Holland. Amsterdam. pp. 289-294. 1985.

9. **G.R. Dubyak** and A. Scarpa. Measurement of muscle phosphometabolites by high performance liquid chromatography. in: *The Heart and Cardiovascular System - Scientific Foundations*. H.M. Fozzard, E. Haber, R.B. Jennings, A.M. Katz, and H.E. Morgan, eds., Raven Press, New York, Volume 1, pp. 303-308. 1986.
10. D. VanWagoner, **G. Dubyak**, J. Whittombury, and A. Scarpa. Metabolism and calcium homeostasis of a single muscle cell. in: *Problems in the Biochemistry of Physical Exercise and Training*, F. Marzatico, ed., Elsevier/North Holland, Amsterdam, 1986.
11. P. Mene', **G.R. Dubyak**, and M.J. Dunn. Actions and second messengers of thromboxane A<sub>2</sub> and prostaglandins in cultured rat mesangial cells. *Proceedings of the International Society Nephrology (London)*. 1987.
12. P. Mene', **G.R. Dubyak**, S.N. Emancipator, and M.J. Dunn. Stimulation of cytoplasmic free calcium and contraction by immune complexes in cultured rat mesangial cells. *Transactions of the American Association of Physicians*. 100: 179-186. 1987.
13. **G.R. Dubyak**, D.S. Cowen, and H.M. Lazarus. Activation of the inositol phospholipid signalling system by receptors for extracellular ATP in human neutrophils, monocytes, and neutrophil/monocyte progenitor cells. *Ann. N.Y. Acad. Sci.* 551: 218-238. 1988.
14. D.S. Cowen, H.M. Lazarus, and **G.R. Dubyak**. Flow cytometric measurements of cytosolic [Ca<sup>2+</sup>] in normal and leukemic progenitor cells. *Ann. N.Y. Acad. Sci.* 551: 273-276. 1988.
15. M.S. Simonson, S. Wann, P. Mene', **G.R. Dubyak**, M. Kester, and M.J. Dunn. Endothelin activates the phosphoinositide cascade in cultured glomerular mesangial cells. *J. Cardiovascular Pharmacol.* 13: (Suppl.5): S80-83. 1989.
16. **G.R. Dubyak**. Reversible modulation of erythrocyte Ca<sup>2+</sup> homeostasis: A possible role for dialyzable plasma factors derived from patients with end-stage renal disease. *J. Lab. Clin. Med.* 114: 211-213. (Invited editorial). 1989.
17. **G.R. Dubyak** and J.S. Fedan. The biologic actions of extracellular ATP. *Comprehensive Therapy* 16: 57-61. 1990.
18. **G.R. Dubyak** and D.S. Cowen. Activation of inositol phospholipid-specific phospholipase C by P<sub>2</sub>-purinergic receptors in human phagocytic leukocytes. The role of pertussis toxin-sensitive G-proteins. *Ann. N.Y. Acad. Sci.* 603: 227-245. 1990.
19. **G.R. Dubyak** and J.S. Fedan. Editors. **Biological Actions of Extracellular ATP**. *Ann. N.Y. Acad. Sci.* Volume 603. 1990.
20. **G.R. Dubyak**. Signal transduction by P<sub>2</sub>-purinergic receptors for extracellular ATP. *Am. J. Resp. Cell Mol. Biol.* 4: 295-300. (Invited review). 1991.
21. **G.R. Dubyak** and C. El-Moatassim. Signal transduction by P<sub>2</sub>-purinergic receptors for extracellular ATP and other nucleotides. *Am J. Physiol.* (Invited review). 265: C577-C606. 1993.
22. **G.R. Dubyak**, E.E. Clifford, B.D. Humphreys, S.B. Kertesy, and K.A. Martin. Expression of multiple ATP receptor subtypes during the differentiation and inflammatory activation of myeloid leukocytes. *Drug Development Research* 39: 269-278. 1997.
23. B.B. Fredholm, M.P. Abbrachio, G. Burnstock, **G.R. Dubyak**, T.K. Harden, K.A. Jacobson, U. Schwabe, and M. Williams. New nomenclature for adenosine and P<sub>2</sub> receptors. *Trends Pharmacol. Sci.* 18: 79-82, 1997.
24. C.W. Distelhorst and **G.R. Dubyak**. Role of calcium in glucocorticoid-induced apoptosis of thymocytes and lymphoma cell lines: Resurrection of old theories by new findings. *Blood* 91: 731-734 (Refereed Review). 1998.
25. **G.R. Dubyak**. Focus on "Multiple functional P<sub>2X</sub> and P<sub>2Y</sub> receptors in the luminal and basolateral membranes of pancreatic duct cells". *Am. J. Physiol. (Cell)* 277:C202-C204 (Invited commentary), 1999.

26. **G.R. Dubyak.** Purinergic signaling at immunological synapses. *J. Auton. Nerv. Sys.* 81: 64-68. 2000.
27. **G.R. Dubyak.** Role of P2 Receptors in the Immune System. *Handbook of Experimental Pharmacology: Purinergic and Pyrimidinergic Signaling.* 151/II: 323-354. M.B. Abbracchio and M. Williams (Eds.) Springer-Verlag, Berlin. 2001.
28. **G.R. Dubyak.** Focus on " Extracellular ATP Signaling and P2X Nucleotide Receptors in monolayers of primary human vascular endothelial cells ". *Am. J. Physiol. (Cell)* 51: C242-244. (Invited commentary), 2002.
29. **G..R. Dubyak.** Perspective: Knock-out mice reveal tissue-specific roles of P2Y receptor subtypes in different epithelia. *Molec. Pharmacol.* 63: 773-776. (Invited commentary), 2003
30. **G.R. Dubyak.** Ion Homeostasis, channels, and transporters: An update on cellular mechanisms. *Adv Physiol Edu* 28: 143-154 2004.
31. **G.R. Dubyak.** P2Y Purinergic Receptors. *Encyclopedia of Biological Chemistry- 2004,* W.J. Lennarz and D.M. Lane Editors, Elsevier, 2004
32. **G. R. Dubyak.** Fundamentals of Signal Transduction. Chapter 13, *Textbook of Biochemistry with Clinical Correlations, 6<sup>th</sup> Edition.* T.M. Devlin (Editor), Wiley-Liss, Hoboken NJ. 2006.
33. **G.R. Dubyak.** ATP Release Mechanisms. *Progress in Pharmacology and Toxicology: The Roles of Nucleotides in the Regulation of Bone Formation and Resorption.* G. Burnstock and T. Arnett (Eds.) CRC Press. 2006.
34. **G.R. Dubyak.** Perspective: Go it alone no more – P2X7 joins the society of heteromeric ATP-gated receptor channels. *Molec. Pharmacol.* 72: 1402-1405. 2007.
35. Qu, Y. and **G.R. Dubyak.** P2X7 receptors regulate multiple types of membrane trafficking responses and non-classical secretion pathways. *Purinergic Signal.* 5:163-73. 2009.
36. **G.R. Dubyak.** Both sides now: multiple interactions of ATP with pannexin-1 hemichannels. Focus on "A permeant regulating its permeation pore: inhibition of pannexin 1 channels by ATP". *Am. J. Physiol. Cell.* 296:C235-C241. 2009.
37. **G. R. Dubyak.** Fundamentals of Signal Transduction. Chapter 13, *Textbook of Biochemistry with Clinical Correlations, 7<sup>th</sup> Edition.* T.M. Devlin (Editor), Wiley-Liss, Hoboken NJ. 2010.
38. **G.R. Dubyak.** P2Y Purinergic Receptors. *Encyclopedia of Biological Chemistry- 2010,* W.J. Lennarz and D.M. Lane Editors, Elsevier, 2010.
39. **G.R. Dubyak.** Charge of the Mito Brigade: Focus on "Changes in Mitochondrial Surface Charge Mediate Recruitment of Signalling Molecules During Apoptosis". *Am. J. Physiol. Cell.* 300: C11-C13, 2011.
40. **G.R. Dubyak.** Function without form: an ongoing search for maxi-anion channel proteins. Focus on "Maxi-anion channel and pannexin 1 hemichannel constitute separate pathways for swelling-induced ATP release in murine L929 fibrosarcoma cells". *Am J Physiol Cell Physiol.* 303:C913-915. 2012. PMID: PMC3492826.
41. **G.R. Dubyak.** P2X7 receptor regulation of non-classical secretion from immune effector cells. *Cell Microbiol.* 14:1697-1706. 2012. PMID: PMC3473166. (Invited Review)
42. **G.R. Dubyak.** Dueling Nucleosides: Regulation of extracellular adenosine by guanosine Editorial Focus on "Extracellular Guanosine Regulates Extracellular Adenosine Levels". *Am J Physiol Cell Physiol.* 2013 304(5):C403-405 PMID PMC: 3602644
43. **G.R. Dubyak.** P2Y Purinergic Receptors. In: Lennarz, W.J. and Lane, M.D. (eds.) **The Encyclopedia of Biological Chemistry**, Vol. 3, pp. 375-378. Waltham, MA: Academic Press. 2013.

44. C.Antonopoulos and **G.R. Dubyak**. Cancer chemotherapeutic agents engage multiple pathways for IL-1 $\beta$  production in myeloid leukocytes. *OncoImmunology* Jan 1;3(1)e27499. PMC400651. 2014.
45. T.H., Swartz, **G.R. Dubyak**, and B.K. Chen. 2015. Purinergic receptors: Key mediators of HIV-1 infection and inflammation. *Frontiers Immunol.* . Nov 26;6:585.