

**REVISED 09/29/2020**

**CURRICULUM VITAE**

**NAME:** Alphonse E. Sirica

**DATE AND PLACE OF BIRTH:** January 16, 1944; Waterbury, CT

**CITIZENSHIP:** U.S.A.

**SPOUSE:** Annette M. Sirica

**CHILDREN:** Gabrielle Theresa Sirica  
Nicholas Steven Sirica

**FORMAL EDUCATION:**

1965	B.A., St. Michael's College, Winooski Park, Vermont.
1968	M.S., Fordham University, Bronx, New York (Cell Biology).
1977	Ph.D., Biomedical Sciences, University of Connecticut Health Center, Farmington, CT (Anatomy and Cell Biology). Thesis title: "Isolation and Partial Biochemical and Metabolic Characterization of a Bile Canalicular Plasma Membrane Fraction from Regenerating Rat Liver" (Degree requirements completed 11/5/76).

**ACADEMIC POSITIONS AND FELLOWSHIPS:**

1969-1971	Research Associate and Supervisor, Drug Evaluation Division, Microbiological Associates Cancer Chemotherapy Research Laboratory, Bethesda, MD.
1972-1976	Predoctoral Fellow in Biomedical Sciences, University of Connecticut Health Center, Farmington, CT.
1976-1979	Postdoctoral Trainee, Department of Oncology, McArdle Laboratory for Cancer Research, University of Wisconsin, Madison (Sponsor: Henry C. Pitot).
1979-1984	Assistant Professor, Department of Anatomy, University of Wisconsin, Madison, WI.

- 1982-1984 Associate Member, Wisconsin Clinical Cancer Center, Madison, WI.
- 1983-1984 Member of Graduate Faculty of the Environmental Toxicology Center, University of Wisconsin, Madison, WI.
- 1984-1990 Associate Professor, Department of Pathology, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA. Tenure awarded in 1987.
- 1985-2020 Director, Program in Hepatobiliary Carcinogenesis and Experimental Liver Tumor Biology, Department of Pathology, Medical College of Virginia/VCU, Richmond, VA.
- 1989-2020 Member, Massey Cancer Center, Medical College of Virginia/VCU, Richmond, VA.
- 1990-2020 Professor with tenure, Department of Pathology, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA.
- 1992-1993 Interim Chairman, Division of Graduate Pathology Research and Education, Department of Pathology, Medical College of Virginia/VCU, Richmond, VA.
- 1993-1999 Chair, Division of Experimental Pathology, Department of Pathology, Virginia Commonwealth University-Medical College of Virginia, Richmond, VA.
- 1999-2014 Founder (1999) and Chair (1999-2014), Division of Cellular and Molecular Pathogenesis, Department of Pathology, Virginia Commonwealth University-Medical College of Virginia, Richmond, VA.
- 2001-2020 Co-Appointed Professor of Internal Medicine, Virginia Commonwealth University – Medical College of Virginia, Richmond, VA.
- 2007-2011 Leader, GI Oncology Research Initiative, Department of Pathology, Virginia Commonwealth University School of Medicine, Richmond, VA.
- 2019 Appointment to Distinguished Career Professor, Virginia Commonwealth University

2020 Appointment to Professor Emeritus of Pathology, Virginia Commonwealth University

**TEACHING EXPERIENCE:**

1972-1976 Laboratory Instructor for Medical, Dental and Graduate Students in: Cell and Molecular Biology, Tissue Biology, Pathobiology, Human Anatomy and Histology of the Cardiovascular, Respiratory, Musculoskeletal, Endocrine-Reproductive and Gastrointestinal Systems, University of Connecticut Health Science Center, Farmington, CT.

1979-1981 Anatomy 437 for Occupational and Physical Therapists, Department of Anatomy, University of Wisconsin, Madison, WI.

1982 Anatomy 711 for Medical Students, Department of Anatomy, University of Wisconsin, Madison, WI.

1980 Staff Member - Neoplastic Diseases - Course for 2nd year Medical Students, University of Wisconsin, Madison, WI.

1980-1982 Interdisciplinary Hepatic Course for 2nd year Medical Students, Department of Pathology, University of Wisconsin, Madison, WI.

1985 Course Director, Pathology 615 - The Pathobiology of Experimental Animal and Human Neoplasia - Advanced Graduate School Course, Medical College of Virginia/VCU, Richmond, VA. Served as basis for Symposium and Workshop on the Pathobiology of Neoplasia, April, 1989 and 1993.

1986 Participant in Medical Student Summer Research and Training Program in Pathology, Department of Pathology, Medical College of Virginia/VCU, Richmond, VA. Student: William R. Johnson. Project: Evaluation of UDP-glucuronyl transferase activity in hyperplastic bile ductular tissue.

1986 Provided lecture on Chemical Carcinogenesis in PAT 606, Biochemistry of Disease.

1987-1989 Served as Instructor in PAT 691-Special Topics in Modern Instrumental Methods.

- 1992-1993 Course Director of PAT 590, Experimental Pathology Seminar and PAT 697, Research in Pathology.
- 1993 Lecturer in M1 Pathology. Provided lecture to first year medical students on January 9, 1993 entitled "Paradigms in the Molecular Pathology of Multistage Carcinogenesis: Hepatocellular Carcinoma and Colorectal Adenocarcinoma".
- 1996 Participant in Summer Fellowship Program in Pathology, Department of Pathology, Medical College of Virginia/VCU. Medical Student: Mitesh Amin. Project: ERBB-2 overexpression in cholangiocarcinogenesis.
- 2002 Member, Virginia Commonwealth University's Molecular Biology and Genetics Curriculum.
- 2002 Participant in Summer Fellowship Program in Pathology, Department of Pathology, Medical College of Virginia/VCU. Medical Student: John Pham. Project: Western Blot Validation of Primary Antibody Markers Expressed in Human Cholangiocarcinomas.
- 2003 Participant in Summer Fellowship Program in Pathology, Department of Pathology, Medical College of Virginia/VCU. Medical Student: Jason May. Project: Quantitative Imaging of Cholangiocarcinoma.
- 2010 Coordinator, MICR 693: Topics in Molecular Biology and Genetics. Topic: ErbB2 receptor tyrosine kinases as molecular targets for cancer therapy. Graduate Student Presenter: Bridget Quinn. Date of Presentation: April 9, 2010.
- 2010 Guest Lecturer in CLLS 310-Clinical Immunology. Title of presentation: Translational research in hepatobiliary cancer. Department of Clinical Laboratory Science, Virginia Commonwealth University. Date of Presentation: November 18, 2010.
- 2011 Guest Lecturer in CLLS 690-Graduate Seminar. Title of Presentation: Hepatobiliary cancer progression: microenvironment, models, and molecular targeting strategies for therapy. Department of Clinical Laboratory Science, Virginia Commonwealth University. Date of Presentation: March 10, 2011.

- 2011                      Invited Visiting Faculty to the Mayo Clinic Division of Gastroenterology and Hepatology and Mayo Clinic NIH Center for Cell Signaling, Rochester, MN. Title of talk: Orthotopic and organotypic models of cholangiocarcinoma progression. Date of Presentation: June 6, 2011.
- 2015                      Faculty Mentor in BIOL 451-Biology of Cancer II. Undergraduate student intern: Mr. Leon Jia, Virginia Commonwealth University, January 2015-April 2015.
- 2015                      Laboratory Research Rotation Advisor in Clinical and Translational Science Ph.D. Graduate Program. Course Number: CCTR697, Directed Research in CTS (6 credits); Ph.D. Graduate Student: Ms. Fatmata Sesay, Virginia Commonwealth University, September 10, 2015-November 2, 2015. Project: Quantitative imaging of dense tumor stromal collagen in a rat model of desmoplastic intrahepatic cholangiocarcinoma.

**MEMBERSHIP - PH.D. and M.S. GRADUATE COMMITTEES:**

Major Ph.D. Adviser for Lynne W. Elmore, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1989-1993; Ph.D. awarded 1993.

Major Adviser for Connie Wilkerson, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1987-1989; M.S. awarded 1989.

Major Adviser for Paul D'Amico, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1985-1986; M.S. awarded 1986.

Major Adviser for Herbert Cihla, Department of Pathology, University of Wisconsin, Madison; M.S. awarded 1985.

Member, Graduate Committee for Chao Li, (Major Adviser: Shawn E. Holt) VCU Department of Human and Molecular Genetics, Richmond, 2010-2011. M.S. requirements successfully completed in June, 2011. Supported Chao Li with R01 grant research dollars and provided him with training and laboratory experience while he completed his Master's degree. This training allowed him to be a co-author on a paper from Sirica Lab published separately from his graduate research.

Member of Ph.D. Graduate Committee for Sharon R. Collins-Presnell (Major Adviser: Stephen C. Strom), Department of Pathology, Medical College of Virginia/VCU, Richmond, 1992-1993. Major Program Adviser, 1993-1995; Thesis Adviser, Dr. Stephen C. Strom; Ph.D. awarded 1995.

Temporary Ph.D. Adviser for Victoria Bae, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1991-1992. Member of Ph.D. Graduate Committee for Victoria Bae (Major Adviser: Joy L. Ware), Department of Pathology, Medical College of Virginia/VCU, Richmond, 1993-1995; Ph.D. awarded 1995.

Member of Ph.D. Committee for Linda MacArthur (Major Adviser: Eric Westin), Department of Microbiology, Medical College of Virginia/VCU, Richmond, 1986-1989.  
Member of Ph.D. Committee for Lisa Schaffer (Major Adviser: Judith Brown), Department of Genetics, Medical College of Virginia/VCU, Richmond, 1986-1987.

Member of Ph.D. Prelim/Dissertation Committee for Bruce W. Steinert (Major Adviser: Terry Oberley), Department of Pathology, University of Wisconsin, Madison, 1983.  
Member of Ph.D. Thesis Committee for Chris Turner (Major Adviser: Colin R. Jefcoate), Department of Pharmacology, University of Wisconsin, Madison, 1983.

Member of Ph.D. Thesis Committee for Craig Hill (Major Adviser: Larry Lemanski), Department of Anatomy, University of Wisconsin, Madison, 1983.

Member of Ph.D. Prelim/Dissertation Committee for Neil Wilson (Major Adviser: Colin R. Jefcoate), Department of Pharmacology, University of Wisconsin, Madison, 1983.

Member of Ph.D. Thesis Committee for Michael D. Bartolomeis (Major Adviser: Colin R. Jefcoate), Department of Pharmacology and Environmental Toxicology Graduate Program, University of Wisconsin, Madison, 1982.

Member of Ph.D. Thesis Committee for Anna L. Shen (Major Adviser: Colin R. Jefcoate), Department of Pharmacology, University of Wisconsin, Madison; Thesis approved August 1, 1980.

Member of Ph.D. Thesis Committee for Rebecca A. Fuldner (Major Adviser: Larry F. Lemanski), Department of Anatomy, University of Wisconsin, Madison.

### **POSTDOCTORAL FELLOWS AND TRAINEES:**

1. Dr. Georg Mathis, January, 1987 - January, 1989. Accepted position as an Assistant Professor in the Department of Pharmacology of the University of Zurich School of Veterinary Medicine.
2. Dr. Nobuya Sano, March, 1989 - April, 1990. Resumed position in the Department of Pathology at the University of Tokushima School of Medicine.
3. Dr. Svetlana Radaeva, October, 1996 - October, 1998. Obtained position as Research Fellow in the Section of Liver Biology, National Institute on Alcohol Abuse and Alcoholism, NIH.

4. Dr. Ping Ren, September, 1997 - August, 1999. Obtained position as a Research Fellow at the National Heart, Lung and Blood Institute, NIH.
5. Dr. Guan-Hua Lai, September, 1997 – June, 2006. Promoted to Postdoctoral Research Associate in September, 2002. Admitted to Pathology Residency Program at Virginia Commonwealth University School of Medicine, July 1, 2006. Appointed to faculty of VCU Department of Pathology in 2012.
6. Dr. Zichen Zhang, November, 1999 – December, 2007. Promoted to Postdoctoral Research Associate in November, 2002. Obtained position as Histopathology Technician (Clinical) and Clinical Laboratory Scientist (Research), Department of Pathology, University of Virginia. In August 2008 obtained clinical laboratory position in VCU's Department of Pathology.
7. Dr. Kanenori Endo, June, 2000 – March, 2002. Obtained residency position in the Department of Surgery, Nojima Hospital, Japan.
8. Dr. Byung-IL Yoon, January, 2001 – August, 2002. Obtained faculty position at Kangwon National University, Republic of South Korea.
9. Dr. Seela Ramesh, VCU GI Fellow, July, 2003-June, 2004. Continued as a Clinical Fellow in the Division of Gastroenterology at Virginia Commonwealth University School of Medicine.
10. Dr. Toru Asano, Postdoctoral Research Scientist, June, 2004-June, 2006. Obtained position in the Department of Gastroenterology and Hepatology at Tsukuba University with a clinical appointment to Tsukuba-Kinen Hospital, Tsukuba City, Ibaraki, Japan.
11. Dr. Arvind Mahatme, VCU Surgical Oncology Fellow, January, 2006-May, 2007. Completed fellowship and obtained a private practice position in Williamsburg, VA as a Surgical Oncologist.
12. Dr. Lingli Li, January, 2008- October 2008. Terminated position to be with family.
13. Dr. Olorunseun O. Ogunwobi, March 2008- February 2009. Completed 1 year of postdoctoral training as initially contracted.
14. Dr. Jorge A. Almenara, April, 2008-September 2008. Obtained position as Affiliate Assistant Professor in the Department of Pathology.

15. Dr. LaToya Griffin-Thomas, August, 2009-February, 2010. Awarded Massey Cancer Center NIH T32 Postdoctoral Fellowship (Kirschstein-NRSA Trainee), 2010. Resigned position February 19, 2010.
16. Dr. Regina Adenike Oyesanya, August, 2009-August, 2010. Obtained a second postdoc position in VCU's Department of Human and Molecular Genetics.
17. Dr. Akihiro Usui, September 24, 2013-February 24, 2015. Obtained staff position as GI Surgeon-Researcher in the Department of Frontier Surgery , Chiba University Hospital, Japan
18. Dr. Miguel Á. Manzanares-Serrano, October 25, 2015-June 30, 2017. Obtained second postdoc position at New York University.

**VISITING SCIENTISTS/SCHOLARS:**

1. Dr. Harriet C. Isom, Professor of Microbiology, Pennsylvania State University College of Medicine, M. S. Hershey Medical Center, Hershey, PA. Sabbatical September 1991-February 1992. Recipient of a Wellcome Visiting Professorship in Pathology at the Medical College of Virginia, VCU in May 1992.
2. Tadashi Terada, M.D., Ph.D., Associate Professor of Pathology, Second Department of Pathology, Kanazawa University School of Medicine, Kanazawa, 920 Japan. Obtained position as: Professor and Chairman of Pathology, Second Department of Pathology, Tottori University Faculty of Medicine, Yonago 683, Japan. Period of Visiting Professorship: July 15, 1995 - January 25, 1996.
3. Yawei Qian, M.D., Visiting Scholar (Ph.D. student), Department of Biliary and Pancreatic Surgery, Hepato Biliary Pancreatic Research Institute, Affiliated Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, 430030, P.R. China. Visiting Scholar Term: March 24, 2016-March 24, 2017.
4. Wei Yao, M.D., Visiting Scholar (Ph.D. student), Department of Biliary and Pancreatic Surgery, Hepato Biliary Pancreatic Research Institute, Affiliated Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, 430030, P.R. China. Visiting Scholar Term: March 21, 2017-October 25, 2017.

**VCU PATHOLOGY SUMMER FELLOWSHIP MEDICAL STUDENTS:**

1. William R. Johnson - 1986
2. Mitesh Amin - 1996
3. John Pham - 2002
4. Jason May – 2003



**MEMBERSHIP - SCIENTIFIC SOCIETIES:**

1. The American Society for Cell Biology (1980-present; Emeritus Member, 2020)
2. The American Association for Cancer Research (1984-present)
3. American Society for Investigative Pathology (formerly American Association of Pathologists). (1982-present)
4. Society for In Vitro Biology (formerly Tissue Culture Association) (1980-present; Emeritus Member 2020)
5. American Association for the Advancement of Science (1980-present)
6. The New York Academy of Sciences (1980-present; Emeritus Member 2020)
7. Association of Clinical Scientists. (1985-present; FACSc, 2015; Emeritus Member, 2020)
8. American Association for the Study of Liver Diseases (1989-present; FAASLD, 2014; Emeritus Member, 2020)
9. Society for Experimental Biology and Medicine (1993-present; Emeritus Member 2020)
10. Hans Popper Hepatopathology Society (1993-present; Emeritus Member, 2020)
11. Society of Toxicology (1995-present; Retired Member, 2020)
12. American Gastroenterological Association. (2001-present; AGAF, 2009; Senior Member, 2020)
13. International Society for the Study of Comparative Oncology (2002-2004)
14. Member, Program Committee, American Society for Investigative Pathology, 1990-1996. Program Coordinator for General and Organ-Specific Pathology, 1991-1993. ASIP representative to Experimental Biology '93, Experimental Biology '94 and Experimental Biology '95 Theme Committee. Program Committee Chair-Elect, ASIP, July 1, 1993-June 30, 1994. Program Committee Chair, 1994-1996. Member, Experimental Biology Program Committee, 1994-1995.
15. American Society for Clinical Pathology (ASCP) (2013-present; Emeritus Member 2021)
16. Chairperson, American Association for Cancer Research's State Legislative Committee for Virginia, 1992-1995.
17. Abstract Reviewer for the American Association for the Study of Liver Diseases, 2002.
18. Member, American Association for the Study of Liver Diseases Special Interest Group, Hepatobiliary Neoplasia., September 2007-present.

**ACADEMIC HONORS AND AWARDS:**

Recipient, NIH-USPHS Predoctoral Fellowship, 1972-1976.

Recipient, NIH-USPHS Postdoctoral Traineeship, 1976-1979.

Recipient, 1996 Virginia Commonwealth University Laboratory Safety Award presented on 1/28/97.

Recipient, 2000 Burroughs Wellcome Visiting Professorship in the Basic Medical Sciences (Pathology) at Pennsylvania State University College of Medicine, 10/10/00-10/13/00. Sponsored by the Burroughs Wellcome Fund and the Federation of American Societies for Experimental Biology.

Recipient, VCU School of Medicine Research Recognition Award, April 30, 2002.

Recipient, VCU School of Medicine Recognition Award for Research and Scholarship, June 26, 2007.

Inducted as a Fellow of the American Gastroenterological Association (AGAF), January 1, 2009.

Visiting Faculty Member, Mayo Medical Center, Rochester, MN, June 6, 2011

Dr. and Mrs. Michael A. Gerber Memorial Lectureship, Tulane University, April 11, 2012

John F. Sander and Nancy K. Dunkel Memorial Lectureship Speaker in Physiology, Michigan State University, November 29, 2012.

Keynote Speaker, Hollings Cancer Center 2013 Spring Symposium on "Models of Human Cancer for Translational Research", Medical University of South Carolina, March 15, 2013.

Inducted as a Fellow of the American Association for the Study of Liver Diseases (FAASLD), September 8, 2014.

Marquis Who's Who VIP List, 2017

Albert Nelson Marquis Lifetime Achievement Award, November 1, 2017

Recognized by Expertscape as an Expertscape World Expert in Cholangiocarcinoma (Top 0.1% Expert), June 28, 2019

Appointment to Distinguished Career Professorship, Virginia Commonwealth University, Approved by Marsha Rappley, M.D., Senior Vice President for Health Sciences, CEO, VCU Health System, August 15, 2019. Finalized 11/12/19.

**Listings:**

American Men and Women of Science - 15th and 16th Edition.

Who's Who in Frontiers of Science and Technology - 1st and 2nd Edition.

Who's Who in Science and Engineering - 1st Edition (1992-1993); 2nd Edition (1994-1995); 3rd Edition (1996); 4th Edition (1998-1999); 5th Edition (Millennium Edition), 2000; 6th Edition (2002-2003); 7th Edition (2003-2004); 8th Edition (2005-2006); 9th Edition (2006-2007); 10th Edition (2008-2009); 11th Edition (2011-2012); 12th Edition (2016-2017).

Special Index Section, Who's Who in America - 47th Edition, 1993.

Who's Who in the World - 12th Edition (1995-1996); 13th Edition; 14th Edition; 15th Edition; 17th Edition (Millennium Edition); 21st Edition (2004); 22nd Edition (2005); 23rd Edition (2006); 24th Edition (2007); 25th Silver Anniversary Edition (2008); 26th Edition (2009); 27th Edition (2010); 28th Edition (2011); 29th Edition (2012); 30th Edition (2013); 31st Edition (2014); 32nd Edition (2015).

Who's Who in the South and Southwest - 24th Edition, (1995-1996); 26th Edition, (1999-2000); 42nd Edition (2016).

Who's Who in America (Golden Anniversary 50th Edition), 1996; 51st Edition, 1997; 52nd Edition, 1998; 53rd Edition, 1999; Millennium (54th) Edition, 2000; 55th Edition, 2001; 56th Edition, 2002; 57th Edition, 2003; 58th Edition, 2004; 59th Edition, 2005; 60th Diamond Edition, 2006; 61st Edition, 2007; 62nd Edition, 2008; 63rd Edition, 2009; 64th Edition, 2010; 65th Edition, 2011; 66th Edition, 2012; 67th Edition, 2013; 68th Edition, 2014; 69th Edition, 2015; 70th Edition, 2016.

Who's Who in Medicine and Healthcare (1997-1998); 1st Edition; 5th Edition (2004-2005); 6th Edition (2006-2007); 7th Edition (2009-2010); 8th Edition (2011-2012).

Who's Who in American Education-6th Edition. (2004-2005).

**SERVICE, PROFESSIONAL AND PUBLIC:**

As a participant in the diagnostic service at the McArdle Laboratory for Cancer Research, was involved in providing histopathological diagnoses of neoplastic disease in experimental animals, 1977-1979.

Member, Graduate Admissions and Recruiting Committee, Department of Anatomy, University of Wisconsin, Madison, 1980-1982.

Member, Research Committee, Department of Anatomy, University of Wisconsin, Madison, 1982-1983.

Member, Space Committee, Department of Anatomy, University of Wisconsin, Madison, 1982-1983.

Participant, Postdoctoral training program in Environmental Toxicology and Pathology, University of Wisconsin, Madison, 1981-1984.

Participant, Graduate Studies in the Biochemical Sciences and Molecular Biology, University of Wisconsin, Madison, 1981-1984.

Member, Seminar Committee, Department of Anatomy, University of Wisconsin, Madison, 1983-1984.

Member, Graduate Program Committee, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1984-1993.

Chairman, Faculty Search in Experimental Pathology, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1986-1987.

Member, Grand Rounds Planning Committee, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1986-1987.

Member, Dean's Search Committee for Chairman of Radiation Oncology, Medical College of Virginia/VCU, Richmond, 1986-1987.

Member, Department of Pathology's Committee on Eminent Scholars, Medical College of Virginia/VCU, Richmond, 1987.

Member, Department of Pathology's Tenure Review and Promotions Committee for Dr. Jan Silverman (Faculty Candidate), Medical College of Virginia/VCU, Richmond, 1987.

Member, Department of Pathology's Executive Committee, Medical College of Virginia/VCU, Richmond, 1988-2014 (Reappointed September, 1991 and in April, 1993-2014).

Dean's Representative to Ph.D. Thesis Defense of Robert Steighner, Department of Pharmacology and Toxicology, Virginia Commonwealth University, Richmond, 1988.

Dean's Representative to the Department of Anesthesiology Promotion and Tenure Committee for Dr. Joel Berberich, Medical College of Virginia/VCU, Richmond, 1988.

Coordinator, Department of Pathology's Retreat Committee on Basic Research and Education, Medical College of Virginia/VCU, Richmond, 1988-1989.

Member, Department of Pathology's Committee to Review Existing Academic Programs, Medical College of Virginia/VCU, Richmond, 1988-1989.

Member, Scientific Working Group, Massey Cancer Center, Medical College of Virginia/VCU, Richmond, 1989-1991.

Member, Department of Pathology's Long Range Planning Subcommittee, Medical College of Virginia/VCU, Richmond, 1989.

Chairman, Committee to Restructure Pathology Grand Rounds, Department of Pathology, Medical College of Virginia/VCU, Richmond, June 1989.

Member, Medical Student Research Committee for the Class of 1993, Medical College of Virginia/VCU, Richmond, 1989-1993.

Director, Pathology Grand Rounds, Department of Pathology, Medical College of Virginia/VCU, Richmond, 1989-1991.

Special Program Reviewer for The New York Academy of Sciences, February 12, 1990.

Member, Program Committee, American Society for Investigative Pathology (American Association of Pathologists, Inc.), F.A.S.E.B., April, 1990- June, 1996.

Program Coordinator for General and Organ-Specific Pathology, 1991-1993. ASIP representative for topic area Epithelial Cell Biology for Experimental Biology '93, Experimental Biology '94, and Experimental Biology '95.

Chairman, Department of Pathology's Tenure Review Committee for Dr. Stephen Strom, Medical College of Virginia/VCU, Richmond, 1990.

Dean's Representative to Ph.D. oral comprehensive examination for Kathy Zoghby, Department of Microbiology and Immunology, Virginia Commonwealth University, Richmond, February 28, 1991.

Dean's Representative to Ph.D. oral examination for James Karras, Department of Pharmacology and Toxicology, Virginia Commonwealth University, Richmond, August 21, 1991.

Member, Medical College of Virginia/VCU/McGuire Veterans Medical Center Institutional Animal Care and Use Committee, September, 1991-February, 1993.

Chair, Department of Pathology's Committee on Graduate Education Programs, Medical College of Virginia, VCU, Richmond, September, 1991-January, 1992.

Chairperson, American Association for Cancer Research's State Legislative Committee for Virginia. Three-year appointment, 1992-1995.

Chair and Program Director, Graduate Education Committee in the Department of Pathology, Medical College of Virginia, VCU, Richmond, July 1, 1992- June 30, 1993.

Program Director, Department of Pathology Graduate Program - Department of Pathology Representative to the MCV Graduate Committee, July, 1992-July, 1993.

Dean's Representative to Ph.D. oral comprehensive examination for Patricia Karen Sullivan, Department of Microbiology and Immunology, Virginia Commonwealth University, Richmond, February 26, 1993.

Member, Department of Pathology's Search Committee for Director of the Division of Molecular Diagnostics, Medical College of Virginia, VCU, 1993.

Program Committee Chair-Elect, American Society for Investigative Pathology, July, 1, 1993 - June 30, 1994. Program Committee Chair, July 1, 1994 - June 30, 1996. Member, Experimental Biology Program Committee, 1994-1995.

As Program Committee Chair, Member of the Council of the American Society for Investigative Pathology, 1994-1996.

Member, Department of Pathology's Strategic Planning Committee for Electron Microscopy, Medical College of Virginia, VCU, July, 1995 - November, 1995.

Member, Department of Pathology's Strategic Planning Committee - Chair of Graduate Education and Research Subcommittee, MCV-VCU, August - October, 1995.

Chairman, Department of Pathology's Peer Review Promotion Committee for Dr. Joy L. Ware, Medical College of Virginia, VCU, Richmond, 1996.

Chairman, Experimental Pathology Faculty Search Committee, Department of Pathology, Medical College of Virginia, VCU, Richmond, July 1997-June 9, 1998. Selected Dr. Shawn Holt for Assistant Professorship in the Division of Experimental Pathology of the Department of Pathology.

Member, Department of Surgery's Promotion and Tenure Committee to review two candidates, Medical College of Virginia, VCU, Richmond, August-October, 1997.

Member, Department of Pathology's Strategic Planning Subcommittee on Research, Medical College of Virginia, VCU, Richmond, 1999.

Outside Reader, Ph.D. Thesis Defense for Lori Berry, Brown University, Providence, RI, November 8, 2000.

Member, School of Medicine's Strategic Research Advisory Group, Medical College of Virginia, VCU, Richmond, 2001.

External Adviser for P01 National Cancer Institute Research Grant Project on prostate cancer bone metastasis: biology and targeting (Leland Chung, Ph.D., Principal Investigator), September 10, 2001 - 2015.

Abstract Reviewer, Cell Proliferation & Carcinogenesis: Gene Transfer & Gene Therapy Review Group, American Association for the Study of Liver Diseases, June/July, 2002.

Chair, Department of Pathology's Promotion Review Committee for Dr. Shawn Holt, Medical College of Virginia, VCU, Richmond, July – November, 2002.

External Adviser, COBRE Center for Cancer Research Development (P20 RR017695), Rhode Island Hospital (P.I., Douglas C. Hixson) September, 2002 - May, 2006. Chair of COBRE External Advisory Committee, July, 2003-June, 2005.

Member, Department of Pathology's Search Committee to recruit a new faculty member for the Division of Molecular Diagnostics, Medical College of Virginia, VCU, Richmond, December, 2003-March, 2004.

Member, School of Medicine's Research Space Advisory Group, Virginia Commonwealth University, 2004-2005.

Outside Reviewer, University of Pittsburgh's School of Medicine's Standing Committee for Tenured Faculty Promotions and Appointments to review Dr. Tong Wu for academic promotion to Associate Professor of Pathology in the tenure stream on the Faculty of Medicine, February, 2005.

Chair, Department of Pathology's Search Committee to recruit an Assistant Professor into the Division of Cellular and Molecular Pathogenesis, Medical College of Virginia Campus of Virginia Commonwealth University, June, 2005 - August, 2005. Dr. Lynne W. Elmore hired into the position.

Chair, Department of Pathology's Tenure Review Committee for Dr. Youngman Oh, Medical College of Virginia Campus of Virginia Commonwealth University, July, 2005-October, 2005.

Member, VCU Division of Gastroenterology's GI Researcher Recruitment Committee, April 13, 2006-2008.

Member, Virginia Commonwealth University Faculty Senate, August, 2006-May, 2009.

Chair, VCU's Department of Pathology's Junior Faculty Mentoring Committee for Dr. David Williams, 2007-2008. (Appointed to Committee in July, 2007).

Chair, VCU's School of Medicine GI Oncology Research Initiative Faculty Search Committee, September 2007-2011.

Director, Board of Directors of CanLiv – The Hepatobiliary Cancers Foundation, May 2008-2011.

Member, VCU's Department of Pathology Grand Rounds Committee, June 2010-2014.

Chair, VCU's Department of Pathology Promotion Committee for Dr. Lynne W. Elmore, June 2011- October 2011.

Member of the 2014 Program Committee of the American Association for Cancer Research (AACR), December 2013-February 2014.

Member, Division Chair of Cellular and Molecular Pathogenesis Search Committee, VCU Department of Pathology, July 2014-October 2016.

Member, VCU's Department of Pathology Ad Hoc Promotion Committee for Guanhua Lai, M.D., Ph.D., May 2019-September 19, 2019.

**Journal Reviews:**

1980	Journal of the National Cancer Institute.
1980-1993, 1999, 2001, 2003	Cancer Research.
1981, 1982, 1987, 1989-1992, 1994	Journal of Cellular Physiology.
1982, 1985, 1991-2000, 2003, 2012, 2014	American Journal of Pathology.
1987-2020	Reviewing Editor for In Vitro Cellular and Developmental Biology-Animal.
1987, 1989-1992, 1995-1997, 1999	Carcinogenesis.
1987	Archives of Biochemistry and Biophysics.
1988	Biochemical Pharmacology.
1988	The Journal of Laboratory and Clinical Medicine.
1989 1990	Special Contributing Editor, Pathology and Immunopathology Research (Editor for papers received from The Symposium and Workshop on the Pathobiology of Neoplasia held in Richmond, Virginia, April 24-28, 1989).
1989, 1993, 1994, 2002, 2004, 2005	Proc. National Academy of Sciences USA.



1990-1998/1999	Member of Editorial Board of Pathobiology.
1990	Molecular Carcinogenesis.
1990	Developmental Biology.
1990	The American Journal of Anatomy.
1991-1994	Member of Editorial Board of Hepatology.
1995-1996, 1998-2000, 2002, 2003, 2004, 2005, 2007, 2009, 2012, 2013	Hepatology.
1991,1992, 1996, 1997, 2002, 2004	Gastroenterology.
1992	The Journal of Clinical Investigation.
1992	International Journal of Cancer.
1992,1996,1997	Liver.
1999 - present	Member of Editorial Board of Experimental and Molecular Pathology.
2003	Clinical Cancer Research.
2003 2006; 2007-2009	DNA & Cell Biology. Member of Editorial Board of the World Journal of Gastroenterology
2010-present	Member of Editorial Board of Annals of Clinical and Laboratory Science
2010, 2013	Annals of Clinical and Laboratory Science
2012	Science Translational Medicine
2012	Experimental Cell Research
2013	British Journal of Cancer
2014	BMC Cancer

- 2019 Nature Biomedical Engineering
- 2019 Nature Reviews Gastroenterology and Hepatology

**Grant Reviews:**

- Reviewer for Environmental Protection Agency, December 16, 1980.
- Study Section - NIH, March 23-25, 1982. Reviewer - Role of Tumor Promoters, Hormones, and Other Co-factors in Human Cancer Causation - National Cancer Institute RFA, NIH-NCI DCCP-CPCB, 1981-1982.
- Member, Cancer Preclinical Program Project Site Visit Committee, National Cancer Institute, NIH - Site Visit at Purdue Cancer Center, West Lafayette, IN, February 15-17, 1984.
- Chairman, Special Study Section - National Cancer Institute, NIH, November 6, 1984.
- Ad Hoc Member, Metabolic Pathology Study Section, NIH, 1985.
- Member, National Cancer Institute Cancer Center Site Visit Team to Wistar Institute, Philadelphia, PA, 1986.
- Ad Hoc Reviewer, Pathology B Study Section, NCI, June 17-22, 1986.
- Reviewer, Veterans Administration Research Grant Program, October 1986.
- Reviewer, American Cancer Society Advisory Committee on Biochemistry and Chemical Carcinogenesis, February 2-3, 1987.
- Reviewer for a Jeffress Research Grant from the Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust, March 23, 1987.
- Reviewer for Environmental Protection Agency Research Cooperative Agreement, May 26, 1987.
- Reviewer for a Cottrell College Science Grant submitted to the Research Corporation, November 24, 1987.
- Ad Hoc Reviewer, Division of Extramural Activities, National Cancer Institute, June 15, 1988.

- Regular Member, American Cancer Society Study Section (National Office), Scientific Advisory Committee on Biochemistry and Chemical Carcinogenesis, 1/01/89-6/30/92. Committee reorganized in May/June 1989. Appointed to Scientific Advisory Committee on Carcinogenesis and Nutrition 6/21/89-6/30/92.
- Reviewer for a Jeffress Research Grant from the Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust, March 7, 1989.
- Reviewer of a grant proposal to the Swiss National Science Foundation, Division of Biology and Medicine, April 17, 1989.
- Special Reviewer, American Cancer Society (National Office) Research Development Program, May 11, 1989.
- Ad Hoc Reviewer for a United States Environmental Protection Agency Grant, June 14, 1989.
- Special Outside Reviewer, Pathology B Study Section, NCI, NIH, January 8, 1990.
- Special Outside Reviewer, Metabolic Pathology Study Section, NCI, NIH, May 15, 1990.
- Ad Hoc Member, Clinical Sciences Study Section Subcommittee 1, NIH, July 19, 1990.
- Reviewer, RFA 90-CA-09, Viral Oncogenesis and Pathogenesis of Hepatocellular Carcinoma, NCI, NIH, November 28-30, 1990.
- Reviewer, Veterans Administration Research Grant Program, Dept. of Veterans Affairs, February, 1991.
- Ad Hoc Reviewer for a United States Environmental Protection Agency Grant, July 22, 1991.
- Regular Member, Metabolic Pathology Study Section, NCI, NIH, July 1, 1991 to June 30, 1995.
- Member, National Institute of Child Health and Human Development Reverse Site Visit Special Review Committee for 1P50 HD 28516-01A1. Boston Perinatal Emphasis Research Center, Bethesda, MD, September 18, 1992.
- Member, Special Review Committee, NIH Experimental Therapeutics-2 (AHR-M2) Study Section, ET-2-(AHR-M2) PHYS, Telephone Conference to review 1R01 CA 62517-01 AHR-M2, July 28, 1993.

- Reviewer, Merit Review Application, Merit Review Board for Oncology, Veterans Health Services and Research Administration, Department of Veteran Affairs, August 23, 1993.
- Member of Special Review Committee to review NIH Conference Grant 1R13CA65923-01, July 18, 1994.
- Member, Special Review Committee, NIH/National Cancer Institute, Pathology B Study Section to review grant applications 2R01CA36701-10A1 and 1R01AG12442-01A1, November 16, 1994.
- Member, Special Review Committee, NIH/National Cancer Institute Pathology B Study Section to review grant application 2R01CA25951-15A1, February 9, 1995.
- Member, National Institute of Health Reviewers Reserve, August 1, 1995 - July 31, 1999.
- Member, NIH-NCI Site Visit Team to review 1P01CA70400-01; Cholangiocarcinoma: Environmental Risk for a Rare Cancer, The Johns Hopkins University School of Hygiene and Public Health, September 18-20, 1995.
- Ad Hoc Reviewer, Medical Research Council of Canada, October 25, 1996. (Reviewer Reference: 96090P-34232-CB-D).
- Reviewer, Review of grant application 1R13 CA 75276-01 for Contracts Review Branch, Division of Extramural Activities, National Cancer Institute, NIH, February 7, 1997.
- Member, NIH Special Study Section Meeting: ZRG2 SSS-1 - Biological and Physiological Sciences Special Emphasis Panel to review Postdoctoral grant applications. Bethesda, MD, March 31-April 1, 1997.
- Member, National Cancer Institute Review Panel Site Visit to review 2P01 CA22484-21; Biochemistry and Genetics of Chemical Carcinogenesis, at the McArdle Laboratory for Cancer Research, University of Wisconsin-Madison, June 4-6, 1997.
- Member, National Institutes of Health Special Study Section Meeting: ZRG2 SSS-1 (2); Biological and Physiological Sciences Special Emphasis Panel to review Postdoctoral grant applications. Rockville, MD, July 17-18, 1997.
- Member, National Institutes of Health Special Emphasis Panel Meeting: ZRG2 PATH B to review grant application 1F32 CA 76776. Rockville, MD, July 17, 1997.

- Temporary Member, National Cancer Institute Scientific Review Group, Subcommittee C-Basic and Preclinical Sciences. August 4-6, 1997.
- Member, Biological and Physiological Sciences Special Emphasis Panel ZRG2 SSS-1(4) to review grants 2 R01 CA 23931-21, 2 R01 CA 59486-06, and 1 R01 CA 74270-01A1. Telephone Conference, November 18, 1997.
- Ad Hoc Member, Metabolic Pathology Study Section, NCI, NIH, February 23-25, 1998.
- Member, NIH Oncological Sciences Initial Review Group Special Emphasis Panel ZRG2 PTHB (1) to review 2 R01 CA/DK 69529-04 and CA 64865-05. Telephone Conference, April 7, 1998.
- Ad Hoc Member, Metabolic Pathology Study Section, NCI, NIH, June 23-25, 1999.
- Member, Special Emphasis Panel ZRG1 ET-2 01, Experimental Therapeutics -2 Study Section, NIH. Telephone Conference Review, April 12, 2000.
- Ad Hoc Member, NCI-C GRB-P (K5) NIH Review Group to review 2 P01 CA 077739-06. NIH Telephone Conference Review, March 13, 2003.
- Chair, NIH Special Emphasis Panel-ZRG1 CAMP 05 "Transcriptional Regulation of Liver Growth and Cancer" to review R01 CA 104578-01 and 2R01 DK 054687-06. NIH Telephone Conference Review, June 5, 2003.
- Ad Hoc Member, Subcommittee C-Basic & Preclinical National Cancer Institute Review Group, National Cancer Institute, NCI-C RPRB (S7) to review NIH grant 2P01 CA077739-06 A1. NIH Telephone Conference Review, October 3, 2003.
- Ad Hoc Member, Subcommittee C-Basic and Preclinical, National Cancer Institute Initial Review Group, NCI-C RPRB (S2) Prostate Cancer Cluster Review Committee, National Cancer Institute, May 20-21, 2004.
- Member, ZRG1 DIG-C 02 M, Member Conflicts: CIGP, CGMB, GMPB, HBPP, Special Emphasis Panel, National Institutes of Health, July 11, 2005.
- Member, 2006/01 ZRG1 DIG-C 02 M, Member Conflicts CIGP and HBPP, Special Emphasis Panel, National Institutes of Health, November 11, 2005. (Teleconference).
- Ad Hoc Member, Gastrointestinal Cell and Molecular Biology (GCMB) Study Section, National Institutes of Health, June 5-6, 2006.
- Ad Hoc Member, Hepatobiliary Pathophysiology (HBPP) Study Section,

National Institutes of Health, February 11-12, 2008.

- Ad Hoc Member, Hepatobiliary Pathophysiology (HBPP) Study Section, National Institutes of Health, October 6-7, 2008.
- Reviewer, ZCA1 RPRB-O (M1) Cellular & Tissue Oncology P01 Special Emphasis Panel, National Cancer Institute Scientific Review Group, National Institutes of Health, March 1-3, 2010.
- Reviewer, ZCA1 GRB-P (01) Special Emphasis Panel-Drug Discovery, Chemoprevention, and Targeted Therapy P01 Review Group. National Cancer Institute, National Institutes of Health. Held May 25-27, 2010.
- Reviewer, ZCA1 GRB-I (J1) SPORE in Sarcoma, Brain, Liver, Lung, and Prostate Cancers. National Cancer Institute, National Institutes of Health. Held September 29-30, 2010.
- Discussion Leader, 2012/10 ZCA1 RPRB-0 (O1) P-NCI Program Project Review Panel Meeting 1. National Cancer Institute, National Institutes of Health. Held June 14-15, 2012

### **AREA OF RESEARCH INTEREST:**

Liver carcinogenesis and pathobiology; cellular and molecular mechanisms regulating biliary epithelial cell differentiation, proliferation and neoplastic transformation; bile ductular cell isolation and culture; liver stem cells, experimental therapeutics and chemoprevention of cholangiocarcinoma.

### **RESEARCH SUPPORT**

1. Recipient of American Cancer Society Institutional Research Grant IN-35T-8 (University fund number 133-D159): Isolation and Characterization of Different Populations of Preneoplastic and Neoplastic Hepatocytes from Rat Liver. January 1, 1980 to December 31, 1980. Amount awarded - \$5,000.
2. Recipient of Medical School Research Committee Award 150-2044, University of Wisconsin, March 1, 1980 to June 30, 1980. Amount awarded - \$18,600.
3. Recipient of University Research Committee Award 101278 and 110717, University of Wisconsin, January 1980 to December 1980. Amount awarded - \$2,000.
4. Co-director with Dr. Henry C. Pitot of National Cancer Institute Contract NO1-CP-85609: DNA Repair Studies in Cultured Hepatocytes. Renewed May 29, 1980 to March 28, 1981. Amount awarded - \$52,797.

5. National Cancer Institute Grant 1R23 CA 29401-01 (Young Investigator Award - 3-year period): Isolation of Preneoplastic Cell Populations from Rat Liver. Awarded January 1, 1981. Amount awarded 1st year - \$37,140. Amount awarded 2nd year - \$37,500. Amount awarded 3rd year - \$32,500. Total amount of award - \$107,500. End of award, June 30, 1984.
6. Recipient of University Research Committee Award 120697, University of Wisconsin, July 1, 1981 to December 31, 1981. Amount awarded - \$5,900.
7. National Cancer Institute Grant 1 RO1 CA 30102-01 (3 year period): Studies on Hepatic Oval Cells in Culture and In Vivo. Awarded September 30, 1981. Amount awarded 1st year - \$49,151 (9 mos.). Amount awarded 2nd year - \$66,449. Amount awarded 3rd year - \$70,402. Total direct cost amount of award - \$186,002. End of award, June 30, 1984.
8. National Cancer Institute Grant 1 RO1 CA 39225 (for July 1, 1984 to December 31, 1987): Studies on Hepatic Oval and Bile Ductular Cells in Culture and In Vivo. Total amount of grant - direct cost - \$276,582.
9. Co-Principal Investigator - Contract from Virginia State Department of Health (for October 1, 1984 to June 30, 1986): Evaluation of Kepone in a Two-Stage Hepatocarcinogenesis Study. Total amount of contract grant - \$300,000. Renewed July 1, 1986 to December 31, 1987 for the total amount of \$225,000.
10. Special Faculty Grant in Aid, Virginia Commonwealth University: Awarded November 27, 1984 in the amount of \$18,000 to purchase animal housing and care equipment.
11. A. D. Williams Research Grant, Medical College of Virginia/VCU (for March 31, 1985 to March 31, 1986): Effect of Chronic Phenobarbital Treatment on Further Altering Selective Biochemical Markers of Cell Differentiation and Proliferation within Discreet Preneoplastic Hepatocellular Lesions of the Rat. Total amount of grant - \$7,095.
12. Program Coordinator (Sirica, A.E.), NIH-NCI Institution Research Training Program: Postdoctoral Training in Cancer Biology (I. David Goldman, P.I.), T32 CA 09564, July 1, 1987 to June 30, 1992.
13. Special Faculty Grant in Aid, Virginia Commonwealth University: Awarded April 7, 1987 in the amount of \$1,491 to fund a part-time student worker.
14. NIH - National Cancer Institute Grant RO1 CA 39225 (January 1, 1988 to December 31, 1990): Hepatic Oval Cells in Culture and In Vivo. Total direct cost amount - \$290,253. Total amount direct costs awarded for 1st year - \$95,565; 2nd year - \$97,399; 3rd year - \$97,289.

15. NIH - National Cancer Institute Grant R25 CA 47074 (June 1, 1988 to May 31, 1989): Workshop on the Pathobiology of Neoplasia. Total amount awarded - \$14,266.
16. Bristol-Myers Oncology Division: Awarded grant in the amount of \$1,000 to support in part Symposium and Workshop on the Pathobiology of Neoplasia. Date of award: June 3, 1988.
17. Smith Kline Biosciences Laboratories: Awarded grant in the amount of \$500 to support in part Symposium and Workshop on the Pathobiology of Neoplasia. Date of award: September 15, 1988.
18. Co-Investigator, NIH - National Cancer Institute Grant 1R13 CA 52489-01 (July 29, 1990 to August 3, 1990): F.A.S.E.B. Research Conference on Hepatic Regeneration and Carcinogenesis (George K. Michalopoulos, P.I., Duke University). Total amount awarded - \$25,000.
19. NIH - National Cancer Institute Grant RO1 CA 39225 (January 1, 1991 to December 31, 1995): Hepatic Oval Cells in Culture and In Vivo. Total direct cost amount - \$633,141. Total amount direct costs awarded for 1st year - \$119,983; 2nd year - \$125,720; 3rd year - \$124,948; 4th year - \$127,347; 5th year - \$135,143.
20. American Association of Pathologists, Inc.: Awarded \$4000 to support 2nd Symposium and Workshop on the Pathobiology of Neoplasia. Date of Award: May 28, 1991.
21. Wellcome Visiting Professorship in the Basic Medical Sciences to support Dr. Harriet C. Isom in Pathology (1991-1992). Total amount awarded - \$1,850.
22. Awarded private funds in support of the 2nd Symposium & Workshop on the Pathobiology of Neoplasia: \$500, Innovative Research of America, 10/7/91; \$1000, Bristol-Myers Oncology Division, 10/10/91; \$1,000, Burroughs Wellcome Co, 1/17/92; \$500, ILSI, Risk Science Institute, 4/8/92.
23. NIH - National Cancer Institute Grant 1R13 CA 57240-01 (September 10, 1992 to September 9, 1993): 2nd Symposium on the Pathobiology of Neoplasia. Total amount of direct cost - \$6,750.
24. Gifts in the amount of \$1,440 made in memory of James Lee Tate, Jr., to support liver tumor research. Provided through the Massey Cancer Center, MCV-VCU, August 19, 1993.



25. NIH - National Cancer Institute Grant 2R01CA39225-12-16: Hepatic Oval Cells in Culture and In Vivo. Total project period: 02/16/96-12/31/00. Total amount of award: \$1,241,989. Total amount direct costs awarded for 1st year - \$153,080; 2nd year - \$166,479; 3rd year - \$169,722; 4th year - \$176,389; 5th year - \$183,319. Supplemental funds in the total amount of \$72,352 awarded for years 13-16 of grant.
26. Principal Investigator on NIH-National Cancer Institute R13 Conference Grant 1R13CA81974-01: F.A.S.E.B. Summer Research Conference entitled FASEB Growth Factor Receptor Tyrosine Kinases Conference held July 31-August 5, 1999 in Snowmass Village, Colorado. Submitted by F.A.S.E.B. on October 1, 1998. Total amount awarded - \$9,000.
27. Awarded private funds in support of F.A.S.E.B. Summer Research Conference entitled FASEB Growth Factor Receptor Tyrosine Kinases Conference. \$1,000, Lilly Research Laboratories; \$1,000, New England BioLabs, Inc.; \$2,000, Novartis; \$1,000, Biogen; \$2,000, Pfizer; \$2,000, Glaxo Wellcome; \$2,500, Juvenile Diabetes Foundation; \$7,500, FASEB; \$500, Merck Research Laboratories; \$2,000, Pharmacia & UpJohn; \$1,000, Wyeth-Ayerst Research; \$500, Johnson & Johnson.
28. NIH-National Cancer Institute R01 Grant 1 R01 CA 83650-01-05: "Altered Growth Factor Pathways In Biliary Cancer". Total project period: 02/08/00-01/31/05. Total amount of award: \$1,381,457. Total amount awarded 1st year: \$277,690; 2nd year: \$273,422; 3rd year: \$280,546; 4th year: \$287,904; 5th year: \$261,895.
29. NIH-National Cancer Institute Grant 2R01 CA 39225-17-21: "Hepatic Oval Cells in Culture and In Vivo". Total project period: 01/15/01-12/31/05. Total amount of award: \$1,378,405. Total amount awarded 1st year: \$275,681; 2nd year: \$275,681; 3rd year: \$275,681; 4th year: \$275,681; 5th year: \$275,681. No cost project extension: 1/1/06-6/30/07.
30. Principal Investigator on NIH – National Cancer Institute R13 Conference Grant 1 R13 CA 91851-01 entitled "FASEB Growth Factor Receptor Tyrosine Kinases Conference – 2" held as a FASEB Summer Research Conference, August 4 – August 9, 2001 in Snowmass Village, Colorado. Submitted by F.A.S.E.B. for October 1, 2000. Total amount awarded 2001 - \$10,000.
31. Awarded private funds in support of F.A.S.E.B. Summer Research Conference entitled Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis. \$7,500, FASEB; \$5,000, Amgen; \$1,000, Johnson & Johnson; \$2,000, Novartis; \$1,000, Biogen; \$1,000, Eli Lilly; \$2,500, Bristol Myers Squibb; \$1,000, Upstate Biotechnology; \$2,000, DNAX Research Institute; \$1,000, Merck Research Labs.; \$5,000, Merck & Co., Inc.
32. Merck Research Grant Vioxx MSGP #284C entitled "COX-2 in Human and Rat Cholangiocarcinogenesis". Total project period: 8/1/01 – 7/31/04. Total amount awarded: \$50,000. Supplementary funding of \$25,000 awarded for 8/1/03-7/31/04. Total Award: \$75,000

33. NIH-National Cancer Institute R01 Grant 2R01 CA 83650-06-10 : “Altered Growth Factor Pathways in Biliary Cancer”. Total project period administratively revised by NIH in year 08 from 02/01/05-01/31/10 to 02/01/05-12/31/09. No Cost Extension: 01/01/2010-12/31/2010. Second No Cost Extension: 11/30/2010-12/31/2011. Total amount of award: currently readjusted after years 06 and 07 from \$1,593,750 to \$1,536,705 Total amount awarded 1st year: \$318,750; 2nd year: \$311,259; 3rd year: \$302,232; 4th year: \$302,232; 5th year: \$302,232. In May 2008, this grant was identified as an exemplar of NCI-funded translational research and selected for inclusion in the National Cancer Institute’s Translational Science Meeting held November 7-9, 2008 in Washington, DC. Selected for presentation at the 2009 NCI Translational Science Meeting held November 5-7, 2009 in Vienna, VA.
34. NIH-National Cancer Institute R01 Grant 2R01 CA 39225-22A1-26 “ Hepatic Oval Cells In Culture and In Vivo”. Total project period: 7/01/07-5/31/12. No Cost Extension: 06/01/2012-5/31/2013. Total amount of award: \$1,426,593. Total amount awarded 1st year: \$279,450; 2nd year: \$288,953; 3rd year: \$288,953; 4th year: \$288,953; 5th year; \$280,284.
35. NIH-National Cancer Institute R01 Grant 2R01 CA 083650-11A1: “Altered Growth Factor Pathways in Biliary Cancer”. Total project period: 04/01/2013-03/31/2019. Total amount requested: \$1,681,875. Total amount awarded 1st year: \$307,017; 2nd year: \$298,051; 3rd year: \$307,269; 4th year: \$307,269; 5th year: \$307,269. Total 5 year amount: \$1,526,875. (No Cost Extension: 04/01/18-03/31/19).
36. VCU School of Medicine Bridge Grant Award. Total amount awarded: \$31,304, July 2013.
37. American Association for the Study of Liver Diseases Award to sponsor conference titled “Hepatobiliary Cancers: Pathobiology and Translational Advances”. Total amount awarded: \$15,000. Project Period: 09/01/16-03/31/18.
38. The Cholangiocarcinoma Foundation to sponsor conference titled “Hepatobiliary Cancers: Pathobiology and Translational Advances”, 12/7/17-12/10/17. Total amount awarded: \$2,500.
39. Visiting Scholar Research Funds provided by Professor Jianming Wang, Tonji Medical College-Huazhong University of Science and Technology, Wuhan, PR China to support collaborative research and training of Yawei Qian and Wei Yao, (Visiting Ph.D. Student Scholars) under the mentorship of Dr. A.E. Sirica. Total amount awarded: \$25,825. Project Period: 03/24/2016-10/25/2017.
40. NIH-National Cancer Institute R13 Conference Grant 1R13 CA 216895-01A1: “Hepatobiliary Cancers: Pathobiology and Translational Advances”. Total amount awarded: \$2,250. Project Period: 07/01/17-06/30/18.

**PUBLICATIONS:**

Sirica, A.E. and Woodman, R.J.: 1971. Selective aggregation of L1210 leukemia cells by the polycation chitosan. *J. Natl. Cancer Inst.* 47: 377-388.

Kline, I., Woodman, R.J., Gang, M., Sirica, A. et al.: 1972. Influence of the stage of advancement of leukemia L1210 in mice on the optimal schedule of treatment of cytosine arabinoside (NSC-63878). *Cancer Chemother. Rep.* 56: 327-334.

Woodman, R.J., Sirica, A.E. et al.: 1973. The enhanced therapeutic effect of cis-platinum (II) diamminodichloride against L1210 leukemia when combined with cyclophosphamide or 1, 2-bis (3,5-dioxopiperazine-lyl) propane or several other antitumor agents. *Chemotherapy* 18: 169-183.

Sirica, A.E., Goldblatt, P.J. and McKelvy, J.F.: 1975. Isolation and partial characterization of a bile canalicular plasma membrane fraction from normal and regenerating rat liver. *J. Biol. Chem.* 250:6464-6468.

Sirica, A.E., Goldblatt, P.J. and McKelvy, J.F.: 1977. Degradation of L-(<sup>3</sup>H) fucose-labeled plasma membrane components from regenerating rat liver. *J. Biol. Chem.* 252: 5895-5899.

Sirica, A.E., Barsness, L., Goldsworthy, T. and Pitot, H.C.: 1978. Definition of stages during hepatocarcinogenesis in the rat: Potential application of the evaluation of initiating and promoting agents in the environment. *J. Envir. Pathol. and Toxicol.* 2:21-28.

Sirica, A.E., Richards, W., Tsukada, Y., Sattler, C.A. and Pitot, H.C.: 1979. Fetal phenotypic expression by adult rat hepatocytes on collagen gel/nylon meshes. *Proc. Natl. Acad. Sci., USA* 76: 283-287.

Pitot, H.C. and Sirica, A.E.: 1980. Hepatocarcinogenesis as a problem in developmental biology. In: Results and Problems in Cell Differentiation, Vol. II: Differentiation and Neoplasia (McKinnell, R.G. et al., eds.), pp. 241-250. Springer-Verlag, Berlin. Heidelberg, New York.

Pitot, H.C. and Sirica, A.E.: 1980. Methodology and utility of primary cultures and hepatocytes from experimental animals. In: Methods in Cell Biology (Harris, C.C. et al., eds.). Academic Press: Vol. 21B, pp. 441-456.

Pitot, H.C. and Sirica, A.E.: 1980. The stages of initiation and promotion in hepatocarcinogenesis. *Biochem. Biophys. Acta. Reviews in Cancer* 605:191-215. (This article was made a Citation Classic by Citation Index - Current Contents 35: 9, 1992).

Sirica, A.E., Hwang, C.G., Sattler, G.L. and Pitot, H.C.: 1980. Use of primary cultures of adult rat hepatocytes on collagen gel/nylon mesh to evaluate carcinogen-induced unscheduled DNA synthesis. *Cancer Res.* 40: 3259-3267.

Sirica, A.E. and Pitot, H.C.: 1980. Drug metabolism and effects of carcinogens in cultured hepatic cells. *Pharmacological Rev.* 31: 205-228.

Sirica, A.E. and Pitot, H.C.: 1982. Phenotypic markers of hepatic "preneoplasia" and neoplasia in the rat. In: Cancer Cell Organelles (Reid, E. et al., eds.), Vol. 11, pp. 131-143. Ellis Horwood Limited, Chichester, England.

Sirica, A.E., Althaus, F.R. and Hayao, G.: 1982. Characteristics of adult rat hepatocytes in primary culture on collagen gel/nylon mesh. In: Cancer Cell Organelles (Reid, E. et al., eds.), Vol. 11, pp. 111-121. Ellis Horwood Limited, Chichester, England.

Sirica, A.E.: 1982. Pathogenesis. In: Concepts in Cancer Medicine (Kahn, S.B. et al., eds.), Chapter 11, pp. 157-164. Grune & Stratton, Inc., New York, NY.

Pitot, H.C., Goldsworthy, T., Moran, S., Sirica, A.E. and Weeks, J.: 1982. Properties of incomplete carcinogens and promoters in hepatocarcinogenesis. In: Cocarcinogenesis and Biological Effects of Tumor Promoters (Hecker, E. et al., eds., Carcinog. Compr. Surv.), pp. 85-98. Raven Press, New York.

Sirica, A.E., Jicinsky, J.K., Vinje, E.J. and Cihla, H.P.: 1984. Effect of phenobarbital on the altered biochemical phenotypes expressed by hyperplastic liver nodules during hepatocarcinogenesis in the rat. *Adv. in Enzyme Regulation*. Vol. 22:137-153 (Weber, G., ed.), Pergamon Press, New York and Oxford.

Sirica, A.E. and Cihla, H.P.: 1984. Isolation and partial characterizations of oval and hyperplastic bile ductular cell-enriched populations from the livers of carcinogen and noncarcinogen-treated rats. *Cancer Res.* 44: 3454-3466.

Sirica, A.E., Jicinsky, J.K. and Heyer, E.K.: 1984. Effect of chronic phenobarbital administration on the  $\gamma$ -glutamyl transpeptidase activity of hyperplastic liver lesions induced in rats by the Solt/Farber initiation-selection process of hepatocarcinogenesis. *Carcinogenesis* 5(12): 1737-1740.

Sirica, A.E., Sattler, C.A. and Cihla, H.P.: 1985. Characterization of a primary bile ductular cell culture from the livers of rats during extrahepatic cholestasis. *American Journal of Pathology* 120: 67-78.

Mathis, G.A., Walls, S.A. and Sirica, A.E.: 1988. Biochemical characteristics of hyperplastic rat bile ductular epithelial cells cultured "on top" and "inside" different extracellular matrix substitutes. *Cancer Res.* 48: 6145-6153.

Sirica, A.E.: 1989. Chronology of significant events in the study of neoplasia. In: The Pathobiology of Neoplasia (Sirica, A.E., ed.). Plenum Press, New York, pp. 1-24.

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Sirica, A.E.: 1989. Preneoplasia and precancerous lesions. In: The Pathobiology of Neoplasia (Sirica, A.E., ed.). Plenum Press, New York, pp. 199-215.

Sirica, A.E.: 1989. Tumor progression and the clonal evolution of neoplasia. In: The Pathobiology of Neoplasia (Sirica, A.E., ed.). Plenum Press, New York, pp. 217-229.

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Sirica, A.E., Wilkerson, C.S., Wu, L.L., Fitzgerald, R., Blanke, R.V. and Guzelian, P.S.: 1989. Evaluation of chlordecone in a two-stage model of hepatocarcinogenesis: A significant sex difference in the hepatocellular carcinoma incidence. Carcinogenesis **10**: 1047-1054.

Sirica, A.E., Mathis, G.A., Sano, N. and Elmore, L.W.: 1990. Isolation, culture and transplantation of intrahepatic biliary epithelial cells and oval cells. Pathobiology **58**: 44-64.

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Hylemon, P.B., Bohdan, P.M., Sirica, A.E., Heuman, D.M. and Vlahcevic, Z.R.: 1990. Cholesterol and bile acid metabolism in cultures of primary rat bile ductular epithelial cells. Hepatology **11**: 982-988.

Mathis, G.A., Wyss, P.A., Schuetz, E.G., Hughey, R.P. and Sirica, A.E.: 1991. Expression of multiple proteins structurally related to gamma-glutamyl transpeptidase in non-neoplastic adult rat hepatocytes in vivo and in culture. J. Cell. Physiol. **146**: 234-241.

Sirica, A.E., Elmore, L.W., and Sano, N.: 1991. Characterization of rat hyperplastic bile ductular epithelial cells in culture and in vivo. Digestive Diseases and Sciences **36**: 494-501.

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Sirica, A.E. and Williams, T.W.: 1992. Appearance of ductular hepatocytes in rat liver after bile duct ligation and subsequent zone 3 necrosis by carbon tetrachloride. American Journal of Pathology, **140**: 129-136.

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Sirica, A.E.: 1992. Biology of biliary epithelial cells. In: Progress in Liver Diseases (Boyer, J.L. and Ockner, R.K., eds.). Vol. X. pp. 63-87, W.B. Saunders, Philadelphia, PA, (Invited Review).

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### **ABSTRACTS:**

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Sirica, A.E., Campbell, D.J., and Zhang, Z.: 2008. A novel "patient-like" model of cholangiocarcinoma progression based on bile duct inoculation of transformed rat cholangiocytes overexpressing ErbB2. *The Toxicologist*, 102:45.

Sirica, A.E.: 2008. Establishment of a novel "patient-like" rat model of cholangiocarcinoma progression for molecular therapeutic studies. Abstract Booklet, AASLD sponsored 2008 Henry M. & Lillian Stratton Basic Research Single Topic Conference: Pathobiology of Biliary Epithelia and Cholangiocarcinoma, p60-61.

Sirica, A.E., Zhang, Z., and Campbell, D.J.: 2008. Preclinical assessment of dual ErbB1/ErbB2 targeting as a potential adjuvant molecular therapy for intrahepatic cholangiocarcinoma. *Hepatology*, 48: (Suppl) 408A.

Blechacz, B., Bronk, S., Smoot, R., Werneburg, N, Sirica, A.E., and Gores, G.J.: 2008. Sorafenib inhibits STAT3 activation in cholangiocarcinoma cells. *Hepatology*, 48: (Suppl) 372A-373A.

Sirica, A.E., Zhang, Z., and Campbell, D.J.: 2008. A novel rat "patient-like" model of intrahepatic cholangiocarcinoma progression closely mimicking clinical and molecular features of the human disease. Abstract Booklet, NCI Translates-NCI Translational Science Meeting, p508.

Blechacz, B., Bronk, S.F., Smoot, R., Werneburg, N., Sirica, A.E., and Gores, G.J.: 2008. Sorafenib inhibits Stat3 activation in cholangiocarcinoma cells. *Hepatology*; 48 (4 Suppl S): 151.

Blechacz, B., Smoot, R., Bronk, S., Werneburg, N., Sirica, A.E. and Gores, G.J.:2009. Sorafenib suppresses cholangiocarcinoma tumor growth *in vivo*. ASCO, GI Cancer Symposium 2009, San Francisco, CA, January, 2009.

Smoot, R., Blechacz, B., Sirica, A.E., and Gores, G.J.: 2009. Single-agent activity of obatoclox (GX15-070) in a rat cholangiocarcinoma cell line. ASCO, GI Cancer Symposium 2009, San Francisco, CA January, 2009.

Dumur, C.I., Almenara, J.A., Campbell, D. J. W. Henderson, S.C., and Sirica, A.E.: 2009. Genome-wide gene expression profiling in a novel "patient-like" rat model of intrahepatic cholangiocarcinoma progression closely mimicking the human disease. In: Proc. of the 100th Annual Meeting of the Amer. Assoc. Cancer Res.; 2009 Apr 18-22; Denver, CO. Philadelphia (PA): AACR; 2009. Abstract nr 1432.

Blechacz, B.R.A., Smoot, R.L., Bronk, S.F., Werneburg, N., Wilhelm, S.M., Sirica, A.E., and Gores, G.J.: 2009. Sorafenib inhibits IL-6 induced STAT3 signaling in cholangiocarcinoma cells and demonstrates *in vivo* efficacy. In: Proc. of the 100th Annual Meeting of the Amer. Assoc. Cancer Res.; 2009 Apr 18-22; Denver, CO. Philadelphia (PA): 2009. Abstract nr 5489.



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Smoot, R., Blechacz, B., Bronk, S., Werneburg, N., Sirica, A., Gores, G.: 2010. Obatoclox triggers bax mediated apoptosis in cholangiocarcinoma cells. *J. Surg. Res.* 158 (2):393.

Dumur, C.I., Campbell, D.J., and Sirica, A.E.: 2010. Differential gene overexpression in highly malignant *erbB2/neu* transformed rat BDE1 cholangiocytes versus less aggressive spontaneously transformed BDE1 cholangiocytes. Proc. of the 101st Annual Meeting 2010 of the Amer. Assoc. Cancer Res. 51: 527 (Abstract nr 2174).

Fingas, C.D., Blechacz, B., Smoot, R., Guicciardi, M.E., Bronk, S.F., Werneburg, N.W., Sirica, A.E., and Gores, G.J.: 2010. The Smac mimetic Jp1584 reduces TRAIL-induced invasion and metastasis of cholangiocarcinoma cells by inhibiting NF- $\kappa$ B activation. *Gastroenterology* 138 (Suppl.1): S797. (Presented as Abstract #845 at Digestive Disease Week 2010, New Orleans, LA, May 4, 2010).

Smoot, R., Sirica, A.E., and Gores, G.J.: 2010. Hepatic artery infusion of obatoclox increases survival and decreases tumor size in a rat model of cholangiocarcinoma. *Gastroenterology* 138 (Suppl1): S860. (Presented as Abstract #799 at Digestive Disease Week 2010, New Orleans, LA, May 4, 2010).

Sirica, A.E., Campbell, D.J., and Dumur, C.I.: 2011. Cancer-associated fibroblastic cells significantly promote cholangiocarcinoma cell ductal growth in a novel 3-D co-culture model. *Gastroenterology* 140 (Suppl 1): S909-S910. Abstract #894 presented during Digestive Disease Week 2011 in AASLD sponsored oral session entitled "Mechanisms of Hepatobiliary Neoplasia" held in Chicago, IL on May 10, 2011.

Fingas, C.D., Bronk, S.F., Werneburg, N.W., Mott, J.L., Guicciardi, M.E., Cazanave, S., Sirica, A.E., and Gores, G.J.: 2011. Myofibroblast-derived PDGF-BB promotes Hedgehog signaling-dependent resistance to TRAIL cytotoxicity in cholangiocarcinoma cells. *Gastroenterology* 140 (Suppl1): S-909. Abstract # 891 presented during Digestive Disease Week 2011 in the AASLD sponsored oral session entitled "Mechanisms of Hepatobiliary Neoplasia" held in Chicago, IL on May 10, 2011.

Zhou, X., Shi, R., Wang, X., Campbell, D.J., Studer, E., Hylemon, P.B., Sirica, A.E. and Zhou, H.: 2011. Differential gene expression of sphingosine kinases and sphingosine-1 phosphate receptors in cultured neu-transformed versus spontaneously-transformed rat cholangiocytes and corresponding cholangiocarcinomas. *Gastroenterology* 140 (Suppl 1): S938. Abstract # Su1659 given during Digestive Disease Week 2011 in AASLD sponsored poster session entitled "Experimental Cholestasis and Cholangiocyte Biology" held in Chicago, IL on May 8, 2011.

Fingas, C.D., Bronk, S.F., Werneburg, N.W., Mott, J.L., Guicciardi, M.E., Cazanave, S.C., Sirica, A.E., and Gores, G.J. : 2011. Myofibroblasts impart survival signals to cholangiocarcinoma cells: mechanisms and therapeutic implications. *Hepatology* 54 (Suppl 4): 463A (Abstract # 208). Presented in the session entitled Parallel 31: Mechanisms of Hepatic Carcinogenesis on November 7 at the 62<sup>nd</sup> Annual Meeting of the American Association for the Study of Liver Diseases held in San Francisco, CA, November 4-8, 2011.

Zhou, H., Zhou, X., Zhao, R., Li, Y., Campbell, D.J., Shi, R., Zhang, L., Sirica, A.E., and Hylemon, P.: 2011. Taurocholate promotes rat cholangiocarcinomas growth through sphingosine-1 phosphate receptor 2. *Hepatology* 54 (Suppl 4): 768A-769A (Abstract # 868). Presented in Poster Session II on November 6 under the topic heading Cholangiocyte Biology and Cholestasis at the the 62<sup>nd</sup> Annual Meeting of the American Association for the Study of Liver Diseases held in San Francisco, CA, November 4-8, 2011.

Noda, T., Shimoda, M., Sirica, A.E., and Wands, J.R.: 2011. Immunization with ASPH-loaded dendritic cells produces anti-tumor effects in a rat model of intrahepatic cholangiocarcinoma. *Hepatology* 54 (Suppl 4): 1281A (Abstract # 1956). Presented in Poster Session IV on November 8 under the topic heading Experimental Hepatocarcinogenesis at the the 62<sup>nd</sup> Annual Meeting of the American Association for the Study of Liver Diseases held in San Francisco, CA, November 4-8, 2011.

Fingas, C.D., Razumilava, N., Mertens, J.C., Bronk, S.F., Christensen, J., Mott, J.L., Paul, A, Canbay, A., Sirica, A.E., and Gores, G.J.: 2012. Polo-like kinase 2 is a mediator of Hedgehog survival signaling in cholangiocarcinoma cells. Abstract # 384, page 137 in the DDW 2012 Accepted Abstracts Book and Abstract # 384, page 282 in the DDW 2012 Program on CD. Given as an oral presentation during Digestive Disease Week 2012 in the AASLD sponsored Research Forum entitled "Mechanisms of Hepatocarcinogenesis" held in San Diego, CA on May 20, 2012.

Sirica, A.E., Campbell, D.J.W., and DeWitt, J.L.: 2012. Organotypic cell culture modeling of desmoplastic cholangiocarcinoma progression. *Hepatology* 56 (Suppl 4): 616A (Abstract# 871). Presented in the Poster Session "Experimental Hepatocarcinogenesis" at the 63<sup>rd</sup> Annual Meeting of the American Association for the Study of Liver Diseases, November 11, 2012, Boston, MA.

Razumilava, N., Smoot, R.L., Mertens, J.C., Bronk, S.F., Sirica, A.E., and Gores, G.J.: 2012. An autocrine requirement for Hedgehog signaling in cholangiocarcinogenesis. *Hepatology* 56 (Suppl 4): 624A (Abstract # 890). Presented in the Poster Session "Experimental Hepatocarcinogenesis" at the 63<sup>rd</sup> Annual Meeting of the American Association for the Study of Liver Diseases, November 11, 2012, Boston, MA.

Mertens, J.C., Fingas, C.D., Christensen, J.D., Kakisaka, K., Smoot, R., Bronk, S.F., Mott, J.L., Gustafson, M.P., Dietz, A.B., Roberts, L.R., Sirica, A.E., and Gores, G.J.: 2012. Therapeutic targeting of cancer-associated fibroblasts in cholangiocarcinoma. *Hepatology* **56** (Suppl 4): 290A-291A (Abstract # 197). Presented as oral talk in Parallel 29: "Hepatocellular Cancer: New Frontiers" at the 63<sup>rd</sup> Annual Meeting of the American Association for the Study of Liver Diseases, November 12, 2012, Boston, MA.

Razumilava, N., Smoot, R.L., Mertens, J.C., Gradilone, S.A., Bronk, S.F., Sirica, A.E., and Gores, G.J.: 2013. Hedgehog signaling contributes to chemotaxis in cholangiocarcinoma cells. *J Hepatol.* **58**: S442.

Sirica, A.E., Campbell, D.J.W., Usui, A., and Dumur, C.I.: 2014. Cancer-associated fibroblasts in cholangiocarcinoma progression. Abstract Program Booklet -FASEB Summer Research Conference entitled "Liver Biology: Fundamental Mechanisms and Translational Applications"

Sirica, A.E., Usui, A., Campbell, D.J.W., and Dumur, C.I.: 2015. Origin and diversity of fibroblastic cells from intrahepatic cholangiocarcinoma. Accepted on December 15, 2014 for presentation at Experimental Biology 2015. Presented as an oral talk in the session entitled "Cellular and Molecular Basis of Liver Tumors" on March 28, 2015 and as a Poster Discussion Presentation in the session entitled " Club Hepatomania (Liver Pathobiology) Scientific Interest Group Poster Discussion and Networking Session" on March 31, 2015. Both sessions are sponsored by the American Society for Investigative Pathology at Experimental Biology 2015 in Boston MA, March 28-31, 2015. *The FASEB J* 2015; **29** (1): Suppl.45.5 (Abstract No.: 828).

Sirica, A.E., Usui, A., Campbell, D.J., and Dumur, C.I.: 2015. Modeling cholangiocarcinoma desmoplasia for rapidly identifying stromal targeting agents. Accepted for presentation at DDW 2015 on February 10, 2015. Presented at the Poster Session "Bile Acid and Cancer Receptors" on May 16, 2015, Washington, DC. *AASLD Abstracts in Gastroenterology* (Suppl 1) 2015; **148**(4): S-1012 (Abstract No.: Sa1687).

Sirica, A.E., Usui, A., and Campbell, D.J.: 2015. Cholangiocarcinoma cells interact with cancer-associated myofibroblasts in 3-D culture to provoke a strong desmoplastic-like reaction mediated by TGF- $\beta$ . Presented on November 17, 2015 in the Poster Session titled "Experimental Hepatocarcinogenesis" at The Liver Meeting<sup>®</sup> 2015, AASLD's Annual Meeting in San Francisco, CA. *Hepatology* 2015; **62**, Number 1(Suppl): 1177A-1178A (Abstract No. 1993).

Manzanares, M.A., Campbell, D.J. and Sirica, A.E.: 2016. Combined prognostic value of serum and tumor periostin and mesothelin in a "patient-like" rat model of cholangiocarcinoma progression. Presentation at the AASLD's The Liver Meeting 2016 in Boston, MA in Session Parallel 24- Hepatobiliary Neoplasia: Experimental held on November 14, 2016. *Hepatology* 2016; **64**, Supplement 1: 85A (Abstract No. 159).

Yao, W., Qian, Y., Campbell, D., Wang, J., and Sirica, A.E.: 2018. Underexpression of phospho-LKB1, atypical PKC $\zeta$ , and Hes1 associated with disruption of polarized morphogenesis in a 3-dimensional culture model of rat cholangiocarcinoma progression mediated by activated neu receptor. Poster presentation at DDW 2018, Washington, DC, June 3, 2018. *Gastroenterology* 2018: **154**, Supplement 1: S-1152 (Abstract Su1455).

**BOOKS:**

Sirica, A.E., Editor/Author, The Pathobiology of Neoplasia, 1989, pp. 1-583, Plenum Publishing Corp., New York, NY.

Sirica, A.E., Editor/Author, The Role of Cell Types in Hepatocarcinogenesis, 1992, pp. 1-358, CRC Press, Boca Raton, FL.

Sirica, A.E., Editor/Author, Cellular and Molecular Pathogenesis, 1996, pp. 1-557. Lippincott-Raven Publ., Philadelphia, PA.

Sirica, A.E. and Longnecker, D.S., Editors, Biliary and Pancreatic Ductal Epithelia: Pathobiology and Pathophysiology, 1997, pp. 1-575, Marcel Dekker, Inc., New York, NY. (peer-reviewed). Published as Volume 3 in Marcel Dekker's "Gastroenterology and Hepatology" series.

**ORGANIZATION OF WORKSHOPS AND SYMPOSIA:**

Organizer and Director of Symposium and Workshop on the Pathobiology of Neoplasia. Held in Richmond, Virginia, April 24-28, 1989. Select papers published in the journals Pathobiology, and Pathology and Immunopathology Research, respectively.

Co-Chairman, Session on Hepatic and Intestinal Cancer Cell Biology and Models of Carcinogenesis, Ninth Annual Seminar of Cancer Researchers in Virginia, Sponsored by the Virginia Division of the American Cancer Society, April 29, 1989, Richmond, Virginia.

Vice-Chairman, FASEB Summer Research Conference on "Hepatic Regeneration and Carcinogenesis: Molecular and Cellular Pathways". Held in Copper Mountain, Colorado, July 29-August 3, 1990.

Member, Program Committee, American Society for Investigative Pathology (formerly American Association of Pathologists, Inc.), F.A.S.E.B., April 1990 - June 1996. Program Coordinator for General and Organ-Specific Pathology, 1991-1993. ASIP representative for topic area "Epithelial Cell Biology for Experimental Biology" '93, "Experimental Biology" '94, and "Experimental Biology" '95; Member, Experimental Biology '93, Experimental Biology '94, and Experimental Biology '95 Theme Committee. Program Committee Chair-Elect, ASIP, July 1, 1993 - June 30, 1994. Program Committee Chair, July 1, 1994 - June 30, 1996. Member, Experimental Biology Program Committee, 1994, 1995.

Chair, ASIP Minisymposium entitled Pathophysiology of Biliary and Pancreatic Epithelium. "Experimental Biology '93". Held in New Orleans, LA. March 31, 1993.

Organizer and Director of Second Symposium and Workshop on the Pathobiology of Neoplasia, (Sponsored by the American Society for Investigative Pathology). Held in Richmond, Virginia, April 19-23, 1993.

Organizer and Chair, Workshop on Hepatic Injury Responses and Carcinogenesis. Sponsored by the American Society for Investigative Pathology and held as part of the Epithelial Cell Biology theme at Experimental Biology '94, Anaheim, CA, April 24, 1994.

First to Develop, Organize and Chair National Level Course titled "Pathobiology for Basic Scientists". Sponsored by the American Society for Investigative Pathology and presented at Experimental Biology '95, Atlanta, GA, April 9, 1995. This course was adopted as a regular feature of the ASIP annual meeting.

Co-Chair, (with Daniel Longnecker of Dartmouth University as other Co-Chair), ASIP Minisymposium entitled Biology and Pathophysiology of Biliary, Pancreatic, and Small Intestinal Epithelia. Held as part of the Experimental Biology '95 theme at Atlanta, GA, April 12, 1995.

Organizer and Chair, FASEB Summer Research Conference on Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis (Vice-Chair, Dr. George Vande Woude). Held in Snowmass Village, CO, July 31-August 5, 1999.

Co-organizer and Co-Chair with N.F. LaRusso of the Mayo Clinic of the first American Association for the Study of Liver Diseases Single Topic Conference on the Pathobiology of Biliary Epithelia held at the Airlie Conference Center, Warrington, VA, June 7-10, 2001.

Organizer and Chair, 2nd FASEB Summer Research Conference on "Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis" (Vice-Chair, Dr. George Vande Woude). Held in Snowmass Village, CO, August 4-9, 2001.

"The Henry M. and Lillian Stratton Basic Research Single Topic Conference- Pathobiology of Biliary Epithelia and Cholangiocarcinoma". Organizers and Chairs: N.F. LaRusso of the Mayo Clinic and A.E. Sirica of VCU School of Medicine. American Association for the Study of Liver Diseases Single Topic Conference held at the Emory Conference Center, Atlanta, GA, June 6-8, 2008.

Organizer of GI Oncology Research Retreats-NIH P01 Grant Application Planning Meetings held March 11, 2010 and on July 22, 2010 at the MCV Alumni House, Richmond, Virginia.

Member of CanLiv Board involved in organizing the 1<sup>st</sup> Annual Biliary Tract-Gallbladder Cancer Research Symposium presented by CanLiv-The Hepatobiliary Cancers Foundation and The Cholangiocarcinoma Foundation, held in Alexandria, VA on May 7, 2010.

Organizer and Chair, "Hepatobiliary Cancers: Pathobiology and Translational Advances", sponsored in part by the American Association for the Study of Liver Diseases and the Cholangiocarcinoma Foundation, held at the Virginia Crossings Hotel & Conference Center in Glen Allen VA, December 7-10, 2017.

Primary Organizer (Co-Organizers, Gregory J. Gores, M.D., Mayo Clinic and Lopa Mishra, M.D., George Washington, University), Keystone Symposium on "Hepatobiliary Cancers: Pathobiology and Translational Advances". To be held as a Virtual Keystone Symposium, March 22-24, 2021.

Organizer and Chair, FASEB Catalyst Conference, April, 2021.

**INVITED/ PROFESSIONAL SOCIETY PRESENTATIONS:**

Presented the following talks as part of the course program entitled LIVER CELL CULTURE, which was held at the W. Alton Jones Science Center, Lake Placid, New York, November 28-30, 1979:

1. "Hepatocytes on Nylon Meshes".
2. "The Use of Primary Hepatocyte Cultures as a System for Evaluating Chemical Carcinogens".

Following talks presented as part of the scientific program entitled CANCEROUS ORGANELLES held at the 7th International Subcellular Methodology Forum, at the University of Surrey, Guildford, England, August 27-30, 1980:

1. "Drug Metabolism, DNA Repair and Hepatocarcinogenesis in Primary Cultures of Rat Hepatocytes on Collagen Gel/Nylon Mesh".
2. "Biochemical Markers of Hepatic Neoplasia".

Presented following talks as part of course program entitled LIVER CELL CULTURE held at the W. Alton Jones Science Center, Lake Placid, New York, September 29-October 1, 1981:

1. "Utility of Primary Cultures of Rat Hepatocytes on Collagen Gel/Nylon Mesh".
2. "Fetalgenic Expression by Hepatocytes in Primary Culture and During Hepatocarcinogenesis In Vivo".

Invited Faculty Member and Participant in the 1981 Workshop on Histopathology of Neoplasia held at Keystone, Colorado, June 21-28, 1981, under the sponsorship of the National Cancer Institute. Instructor for Liver and Colon Neoplasia.

Invited Faculty Member and Participant in the 1982 Workshop on Histopathology of Neoplasia held at Keystone, Colorado, June 19-26, 1982, under the sponsorship of the National Cancer Institute. Instructor for Liver and Colon Neoplasia.

Invited Participant at the 1st International Meeting on Cell Biochemistry and Function held at the University of Surrey, Guildford, UK on March 23-25, 1983. Title of presentation: "Dynamics of Pre-neoplastic Lesions in Hepatic Carcinogenesis in the Rat".

Invited Participant at the 22nd International Symposium on Regulation of Enzyme Activity and Synthesis in Normal and Neoplastic Tissues held at Indiana University School of Medicine, Indianapolis, Indiana on October 3 and 4, 1983. Title of presentation: "Effects of Phenobarbital on the Altered Biochemical Phenotypes Expressed by Hyperplastic Liver Nodules During Hepatocarcinogenesis in the Rat".

Invited Speaker, talk entitled: "Bile Ductular Cell Culture: A New System With Potential Value in the Study of Hepatobiliary Carcinogenesis". Presented at NIH. Program entitled: REGULATION OF GROWTH AND DIFFERENTIATION IN NORMAL, REGENERATING, AND NEOPLASTIC HEPATOCYTES, November 6 and 7, 1986.

"Bile Ductular Cell Culture: Stability of Marker Enzyme Activities" - presented at the 38th Annual Meeting of the Tissue Culture Association, Washington, D.C., May 29, 1987.

"Bile Ductular Epithelial Cell Culture: 'On Top' versus 'Inside' Cultures with Different Extracellular Matrix Substitutes". Presented at the 27th Annual Meeting of the American Society of Cell Biology, St. Louis, Missouri, November 19, 1987.

"Phase II Enzyme Activities of Isolated Bile Ductular Epithelial Cells in Reference to the Hepatocarcinogen Resistance Phenotype". Presented at the 79th Annual Meeting of the American Association of Cancer Research, New Orleans, Louisiana, May 27, 1988.

"Effect of Substratum Composition on Bile Ductular Epithelial Cells in Culture". G. A. Mathis, S. A. Walls and A. E. Sirica. Presented at the 39th Annual Meeting of the Tissue Culture Association, Las Vegas, Nevada, June 15, 1988.

Invited Speaker and Participant at the 1988 FASEB Summer Research Conference on Neoplastic Transformation of Liver Cells. Topic: "Mechanism of Progression in Liver Carcinogenesis", August 14-19, 1988, Copper Mountain, Colorado.

"Evaluation of Chlordecone (Kepone) in a Two-Stage Model of Hepatocarcinogenesis: A Significant Sex Difference in the Formation of Liver Cancers". C.S. Wilkerson, P.S. Guzelian and A. E. Sirica. Presented at the Graduate Student Research Symposium, Virginia Commonwealth University, Richmond, Virginia, October 2, 1988

"Characteristics of Hyperplastic Bile Ductular Epithelium in Culture and In Vivo". Presented at the Symposium and Workshop on the Pathobiology of Neoplasia, Richmond, Virginia, April 28, 1989.

"A Significant Sex Difference in the Hepatic Tumor Promoting Effect of Chlordecone in Rats". A. E. Sirica, C. S. Wilkerson and P. S. Guzelian. Presented at the Ninth Annual Seminar of Cancer Researchers in Virginia, sponsored by the Virginia Division of the American Cancer Society, April 29, 1989, Richmond, Virginia.

Invited Speaker and Participant at the 1989 International Meeting: NORMAL AND NEOPLASTIC GROWTH IN HEPATOLOGY: INTERFACE BETWEEN BASIC AND CLINICAL SCIENCE held June 21-24, 1989, Pugnuchiuso, Italy. Presentation entitled "Role of Oval Cell in Hepatocarcinogenesis".

"Establishment of a Novel Bile Ductular Epithelial Cell Culture/In Vivo Transplantation System". A. E. Sirica, G. A. Mathis and L. W. Elmore. Presented at the 81st Annual Meeting of the American Association for Cancer Research, Washington, D.C., May 23, 1990.

Invited Speaker to AASLD Research Workshop entitled PATHOBIOLOGY OF BILIARY EPITHELIUM held November 3, 1990 in Chicago, Illinois. Presented at the 41st Annual Meeting of the American Association for the Study of Liver Diseases. Title of presentation: "Proliferation and Differentiation of Biliary Epithelia".

Invited Participant to the 41st Annual Meeting of the AASLD - Morning Workshop entitled HEPATIC REGENERATION AND CANCER held November 5, 1990 in Chicago, Illinois.

"Early Appearance of Intestinal Metaplasia, Cholangiofibrosis and Ductular Hepatocytes in the Caudate Liver Lobe of Rats Administered the Cholangiocarcinogen, Furan". Presented at the Minisymposium entitled CHEMICAL AND VIRAL CARCINOGENESIS held at the 75th Annual Meeting of the Federation of American Societies for Experimental Biology, Atlanta, Georgia, April 22, 1991.

"Detection of Ductular Hepatocytes in Rat Liver Following Bile Duct Ligation and Subsequent CCl<sub>4</sub>-induced Zone 3 Necrosis". Presented at poster session entitled "DEVELOPMENT AND ADAPTATION" held at the 75th Annual Meeting of the Federation of American Societies for Experimental Biology, Atlanta, Georgia, April 25, 1991.

Invited Attendee to the conference on "The Pancreatic Duct Cell". Sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases held in Baltimore, MD, on September 26-29, 1991. Presented poster entitled "Plasticity of Hyperplastic Bile Ductular Epithelial Cells in a Novel Model of Severe Hepatic Injury".

Invited Speaker to American College of Occupational Medicine State-of-the-Art Fall Conference entitled TOPICS IN ENVIRONMENTAL CARCINOGENESIS. Title of Presentation: "Kepone and Furan: Paradigms for Hepato- and Cholangiocarcinogenesis by Environmental Chemicals". Presented October 28, 1991, St. Louis, MO.

"Early Induction of Four Intestinal Cell Types in the Right and Caudate Liver Lobes of Furan-Treated Rats". Presented at the 42nd Annual Meeting of the American Association for the Study of Liver Diseases held November 4-5, 1991, Chicago, Illinois.

Invited Speaker to 1992 meeting of the Hans Popper Hepatopathology Society, Companion Meeting to 81st Annual Meeting of the United States and Canadian Academy of Pathology. Title of presentation: "Mechanisms of Hepatocarcinogenesis". Presented March 15, 1992, Atlanta, GA.

Invited Speaker, 76th Annual Meeting of the Federation of American Societies for Experimental Biology, Anaheim, CA, April 5-9, 1992. Presented talk entitled "Plasticity of Bile Ductular Epithelial Cells in Hepatic Injury" at Minisymposium on Differentiation and Transdifferentiation in Disease.



Invited Speaker and Participant to the Conference entitled Basic Science in Gastroenterology: A Seminar on Biliary Epithelium, Morphologic Expression and Physiology. Title of 1st. presentation: "Proliferation and Differentiation of Biliary Epithelium". Title of 2nd presentation: "Is the Oval Cell a Precursor of Neoplastic Hepatocytes in Rat Liver". Held in Ancona, Italy, May 29-30, 1992.

Invited Speaker and Participant to the 1992 FASEB Summer Research Conference on Hepatic Regeneration and Carcinogenesis: Molecular and Cellular Pathways. Title of presentation: "Plasticity of Hyperplastic Bile Ductular Epithelial Cells During Conditions of Severe Hepatic Injury and in Cholangiocarcinogenesis". Held July 12-17, 1992, Snowmass, Colorado.

"Novel Models for Investigating the Existence of a Multipotential Biliary Stem Cell in Rat Liver". Presented at Experimental Biology '93 in a Theme Minisymposium on Epithelial Cell Biology entitled Pathophysiology of Biliary and Pancreatic Epithelium. Held March 31, 1993 in New Orleans, Louisiana.

"Intestinal Epithelial Cell Differentiation and Ductular Hepatocyte Formation in the Livers of Furan-Treated Rats". Presented at the 2nd Symposium and Workshop on The Pathobiology of Neoplasia, Richmond, Virginia, April 19, 1993.

"The BDL/Furan-Treated Rat: A Novel Model to Replace Most of Liver with Well Differentiated Hyperplastic Bile Ductules". Presented at the eighty-fourth Annual meeting of the American Association for Cancer Research, Orlando, Florida, May 20, 1993.

"A Novel Rat Model of Ductular Hepatocyte Development from Bile Ductule-Like Cells". Presented as a poster at the 44th Annual Meeting of the American Association for the Study of Liver Diseases, held November 4-7, 1993, Chicago, Illinois.

Invited Speaker, Society of Toxicology Symposium entitled The Biliary Tree: A Target for Chemically-Induced Injury and Proliferation. Title of presentation: "New Evidence for a Bile Ductular Stem-Like Cell in Rat Liver". Held March 15, 1994, Dallas, TX.

Organizer and Chair, Workshop on Hepatic Injury Responses and Carcinogenesis. Sponsored by the American Society for Investigative Pathology and held as part of the Epithelial Cell Biology theme at Experimental Biology '94. Title of presentation: "Altered Patterns of Biliary Cell Differentiation in a Novel Rat Model of Chemically-Induced Cholangiocarcinogenesis". Held April 24, 1994, Anaheim, CA.

Invited Speaker to the 1994 American Association for the Study of Liver Diseases Single Topic Conference entitled "The Pathobiology of Biliary Epithelia". Held June 23-26, 1994, Airlie, VA. Title of presentation: "Altered Patterns of Differentiation of Biliary Epithelial Cells During Carcinogenesis and Severe Liver Injury". Chairperson, Session V - Transport in Biliary Epithelia -I.

Invited Speaker to the FASEB Summer Research Conference on "Hepatic Regeneration and Carcinogenesis: Molecular and Cellular Pathways". Held in Copper Mountain, CO, August 7-12, 1994. Title of session: Bile Duct and Stem Cell Biology. Title of presentation: "Biliary epithelial biology in chronic liver damage".

"Strong Immunochemical Localization of Hepatocyte Growth Factor and its c-Met Receptor to the Neoplastic Glands of Rat Liver Primary "Intestinal-Type" Adenocarcinomas and Tumor Transplants". Presented at the Poster Session entitled CARCINOGENESIS 3 at the 86th Annual Meeting of the American Association for Cancer Research held March 19, 1995 in Toronto, Ontario, Canada.

"Rapid Isolation and Partial Characterization of a Highly Enriched Biliary Epithelial Cell Population from a Rat Model Whose Liver was Almost Totally Replaced with Hyperplastic Bile Ductules". Presented in ASIP Minisymposium on Liver Development, Regeneration and Carcinogenesis at Experimental Biology '95. Held April 9, 1995 in Atlanta, GA.

"Selective Immunochemical Localization of HGF and its c-Met Encoded Receptor to Metaplastic Small Intestinal-Like Glands in Hepatic Cholangiofibrotic Tissue and in Neoplastic Glands of Intestinal-Type Adenocarcinomas Induced in the Livers of Furan-Treated Rats". Presented at Experimental Biology '95 in Theme Minisymposium titled Biology and Pathophysiology of Biliary, Pancreatic, and Small Intestinal Epithelia held April 12, 1995 in Atlanta, GA.

Invited Speaker to the 14th International Symposium of the Society of Toxicologic Pathologists held June 14, 1995 in San Diego, CA. Title of Symposium: Toxicologic Pathology of the Liver. Title of Presentation: "Biliary Proliferation and Adaptation in Hepatic Injury and Carcinogenesis".

"Formation of Polarized Bile Ducts *In Vitro* in a Novel Rat Bile Ductular Epithelial Cell Culture Model". Presented at the Joint Meeting of the American Society for Biochemistry and Molecular Biology, the American Society for Investigative Pathology and the American Association for Immunologists in an ASIP sponsored Poster Discussion Session entitled Liver Development, Growth and Regulation held on June 5, 1996 in New Orleans, LA.

Invited Speaker at the FASEB Summer Research Conference on "Cellular and Molecular Mechanisms of Liver Growth Regulation" held in Snowmass Village, Colorado, August 3-8, 1996. Title of Presentation: "Intestinal Metaplasia, Growth Factors, MET and ERBB-2 in Cholangiocarcinogenesis".

Invited Speaker and Faculty Member in the 1996 American Association for the Study of Liver Diseases Postgraduate Course entitled Diseases of the Bile Ducts: Pathogenesis, Pathology, and Practice held in Chicago, IL on November 8-9, 1996. Title of presentation: "Regulation of Growth and Death in Biliary Epithelia". Chosen for inclusion in the AASLD 1996 Postgraduate Course on CD-ROM.

“Rat ‘Intestinal-type’ Cholangiocarcinomas Closely Resemble Human Well Differentiated Tubular Cholangiocarcinomas in Their Overexpression of Both MET and ERBB-2, and Exhibit Growth Factor Immunoreactivities That Appear to Reflect Differentiation Along the Intestinal Rather Than Biliary Lineage”. Presented as a Poster at the 47th Annual Meeting of the American Association for the Study of Liver Diseases held in Chicago, IL on November 8-12, 1996.

“Overexpression of C-ERBB-2/NEU Proto-oncogene in Intestinal Metaplasias and Mucin-Producing Biliary Cancers (CC) Developed in Rat Liver”. Presented as a Poster at the 37th Annual Meeting of The American Society for Cell Biology held in Washington, DC on December 15, 1997.

Invited Speaker to American Society for Investigative Pathology sponsored workshop entitled Defining the Core: Graduate Education in Mechanisms of Disease, presented on April 18, 1998 in San Francisco, CA. Title of Presentation: “Positive Experiences and Challenges in Pathobiology Education: A Personal History”.

Invited Speaker to the 1998 American Society for Investigative Pathology’s Course - Pathobiology for Basic Scientists, held on April 18, 1998 in San Francisco, CA. Title of Presentation: “Liver as a Model of Cell and Tissue Injury and Adaptations to Tissue Injury”.

“MET and NEU Overexpression in Intestinal Metaplasias (IM) and Cholangiocarcinomas (CCs) Induced in Rat Liver”. Presented in minisymposium entitled Hepatic Progenitor Cells and Regeneration held at Experimental Biology ‘98, April 20, 1998 in San Francisco, CA.

Invited Speaker to the FASEB Summer Conference entitled Mechanisms of Liver Growth and Differentiation in Health and Disease held in Snowmass Village, CO, July 11-16, 1998. Title of Presentation: “Intestinal Differentiation and Cholangiocarcinoma Development in Liver”.

Invited Speaker to the Falk Symposium No. 107 “Diseases of the Liver and the Bile Ducts. New Aspects and Clinical Implications”, held on September 12-13, 1998 in Prague, Czech Republic. Title of Presentation: “Proliferation and Ductal Morphogenesis of Bile Duct Epithelial Cells”.

Invited Speaker to the Hepatic Stem Cell Meeting held at NIH on December 10-11, 1998. Title of presentation: “Altered Growth Factor Pathways in Biliary Cancer Development”.

“Unique Production of Hepatocyte Growth Factor (HGF) by Rat Biliary Cancer Epithelium In Vivo”. Presented in Poster Session entitled CELL AND TUMOR BIOLOGY 27 at the 90th Annual Meeting of the American Association for Cancer Research on April 14, 1999 in Philadelphia, PA.

“Intestine-Specific CDX1 Expression in the Histogenesis of Rat Intestinal-Type of Cholangiocarcinoma (ICC)”. Presented in minisymposium entitled Liver Damage and Carcinogenesis at Experimental Biology ‘99 on April 18, 1999 in Washington, D.C.

“Novel Rat Cholangiocarcinoma Cell Culture Model”. Presented in Poster Session entitled Liver Growth and Carcinogenesis at Experimental Biology ‘99 on April 18, 1999 in Washington, D.C.

“Biliary Cancer: A Novel Model of Altered Growth Factor Pathways”. Presented at the FASEB Summer Research Conference on Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis held in Snowmass Village, CO, July 31-August 5, 1999.

Invited Speaker to American Society for Investigative Pathology sponsored workshop entitled Liver Pathobiology: Liver Stem Cells at the ASIP Annual Meeting at Experimental Biology 2000 held in San Diego, CA on April 15, 2000. Title of presentation: “Cellular and Molecular Aspects of Intestinal Metaplasia in Liver - A Model for Multipotential Biliary Stem Cell Differentiation”.

Chair, Poster Discussion Session entitled “Highlights: Graduate Student Posters in Liver Pathology”, sponsored by the American Society for Investigative Pathology at Experimental Biology 2000 held in San Diego, CA, April 15-18, 2000.

Invited Attendee to a symposium entitled “Cancer & Molecular Genetics in the Twenty-first Century” held to celebrate the inauguration of the Van Andel Research Institute on September 5-8, 2000 in Grand Rapids, MI.

Invited Speaker to the American Association for the Study of Liver Diseases (AASLD) Clinical Single Topic Conference entitled Primary Sclerosing Cholangitis: Controversies and Consensus. Held on September 15-17, 2000 in Atlanta, GA. Title of presentation: “Altered Growth Factor Pathways in Biliary Cancer”.

Burroughs Wellcome Visiting Professorship Lecture entitled “Biliary Cancer: Molecular Pathogenesis to New Therapeutic Strategies.” Presented to the Pennsylvania State University College of Medicine, October 10, 2000.

“Cyclooxygenase-2 (COX-2) Up-regulation: A Common Alteration in Human and Rat Biliary Cancers”. Presented in minisymposium entitled Clinical Research 16-Gastrointestinal Malignancies: Biology and Treatment at the 92nd Annual Meeting of the American Association for Cancer Research on March 27, 2001 in New Orleans, LA.

“Up-regulation of Cyclooxygenase-2 (COX-2) in C611B Rat Cholangiocarcinoma Cells Over-Expressing NEU and in Neu-Transformed WB-F344 Rat Liver Epithelial Stem-Like Cells.” Presented in minisymposium entitled Hepatic Stem Cells and Cellular Signaling at Experimental Biology 2001 on April 3, 2001 in Orlando, FL.

“The Cyclooxygenase-2 (COX-2) Inhibitor NS-398 Selectively Suppresses In Vitro Cell Growth and Induces Apoptosis in C611B Rat Cholangiocarcinoma Cells Over-Expressing COX-2.” Presented in Poster Discussion Session entitled Gene Expression, Silencing and Repair in Neoplasia at Experimental Biology 2001 on April 4, 2001 in Orlando, FL.

Chair of American Society for Investigative Pathology Poster Discussion Session entitled Gene Expression, Silencing and Repair in Neoplasia held at Experimental Biology 2001 on April 4, 2001 in Orlando, FL.

Session Chair at the American Association for the Study of Liver Diseases Basic Research Single Topic Conference- The Pathobiology of Biliary Epithelia. Session: Malignant Transformation of Cholangiocytes. Title of Presentation: "Therapeutic Targeting of ERBB-2 and COX-2 in Cholangiocarcinoma". Held June 7-10, 2001 at the Airlie Conference Center, Warrington, VA.

"Altered Growth Factor Pathways and COX-2 Up-regulation Common to Rat and Human Biliary Cancers: Relevance to Pathogenesis and New Therapeutic Strategies". Presented at the FASEB Summer Research Conference on Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis held in Snowmass Village, CO, August 4-9, 2001.

Session Chair: Young Investigator Minisymposium on Growth Factor Receptor Tyrosine Kinases at the FASEB Summer Research Conference on Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis held in Snowmass Village, CO, August 4-9, 2001.

"COX-2 and ERBB-2/NEU in Human and Rat Cholangiocarcinomas: Potential Therapeutic Targets". Presented in the Poster Session entitled Liver Transplantation 1 at the 52nd Annual Meeting of the American Association for the Study of Liver Diseases in Dallas, TX, November 10, 2001.

Co-Moderator: American Association for the Study of Liver Diseases (AASLD) Early Morning Workshop-"Cholangiocyte Cell Biology" held November 12, 2001 at the 52nd Annual Meeting of the AASLD, in Dallas, TX.

Invited Speaker to FASEB Summer Research Conference on Mechanisms of Liver Growth, Differentiation and Molecular Pathogenesis of Hepatic Diseases held in Snowmass Village, CO, July 27-August 1, 2002. Title of Presentation: "Molecular Mechanisms of Cholangiocarcinogenesis: Potential New Therapeutic Strategies."

"Targeting ERBB-2 and COX-2 in a Novel Rat Cholangiocarcinoma Cell Line" presented in a Poster Session entitled "Organ Site-Specific Investigations: Colon and Gastrointestinal Cancers" at the AACR Frontiers in Cancer Prevention Research Conference held October 14-18, 2002 in Boston, MA. Selected for presentation in Poster Discussion Session entitled "Gastrointestinal Cancer".

Lecturer: Science Museum of Virginia Mini-Medical School Program. Entitled: Pathology: Linking Technology with Good Health. Title of Lecture: "Molecular Targets in Cancer Treatment" presented in Richmond, VA on October 30, 2002.

Co-Moderator: American Association for the Study of Liver Diseases (AASLD) Early Morning Workshop-"Cholangiocyte Cell Biology" held November 4, 2002 at the 53<sup>rd</sup> Annual Meeting of the AASLD, in Boston, MA.

Effect of GW572016 on ErbB-2 Signaling, Cell Growth, and Apoptosis in Rat Biliary Cancer Cells". Presented in a Poster Session entitled LIVER CANCER at Experimental Biology 2003 on April 12, 2003 in San Diego, CA.

"Molecular Mechanism of Celecoxib-Induced Apoptosis in Rat Biliary Cancer Cells." Presented in a Poster Session titled APOPTOSIS at Experimental Biology 2003 on April 13, 2003 in San Diego, CA.

Invited Speaker: Session entitled "Liver Pathobiology: Molecular and Cellular Basis of Liver Cancer" at the American Society for Investigative Pathology Annual Meeting at Experimental Biology 2003, held April 15, 2003 in San Diego, CA. Title of Presentation: "Targeting HER-2/neu and COX-2 in Cholangiocarcinoma."

Invited Speaker: Lifespan COBRE Center for Cancer Research Development Research Symposium held in Providence, RI, July 31, 2003. Title of Presentation: "Signature Immunoreactivity Marker Profiles of Cholangiocarcinoma: Potential for Molecular Therapeutic Targeting".

Chair of Session entitled Growth Factor Receptor Tyrosine Kinases in Tumorigenesis, Invasion, and Metastasis-II at the FASEB Summer Research Conference: GROWTH FACTOR RECEPTOR TYROSINE KINASES IN MITOGENESIS, MORPHOGENESIS, AND TUMORIGENESIS, held August 2-7, 2003 in Tucson, AZ. Title of presentation: "ERBB-2 as a Therapeutic Target in Biliary Cancer".

"Oncogenic neu transformation of rat cholangiocytes: A novel *in vitro* model of cholangiocarcinogenesis". Presented in the Poster Discussion Session Carcinogenesis 13 "Animal and In Vitro Models of Carcinogenesis II" at the 95th annual meeting of the American Association for Cancer Research held in Orlando, FL, March 27-31, 2004.

Invited Speaker: 2004 FASEB Summer Research Conference titled "Mechanisms of Liver Growth, Development and Disease" held in Snowmass Village, CO, August 7-12, 2004. Title of presentation: "Altered growth factor receptor signaling and molecular therapeutic targeting in cholangiocarcinoma"

"A novel model system for spontaneous transformation is defined by loss of BD.1, a novel marker, during the cell cycle." Presented in Poster Session 2 at the 2004 FASEB Summer Research Conference titled "Mechanisms of Liver Growth, Development and Disease" held in Snowmass Village, CO August 7-12, 2004.

Invited Speaker: Hans Popper Hepatopathology Society Seminar on Primary Liver Tumors held in San Antonio, TX on February 27, 2005. Title of presentation: "Cholangiocarcinoma".

"Oncogenic erbB-2/neu transformation of rat cholangiocytes *in vitro* accompanied by increased telomerase activity and COX-2 up-regulation." Given as an oral presentation in the session titled Regulation of Liver Growth and Development at Experimental Biology 2005 held in San Diego, CA, April 3, 2005.

"A novel preclinical rat model of rapid mass-forming cholangiocarcinoma growth in liver with prominent extrahepatic metastases recapitulating the advanced human disease". Given as a Poster Presentation at the 57th Annual Meeting of the American Association for the Study of Liver Diseases on October 30, 2006.

"Bile duct obstruction is a potent promoter of intrahepatic cholangiocarcinoma growth and progression". Given as an oral presentation in the American Society for Investigative Pathology session titled Hepatobiliary Pathobiology I: Liver Stem Cells and Cancer at Experimental Biology 2007 held in Washington, DC, April 29, 2007. Selected by the ASIP as a news release.

“Simultaneous inhibition of ErbB1 and ErbB2 signaling significantly enhances the growth suppression of rat and human cholangiocarcinoma cell lines”. Given as an oral presentation in the American Society for Investigative Pathology session titled Hepatobiliary Pathobiology I: Liver Stem Cells and Cancer at Experimental Biology 2007 held in Washington, DC, April 29, 2007.

“Significant COX-2 up-regulation and Akt activation positively correlate with in vitro spontaneous neoplastic transformation of a rat cholangiocyte cell line”. Given as an oral presentation in the American Association for the Study of Liver Diseases Session titled Hepatobiliary Neoplasia: Clinical and Experimental at Digestive Disease Week held in Washington, DC, May 20, 2007.

Co-Chair, American Association for the Study of Liver Diseases Session titled Hepatobiliary Neoplasia: Clinical and Experimental held at Digestive Disease Week 2007 in Washington, DC, May 20, 2007.

“*In vitro* spontaneous transformation of rat BDE1 cholangiocytes compared with oncogenic *erbB-2/neu* transformants”. Presented as an interactive poster at the 2007 Annual Meeting of The Society for In Vitro Biology held in Indianapolis, IN, June 11, 2007.

“A novel “patient-like” model of cholangiocarcinoma progression based on bile duct inoculation of transformed rat cholangiocytes overexpressing ErbB2”. Given as a Poster Presentation at the 47th Annual Meeting of the Society of Toxicology & ToxExpo™ in Seattle, WA, March 17, 2008.

“Establishment of a novel “patient-like” rat model of cholangiocarcinoma progression for molecular therapeutic studies”. Presented at the 2008 Henry M. & Lillian Stratton Basic Research Single Topic Conference- Pathobiology of Biliary Epithelia and Cholangiocarcinoma, sponsored by the American Association for the Study of Liver Diseases (AASLD) and held in Atlanta, GA, June 6-8, 2008.

Chair, Session V titled “Molecular Strategies for Therapy of Cholangiocarcinoma”, included as part of the scientific program of the 2008 Henry M. & Lillian Stratton Basic Research Single Topic Conference-Pathobiology of Biliary Epithelia and Cholangiocarcinoma, sponsored by the AASLD and held on June 8, 2008 in Atlanta, GA.

“Hepatobiliary cancer: current concepts, new models, and future strategies for target-based therapies and chemoprevention”. Presented at the 2008 Annual Meeting of the Association of Pathology Chairs in Colorado Springs, CO, July 18, 2008.

“Preclinical assessment of dual ErbB1/ErbB2 targeting as a potential adjuvant molecular therapy for intrahepatic cholangiocarcinoma.” Given as an oral presentation in Parallel Session XXVI: Hepatobiliary Cancer: Basic at the 59th Annual Meeting of the American Association for the Study of Liver Diseases held in San Francisco, CA, November 3, 2008..

“Sorafenib inhibits STAT3 activation in cholangiocarcinoma cells” (Corresponding Author: G. J. Gores, Mayo Clinic; Sirica, A.E. co-author). Given by B. Blechacz as an oral presentation in Presidential Plenary 1 and Award Presentation at the 59th Annual Meeting of the American Association for the Study of Liver Diseases held in San Francisco, CA, November 3, 2008.

Invited select presentation titled "A novel rat "patient-like" model of intrahepatic cholangiocarcinoma progression closely mimicking clinical and molecular features of the human disease." Presented as part of the Biospecimen Pathway Poster Discussion Session titled "Biomarkers: Esophagus, Colon, and Liver Cancer" held at the NCI Translational Science Meeting on November 8, 2008 in Washington, DC.

Invited Speaker to the 2009 American Association for Investigative Pathology Annual Meeting at Experimental Biology 2009, being held in New Orleans, LA, April 18-22, 2009. Title of Presentation: "A novel "patient-like" rat model of cholangiocarcinoma progression highly suitable for the rapid *in vivo* testing of target -based therapies". Given on April 19, 2009 in the session titled "Liver Pathobiology Symposium: Interdisciplinary Approaches to Liver Disease".

"Genome-wide gene expression profiling in a novel "patient-like" rat model of intrahepatic cholangiocarcinoma progression closely mimicking the human disease". Presented by C. I. Dumur as a poster on April 19, 2009 in the session titled "Oncogenomics 2: Genome-wide mRNA Profiling of Cancer" at the 100th Annual Meeting of the American Association for Cancer Research held in Denver, CO, April 18-22, 2009.

"Sorafenib inhibits IL-6 induced STAT3 signaling in cholangiocarcinoma cells and demonstrates *in vivo* efficacy". Presented by B. Blechacz on April 22, 2009 as a poster in the session titled " Cell Death Pathways and Modulation of DNA Repair" at the 100th Annual Meeting of the American Association for Cancer Research held in Denver, CO, April 18-22, 2009.

Invited Speaker to the 5th Joint Meeting of the Japanese Society of Gastroenterology and the American Gastroenterological Association titled "Inflammation and Carcinogenesis of the Pancreas and Biliary Tract: Mechanisms and Practice" held in Sapporo, Hokkaido, Japan, May 7-8, 2009. Title of presentation: "Intrahepatic cholangiocarcinoma progression: Molecular insights from a novel rat model closely mimicking the human cancer" given in the session "Inflammation and Carcinogenesis of the Biliary Tract-Mechanism and Pathophysiology" held on May 8, 2009.

Chair of the session titled "Inflammation and Carcinogenesis of the Biliary Tract-Differential Diagnosis and Treatment" held on May 8, 2009 as part of the 5th Joint Meeting of the Japanese Society of Gastroenterology and the American Gastroenterological Association, Sapporo, Hokkaido, Japan.

"Single agent activity of Obatoclax (Gx15-070) in a rat cholangiocarcinoma model". Given by R. Smoot as an oral presentation in the AASLD Research Forum titled "Complications of Cirrhosis: Experimental" at Digestive Disease Week 2009 in Chicago, IL on May 31, 2009.

Invited Presenter at the 2009 NCI Translational Science Meeting, "NCI Translates" held in Vienna, VA, November 5-7, 2009. Presented in Poster Discussion Session titled "Targeting the EGFR Family" on November 5, 2009. Title of poster presentation: "Preclinical assessment of dual ErbB1/ErbB2 targeting in intrahepatic cholangiocarcinoma".



“Differential gene overexpression in highly malignant *erbB2/neu* transformed rat BDE1 cholangiocytes versus less aggressive spontaneously transformed BDE1 cholangiocytes”. Presented in the Poster Session “Oncogenomics 3:Expression Profiling” at the 101st Annual Meeting of the American Association for Cancer Research held in Washington, DC, April 17-21, 2010.

Invited Speaker at the 1st Annual Biliary Tract-Gallbladder Cancer Research Symposium sponsored by CanLiv-The Hepatobiliary Cancers Foundation and by the Cholangiocarcinoma Foundation, held in Alexandria, VA on May 7, 2010. Title of presentation” Intrahepatic cholangiocarcinoma: New insights from a preclinical animal model suggesting novel therapeutic targeting strategies”.

“Cancer-associated fibroblastic cells significantly promote cholangiocarcinoma cell ductal growth in a novel 3-D co-culture model”. Presented in the oral session entitled “Mechanisms of Hepatobiliary Neoplasia”, sponsored by the American Association for the Study of Liver Diseases held at Digestive Disease Week 2011 in Chicago, IL on May 10, 2011.

Invited talk entitled “Cancer-associated myofibroblastic cells and cholangiocarcinoma progression” presented at the McArdle Laboratory for Cancer Research Symposium honoring Dr. Henry C. Pitot, held at the University of Wisconsin-Madison on June 3, 2011.

Presenter of The Dr. and Mrs. Michael A. Gerber Memorial Lecture given at the 23<sup>rd</sup> Annual Health Sciences Research Days and the Department of Pathology & Laboratory Medicine, Tulane University on April 11, 2012. Lecture Title: “Modeling cholangiocarcinoma progression: Do cancer-associated myofibroblasts matter?”

Invited Speaker at the 2nd CanLiv Biliary Tract and Gallbladder Research Symposium held on June 22, 2012 at ASCO Headquarters Conference Center, Alexandria, VA. Title of presentation: Fibroblasts, cell signaling pathways in cholangiocarcinoma.

Co-moderator, Early Morning Workshop entitled “HCC: Cellular Mechanisms of Carcinogenesis” held at The Liver Meeting 2012 (63<sup>rd</sup> Annual Meeting of the American Association for the Study of Liver Diseases) on November 11, 2012 in Boston, MA.

“Organotypic cell culture modeling of desmoplastic cholangiocarcinoma progression”. Presented in the Poster Session entitled “Experimental Hepatocarcinogenesis” at the 63<sup>rd</sup> Annual Meeting of the American Association for the Study of Liver Diseases in Boston, MA on November 11, 2012.

“Liver biliary cancer progression: The role of myofibroblastic cells in the tumor microenvironment”. Presented as the Keynote talk at the Medical University of South Carolina Hollings Cancer Center 2013 Spring Research Symposium “Models of Human Cancer for Translational Research” held March 15, 2013 in Charleston, South Carolina.

“Cancer-associated fibroblasts in cholangiocarcinoma progression”. Presented at the 2014 FASEB Summer Research Conference on “Liver Biology: Fundamental Mechanisms &Translational Applications” held in Keystone, CO July 6-11, 2014.

“Origin and diversity of fibroblastic cells from intrahepatic cholangiocarcinoma”. Presented at Experimental Biology 2015 in Boston, MA, March 28-31, 2015. Given as an oral talk in the session titled “Cellular and Molecular Basis of Liver Tumors” on March 28, 2015 and as a Poster Discussion Presentation in the session entitled “Club Hepatomania (Liver Pathobiology) Scientific Interest Group Poster Discussion and Networking Session” on March 31, 2015. Both sessions are sponsored by the American Society for Investigative Pathology at Experimental Biology 2015.

“Modeling cholangiocarcinoma desmoplasia for rapidly identifying stromal targeting agents.” Accepted for presentation at DDW 2015 on February 10, 2015. Presented at the Poster Session “Bile Acid and Cancer Receptors” on May 16, 2015, Washington, DC. Session sponsored by the American Association for the Study of Liver Diseases.

“Cholangiocarcinoma cells interact with cancer-associated myofibroblasts in 3-D culture to provoke a strong desmoplastic-like reaction mediated by TGF- $\beta$ .” Presented on November 17, 2015 in the Poster Session titled “Experimental Hepatocarcinogenesis” at The Liver Meeting® 2015, AASLD’s Annual Meeting in San Francisco, CA.

Manzanares, M.A., Campbell, D.J. and Sirica, A.E.: 2016. Combined prognostic value of serum and tumor periostin and mesothelin in a “patient-like” rat model of cholangiocarcinoma progression. Presented at the AASLD’s The Liver Meeting 2016 in Boston, MA in Session Parallel 24- Hepatobiliary Neoplasia: Experimental held on November 14, 2016.

Sirica, A.E.: 2017. Modeling the desmoplastic stroma of intrahepatic cholangiocarcinoma for therapeutic targeting. Presented at Hepatobiliary Cancers: Pathobiology and Translational Advances held in Glen Allen, VA on December 8, 2017.

Sirica, A.E.: 2018. Underexpression of phospho-LKB1, atypical PKC $\zeta$ , and Hes1 associated with disruption of polarized morphogenesis in a 3-dimensional culture model of rat cholangiocarcinoma progression mediated by activated neu receptor. Presented at DDW 2018 in poster session titled “Experimental Hepatocarcinogenesis” on June 3, 2018 in Washington, DC.

Faculty member/ moderator (with Gregory J. Gores, M.D., Mayo Clinic, Rochester, MN), American Association for the Study of Liver Diseases Early Morning Workshop-Basic held on November 9, 2019 during The Liver Meeting® 2019, in Boston, MA. Workshop Title, EMW 1: Molecular Pathogenesis of Intrahepatic Cholangiocarcinoma.

Mentor, Hepatobiliary Neoplasia SIG-Early Career Mentoring Session held November 11, 2019 during The Liver Meeting® 2019, in Boston, MA.

Invited Speaker and Primary Organizer, Keystone eSymposium on “Hepatobiliary Cancers: Pathobiology and Translational Advances”. To be held as Virtual Conference on March 22-24, 2021. Title of Presentation: The desmoplastic reaction in intrahepatic cholangiocarcinoma: molecular drivers and prognostic implications.

**SEMINARS:**

Adult to Fetal Biochemical Transitions in Adult Rat Hepatocytes in Primary Culture. Presented at the University of Pittsburgh Medical School, Department of Anatomy on January 5, 1981.

Pre-neoplastic Phenotype Changes in Liver. Presented at the Wisconsin Clinical Cancer Center, Department of Human Oncology, University of Wisconsin Medical School on November 11, 1981.

Hepatocarcinogenesis as a Problem in Development Biology. Presented in the Department of Pathology, University of Wisconsin Medical School on November 24, 1981.

The Use of Primary Hepatocyte Culture in Evaluating Chemical Carcinogens. Presented in Environmental Toxicology 875, University of Wisconsin on December 2, 1981.

Two-Stage Hepatocarcinogenic Models: Their Potential Application as Short-Term In Vivo Tests for Chemical Carcinogens - Spring Meeting, Wisconsin Center, Food Research Institute on May 25-26, 1982.

Studies on the Pathobiology of Hepatocarcinogenesis in the Rat: Past, Present and Future Directions. Presented to the Department of Anatomy, University of Wisconsin on March 16, 1982.

Liver Tumor Promotion. Presented to the Department of Pharmacology, University of Wisconsin, March 16, 1982.

Studies in Hepatic Carcinogenesis. Presented at the Institute for Toxicology, Zurich, Switzerland, March 30, 1983.

Characterization of Oval and Hyperplastic Bile Ductular Cells from the Livers of Carcinogen and Noncarcinogen-treated Rats. Presented at the University of Texas System Cancer Center on September 20, 1983.

Studies on Oval, Hepatocyte and Hyperplastic Bile Ductular Populations from the Livers of Carcinogen and Noncarcinogen-treated Rats. Presented at the University of North Carolina, Department of Anatomy and Cell Biology on October 25, 1983.

Studies on Oval and Hyperplastic Bile Ductular Cells from Rat Liver. Presented at the National Cancer Institute, Frederick Cancer Research Institute, Frederick, Maryland on November 2, 1983.

Studies on Oval and Hyperplastic Bile Ductular Cells from the Livers of Carcinogen and Noncarcinogen-treated Rats. Presented at the Department of Anatomy, University of Wisconsin Medical School on December 6, 1983.

Studies on Oval and Hyperplastic Bile Ductular Cells During Experimental Hepatocarcinogenesis and Cholestasis in the Rat. Presented at the National Cancer Institute, Bethesda, Maryland on December 14, 1983.

Studies on Oval and Hyperplastic Bile Ductular Cells from the Livers of Carcinogen and Noncarcinogen-treated Rats. Presented at the Department of Pathology, Medical College of Virginia on December 16, 1983.

Studies on Bile Ductular Cells During Experimental Carcinogenesis and Cholestasis. Presented in Environmental Toxicology 875, University of Wisconsin on February 1, 1984.

Effect of Phenobarbital on Biochemical Types of Preneoplastic Liver Lesions. Presented to the Department of Anatomy, University of Wisconsin Medical School on June 5, 1984.

Effect of the Hepatic Tumor Promoter Phenobarbital on the  $\gamma$ -Glutamyl Transpeptidase Activity of Preneoplastic Hepatocellular Lesions of the Rat. Presented to the Department of Pathology, Medical College of Virginia/VCU on October 26, 1984.

Isolation and Characterization of Bile Ductular Cells from the Livers of Carcinogen and Noncarcinogen-treated Rats. Presented to the Department of Pharmacology, Virginia Commonwealth University on January 29, 1986.

$\gamma$ -Glutamyl Transpeptidase in Experimental Liver Disease: An Old Enzyme with New Significance. Presented to the Department of Pathology, Medical College of Virginia/VCU on February 7, 1986.

Studies on Hyperplastic Bile Ductular Cells In Vivo and In Culture. Presented to the Department of Pathology, Duke University on December 15, 1986.

Bile Ductular Epithelial Cells in Culture: A Novel Cell System for Studying Cell Differentiation, Growth and Carcinogenesis. Presented to the Department of Pharmacology, Virginia Commonwealth University on February 23, 1988.

Studies on Bile Ductular Epithelial Cells in Culture: "On Top" Versus "Inside" Cultures with Different Extracellular Matrix Substitutes. Presented at the Medical Oncology Seminars in Basic Research to the Department of Medical Oncology, Rhode Island Hospital on April 7, 1988.

Evaluation of Chlordecone (Kepone) in a Multistage Model of Hepatocarcinogenesis: A New Approach to Human Risk Assessment. Presented to the Department of Pathology, Medical College of Virginia/VCU on April 22, 1988.

The Isolation, Culture, and Transplantation of Well-Differentiated Bile Ductular Epithelial Cells. Presented at the Laval University Center for Cancer Research, Quebec City, Quebec, Canada on September 15, 1989.

The Culture and Transplantation of Bile Ductular Epithelial Cells: A Novel Cell System for Studying Biliary Cell Function, Growth Regulation and Carcinogenesis. Presented to the Liver Center, Yale University, New Haven, Connecticut on October 3, 1989.

Studies on Hyperplastic Bile Ductular Epithelial Cells In Culture and In Vivo. Presented to the Department of Pathology and Laboratory Medicine, Brown University, Providence, Rhode Island on October 4, 1989.

The Bile Ductular Epithelial Cell: Can it Act as a Facultative Stem Cell in Liver. Presented to the Department of Pathology, Medical College of Virginia/VCU on November 17, 1989.

Characterization of Rat Hyperplastic Bile Ductular Epithelial Cells In Culture and In Vivo. Presented to the Department of Pathology, University of Virginia, Charlottesville, Virginia on November 28, 1989.

Differentiation Potential of Hyperplastic Bile Ductular Epithelial Cells In Vivo and In Culture. Presented to the Department of Pathology, Duke University, Durham, North Carolina on April 11, 1990.

Isolation, Culture, and Differentiation Potential of Hyperplastic Intrahepatic Biliary Epithelial Cells. Presented at the McArdle Laboratory for Cancer Research, University of Wisconsin, Madison, Wisconsin on November 7, 1990.

Altered Patterns of Differentiation of Hyperplastic Bile Ductular Epithelial Cells in Relation to Cholangiocarcinogenesis and Severe Hepatic Injury. Presented to the Department of Pathology, Medical College of Virginia/VCU on April 24, 1992.

Plasticity Within the Intrahepatic Biliary Tract: Do Bile Ductular Epithelial Cells Act as Hepatic "Stem Cells". Presented to the Department of Pathology, University of Pittsburgh School of Medicine, Pittsburgh, PA on May 6, 1992.

The Hyperplastic Bile Ductular Epithelial Cell: Can it Act as a "Facultative Stem Cell" in Liver During Conditions of Carcinogenesis and Severe Hepatic Injury. Presented to the Department of Pathology, Case Western Reserve University, Cleveland, OH on May 15, 1992.

Altered Patterns of Differentiation of Hyperplastic Bile Ductule Cells During Cholangiocarcinogenesis and in Severe Hepatic Injury. Presented at the Liver Research Center, Albert Einstein College of Medicine of Yeshiva University, Bronx, NY on September 30, 1992.

Phenotypic Characterization of Furan-induced Hepatic Adenocarcinomas in Rats. Presented to the National Institute of Environmental Health Sciences, Research Triangle Park, NC on October 20, 1992.

Altered Patterns of Differentiation of Bile Ductular Epithelial Cells in Severe Hepatic Injury and Carcinogenesis. Presented to the Department of Pharmacology and Toxicology, Medical College of Virginia/VCU on March 10, 1993.

Pathophysiology, Growth Properties and Differentiation Potential of Hyperplastic Bile Ductular Epithelium. Presented at Lilly Research Laboratories Toxicology Research Seminars Series, Greenfield, IN on May 4, 1993.

Altered Differentiation Patterns During Cholangiocarcinogenesis in Liver: Evidence for an Intrahepatic Biliary Epithelial Stem Cell. Presented to the Genetics Institute, Inc., Cambridge, MA on May 5, 1993.

New Evidence in Support of a Pluripotent Hepatic Stem Cell. Presented to the Department of Pathology, Medical College of Virginia/VCU, on November 12, 1993.

New Evidence for a Biliary Stem Cell in Rat Liver. Presented to the Department of Microbiology, Pennsylvania State University College of Medicine, M.S. Hershey Medical Center, Hershey, PA on November 18, 1993.

Does a Multipotential Biliary Stem-Like Cell Exist in Rat Liver? Presented to the Department of Pharmacology and Toxicology, Medical College of Virginia/VCU on February 21, 1994.

Pathology Faculty Research Presentations at the Department of Pathology's Grand Rounds, March 10, 1995. Two presentations given: (1) "Selective Immunohistochemical Localization of HGF and its c-Met Encoded Receptor to Metaplastic Small Intestinal-like Glands in Hepatic Cholangiofibrotic Tissue and in Neoplastic Glands of Intestinal-Type Adenocarcinoma Induced in the Livers of Furan-Treated Rats"; (2) "Rapid Isolation and Partial Characterization of a Highly Enriched Biliary Epithelial Cell Population From a Rat Model Whose Liver Was Almost Totally Replaced with Hyperplastic Bile Ductules".

New Advances in Bile Ductular Epithelial Cell Culture and Experimental Cholangiocarcinogenesis. Presented at the Department of Pathology Grand Rounds, Medical College of Virginia, VCU on October 13, 1995.

Biliary Epithelium: Novel Adaptation Responses, Cholangiocarcinogenesis, MET and ERBB-2, and *In Vitro* Ductal Morphogenesis. Presented at the ABL - Basic Research Program, Frederick Cancer Research and Development Center, Frederick, MD in March, 1996.

Molecular Pathogenesis of Cholangiocarcinoma. Presented at the Department of Pathology Grand Rounds, Medical College of Virginia, VCU on October 25, 1996.

Biliary Adaptation Responses, Morphogenesis, and Carcinogenesis. Presented to the Department of Pathology, University of Wisconsin-Madison, Madison, WI on October 15, 1997.

Studies on Bile Ductular Hyperplasia, Morphogenesis, and Carcinogenesis. Presented at the Department of Pathology Grand Rounds, Medical College of Virginia, VCU on November 7, 1997.

Biliary Morphogenesis, Adaptation Responses, and Carcinogenesis: Cellular and Molecular Studies. Presented to The Section of Digestive Diseases, Department of Internal Medicine, Yale University School of Medicine, New Haven, CT on December 9, 1997.

Cellular and Molecular Aspects of Biliary Carcinogenesis and Morphogenesis. Presented at the Marion Bessin Liver Research Center of Albert Einstein College of Medicine, Bronx, NY on December 10, 1997.

Growth Factors in Biliary Mitogenesis, Morphogenesis, and Carcinogenesis. Presented to the Division of Biomedical Sciences, University of California-Riverside, Riverside, CA on April 23, 1998.

Intestinal Metaplasia and Altered Growth Factor Pathways in Cholangiocarcinogenesis. Presented to the Center for Molecular Studies in Digestive and Liver Disease, University of Pennsylvania Medical Center, Philadelphia, PA on April 13, 1999.

Altered Growth Factor Pathways and Intestinal Metaplasia in Biliary Cancer Development. Presented at the Department of Pathology Grand Rounds, Medical College of Virginia, VCU on October 1, 1999.

Altered Growth Factor Pathways in Biliary Carcinogenesis. Presented to the Department of Pathology at the University of Pittsburgh on November 17, 1999.

Intestine-Specific Transcription Factor Expression and Altered Growth Factor Pathways in Biliary Carcinogenesis. Presented to the University of Virginia Cancer Center, Charlottesville, VA on February 18, 2000.

Altered Growth Factor Pathways in Biliary Cancer. Presented on May 8, 2000 to the Immunology & Microbial Disease Research Group and other faculty and students of The Albany Medical College, Albany, NY.

Aberrant Transcription Factor Expression and Altered Growth Factor Pathways in Biliary Cancer. Presented on May 26, 2000 to the Department of Pathology of the Medical College of Ohio, Toledo, OH.

Biliary Cancer: Altered Growth Pathways, COX-2 Up-Regulation, and New Therapeutic Strategies. Presented on October 2, 2000 to the Department of Cell Biology of the University of Medicine and Dentistry of New Jersey School of Osteopathic Medicine, Stratford, NJ.

Biliary Cancer Growth Factor Pathways, Cyclooxygenase-2 and Potential Therapeutic Strategies. Presented on November 7, 2000 to Brown University and Rhode Island Hospital, Providence, RI.

Growth Factor Pathways and Cyclooxygenase-2 in Biliary Carcinogenesis. Presented on January 30, 2001 to the Department of Pathology of the University of Pittsburgh.

Biliary Cancer: Cyclooxygenase-2, Altered Growth Factor Pathways and New Therapeutic Strategies. Presented at the Department of Pathology Grand Rounds, Medical College of Virginia, VCU on May 11, 2001.

Therapeutic Targeting of p185<sup>neu</sup> Receptor Tyrosine Kinase and of COX-2 in Cholangiocarcinoma. Presented at the University of Texas M.D. Anderson Cancer Center – Science Park Research Division, Smithville, TX on November 13, 2001.

New Therapeutic Targeting Strategies for Biliary Cancer. Presented to the Department of Biochemistry, Medical College of Virginia, VCU on May 13, 2002.

Molecular Targeting Strategies for Biliary Cancer. Presented to the Department of Pathology, University of Pittsburgh on June 24, 2002.

Strategies for the Development of a NIH Program Project Grant on Aberrant Receptor Signaling, COX-2, and Molecular Targeting in Biliary Cancer. Presented at a Department of Pathology Research Luncheon Program, Medical College of Virginia, VCU on July 17, 2002.

Molecular Mechanisms of Cholangiocarcinoma: Potential Therapeutic Targets. Presented to the Division of Gastroenterology, Department of Internal Medicine, Medical College of Virginia, VCU on October 3, 2002.

Molecular Pathogenesis and Novel Therapeutic Strategies for Hepatobiliary Cancer. Presented to the MBG Seminar Program and to the Cancer Cell Biology Program at Virginia Commonwealth University on November 27, 2002.

Molecular Drug Targeting in Biliary Cancer. Presented to the Department of Pharmacology, Medical College of Virginia, VCU on April 29, 2003.

Aberrant Growth Factor Signaling and Potential Therapeutic Targets in Biliary Cancer. Presented to VCU's Massey Cancer Center on May 7, 2003.

Biliary Cancer: Immunochemical Profiling, Novel Models, and Potential Therapeutic Targets. Presented to the Department of Pathology and Microbiology of the University of South Carolina School of Medicine on July 19, 2004

Cholangiocarcinoma: Novel Models; New Molecular Therapeutic Strategies. Presented at the Department of Pathology Grand Rounds, Medical College of Virginia, VCU on November 5, 2004.

Cholangiocarcinoma: Immunochemical Profiling and Novel Models. Presented to the Department of Pathology of the University of Pittsburgh School of Medicine on November 10, 2004.

Cholangiocarcinoma: Molecular Pathogenesis and Potential Therapeutic Targets. Presented to the Department of Medical Physiology, Texas A & M University System Health Science Center, Temple, TX on November 18, 2004.

Novel Molecular Therapeutic Strategies for Cholangiocarcinoma. Presented in the Department of Pathology's "Research In Progress" series, Medical College of Virginia, VCU on February 14, 2005.

Cholangiocarcinoma: Novel Models and Molecular Targeting Strategies. Presented to the Liver-Pancreatic-Biliary Center of the University of Connecticut Health Center, Farmington, CT on June 21, 2005.

GI Oncology Research Initiative. Presented at the Department of Pathology Research Luncheon Program, Virginia Commonwealth University School of Medicine on October 18, 2005.

An Overview of Cancer Research: Pathobiology and Molecular Therapeutics. Presented to Benedictine High School on May 16, 2006.

Novel Preclinical Models of Cholangiocarcinoma Progression and Molecular Targeting Strategies for Therapy. Presented to Virginia Commonwealth University's Department of Surgery's Surgical Research Meeting on June 1, 2006.

A Novel "Patient-Like" Rat Model of Rapid Intrahepatic Cholangiocarcinoma Growth and Progression Recapitulating Key Cellular and Molecular Features of the Human Disease. Presented at Pathology Grand Rounds, Medical College of Virginia, VCU on December 1, 2006.

A New and Unique "Patient-like" Rat Model of Intrahepatic Cholangiocarcinoma Progression Mimicking the Human Disease. Presented to the Department of Pathology at Emory University School of Medicine on February 27, 2007.

A Novel Preclinical Model of Intrahepatic Cholangiocarcinoma Progression Based on Orthotopic Cell Transplantation of Spontaneous versus *erbB-2/neu*-Transformed Rat Cholangiocytes. Presented to the Department of Pathology of the University of Pittsburgh School of Medicine on May 30, 2007.



Development of a Novel Preclinical Model of Intrahepatic Cholangiocarcinoma Progression That Reliably Recapitulates the Advanced Human Disease. Presented in the Department of Pathology's "Research in Progress" series, Virginia Commonwealth University School of Medicine, June 4, 2007.

Development of a Novel Animal Model of Bile Duct Cancer Progression Recapitulating Key Cellular and Molecular Features of the Human Disease and Ideal for the Rapid Preclinical Testing of Target-based Molecular Therapies. Presented as a MBG Seminar at Virginia Commonwealth University, October 23, 2007.

Overview of Research in the Division of Cellular and Molecular Pathogenesis. Five minute presentation given at the MCV Pathology Alumni Weekend, Richmond, VA, October 26, 2007.

Hepatobiliary Cancer Research: Current Concepts and Future Directions. Presented in the Berglund Honors Seminar Series at Virginia Commonwealth University, November 12, 2007.

A Novel "Patient-like" Rat Model of Intrahepatic Cholangiocarcinoma Progression mimicking Cellular, Molecular, and Clinical Features of the Human Disease. Presented at the University of North Carolina-Charlotte, April 30, 2008.

ErbB1/ErbB2 and Cholangiocarcinoma: Potential Therapeutic Targets. Presented at the Carolinas Medical Center Campus, Charlotte, NC on April 30, 2008.

The Role of ErbB Family Receptor Tyrosine Kinases in Intrahepatic Bile Duct Cancer. Presented at Pathology Grand Rounds, Medical College of Virginia Campus, VCU on May 16, 2008.

ErbB Family Receptor Tyrosine Kinases as Potential Targets for Intrahepatic Cholangiocarcinoma Therapy. Presented at the Yale Digestive Diseases Section Research Conference, Yale University School of Medicine on September 23, 2008

A Novel "Patient-Like" Rat Model of Intrahepatic Cholangiocarcinoma Progression as a Preclinical Platform for Rapid Testing of Molecular Target-based Therapies". Presented as an "Advances in Molecular and Cellular Pathology" seminar sponsored by the Graduate Program of the Departments of Pathology and Genomics and Pathobiology, University of Alabama at Birmingham on October 9, 2008.

Intrahepatic Cholangiocarcinoma: New insights from a Novel "Patient-like" Rat Model Mimicking the Human Cancer. Presented at Eastern Virginia School of Medicine on March 5, 2009.

VCU School of Medicine GI Oncology Research Initiative: Current Progress and Future Aims. Presented at the Department of Pathology's "Research in Progress" series, Virginia Commonwealth University School of Medicine on April 6, 2009.

Biomedical Scientist. Presented at Our Lady of Lourdes School 2010 Career Day, Richmond, VA on February 3, 2010.

Cholangiocarcinoma Progression. Presented at the GI Oncology Research Retreat held at the MCV Alumni house, Richmond, VA on March 11, 2010.

A Novel Preclinical Model for Identifying and Rapidly Testing Molecular Target-based Strategies for Cholangiocarcinoma Therapy. Presented at Pathology Grand Rounds, Virginia Commonwealth University School of Medicine on May 21, 2010.

Molecular Targeting Strategies for Cholangiocarcinoma Therapy: Preclinical Assessment of Potential Targets. Presented at the Department of Biochemistry, George Washington University Medical Center, Washington, DC on October 19, 2010.

Adventures of a Liver Cancer Researcher. Presented as the Keynote Address at Our Lady of Lourdes School 2011 Career Day, Richmond, VA on February 2, 2011.

Cancer-Associated Myofibroblastic Cells in the Evolution of Cholangiocarcinoma Progression, Presented at the Department of Pathology's "Research in Progress" series, Virginia Commonwealth University School of Medicine on April 4, 2011.

P01 Grant Application preview entitled "CAF-Cancer Cell Cross-talk in Cholangiocarcinoma: New Paradigm for Targeted Therapy" presented to the Division of Cancer Biology of the National Cancer Institute, NIH on April 15, 2011.

Novel Organotypic Co-culture and "Patient-like" Orthotopic Tumor, Syngeneic Rat Models of Biliary Cancer Progression. Presented to the VCU Division of Radiation Oncology's Radiation Biology and Oncology Conference on October 26, 2011.

Hepatobiliary Cancer Progression: Does Tumor Stroma Really Matter? Presented at the Department of Pathology's "Research in Progress" series, Virginia Commonwealth University School of Medicine on February 6, 2012.

Organotypic and Orthotopic Tumor Modeling of Desmoplastic Cancer Progression and Targeted Therapeutics: The Hepatobiliary Cancer Paradigm. Presented in the MBG Seminar Series at Virginia Commonwealth University on October 2, 2012.

The Desmoplastic Reaction and Hepatobiliary Cancer Progression: A Paradigm Shifting Concept. Presented at Pathology Grand Rounds, Virginia Commonwealth University School of Medicine on October 26, 2012.

Tumor Microenvironment and Hepatic Biliary Cancer Progression: New Opportunities for Therapy. John F. Sander and Nancy K. Dunkel Memorial Lectureship in Physiology. Presented to the Department of Physiology of Michigan State University, East Lansing, MI on November 29, 2012.

Modeling Desmoplastic Cholangiocarcinoma Progression: New Opportunities for Targeted Therapies. Presented at VCU's GI Oncology Research Group Lunch Meeting, January 31, 2013.

Pathobiology and Therapeutic Targeting of Biliary Cancer in Liver. Presented at VCU's Department of Biomedical Engineering Research Seminar for Graduate Students on April 3, 2013

Cancer-Associated Fibroblasts as Promoters of Cholangiocarcinoma Progression: Novel Therapeutic Targets. Presented at the Cancer Cell Signaling Program Meeting, VCU Massey Cancer Center on July 23, 2013.

Cancer-Associated Fibroblasts and Intrahepatic Cholangiocarcinoma Progression: Mechanisms and Targeting. Presented to the Department of Pathology at the University of Pittsburgh on September 11, 2013.

The Desmoplastic Reaction in Intrahepatic Biliary Cancer: Novel Prognostic and Therapeutic Possibilities". Presented at Pathology Grand Rounds, Virginia Commonwealth University School of Medicine on November 18, 2013.

Tumor Stroma and Malignant Progression in Hepatobiliary Cancer: Novel Therapeutic Opportunities. Presented in the Molecular Biology Genetics (MGB) Seminar (MBG) series, Virginia Commonwealth University, Richmond, VA on December 3, 2013.

Fibrogenesis and Intrahepatic Biliary Cancer: New Insights into the Cellular Origins, Genomic and Functional Diversity, and Clinical Significance of Cancer-Associated Fibroblasts. Presented at Pathology Grand Rounds, Virginia Commonwealth University School of Medicine on May 11, 2015.

Hepatic Bile Duct Cancer: Modeling, Microenvironment, and Molecular Cross-talk. Presented in the MBG Seminar Series at Virginia Commonwealth University on October 13, 2015.

Role of Cancer-associated Myofibroblasts with Portal Fibroblast Biomarkers and TGF- $\beta$  in the Pathogenesis of Desmoplastic Intrahepatic Cholangiocarcinoma. Presented to the Department of Pathology and Laboratory Medicine of Tulane University Health Science Center on March 18, 2016, New Orleans, LA.

Modeling Desmoplastic Intrahepatic Cholangiocarcinoma: Biological and Translational Implications. Presented at Pathology Grand Rounds, Virginia Commonwealth University School of Medicine on May 9, 2016.

TGF- $\beta$ , Periostin, and Mesothelin in Intrahepatic Cholangiocarcinoma: Pathological Insights and Translational Implications. Presented to the University of Pittsburgh Department of Pathology, October 23, 2019.

Modeling the Desmoplastic Reaction and Malignant Progression in Intrahepatic Cholangiocarcinoma: Insights from a Rat "Human-like" Tumor and Complementary Organotypic Culture Model. To be presented to the Division of Liver Diseases at Icahn School of Medicine at Mount Sinai, New York, NY. To be Announced, 2021.

#### **GRANTS AWARDED - MCV/VCU:**

1. National Cancer Institute Grant #1 RO1 CA 39225. Total direct cost amount of award - \$276,582. Studies on Hepatic Oval and Bile Ductule Cells in Culture and In Vivo. From July 1, 1984 to December 31, 1987.
2. Co-Principal Investigator - Contract from Virginia State Department of Health: For October 1, 1984 to June 30, 1986. Evaluation of Kepone in a Two-Stage Hepatocarcinogenesis Study. Total amount of contract grant - \$300,000. Renewed July 1, 1986 to December 31, 1987 for total amount of \$225,000.

3. Special Faculty Grant in Aid, Virginia Commonwealth University: Awarded November 27, 1984 in the amount of \$18,000. to purchase animal housing and care equipment.
4. A. D. Williams Research Grant, Medical College of Virginia/VCU: From March 31, 1985 to March 31, 1986. Effect of Chronic Phenobarbital Treatment on Further Altering Selective Biochemical Markers of Cell Differentiation and Proliferation within Discreet Preneoplastic Hepatocellular Lesions of the Rat. Total amount of award - \$7,095.
5. Program Coordinator (Sirica, A.E.) NIH-NCI Institution Research Training Program - Postdoctoral Training in Cancer Biology (I. David Goldman, P.I.). July 1, 1987 to June 30, 1992.
6. Special Faculty Grant in Aid, Virginia Commonwealth University: Awarded April 7, 1987 in the amount of \$1,491 to fund a part-time student worker.
7. NIH - National Cancer Institute Grant RO1 CA 39225: From January 1, 1988 to December 31, 1990. Hepatic Oval Cells in Culture and In Vivo. Total direct cost amount - \$290,253. Total direct cost amount awarded for 1st year - \$95,565; 2nd year - \$97,399; 3rd year - \$97,289.
8. NIH-National Cancer Institute Grant R25 CA 47074: Workshop on the Pathobiology of Neoplasia. Total direct cost amount awarded - \$14,266., June 1, 1988 to May 31, 1989.
9. Bristol-Myers Oncology Division Grant: Symposium and Workshop on the Pathobiology of Neoplasia. Total amount awarded - \$1,000. June 3, 1988.
10. Smith Kline Biosciences Laboratories: Symposium and Workshop on the Pathobiology of Neoplasia. Total amount awarded - \$500. September 15, 1988.
11. Co-Investigator, NIH - National Cancer Institute Grant 1R13 CA 52489-01: July 29, 1990 to August 3, 1990. F.A.S.E.B. Research Conference on Hepatic Regeneration and Carcinogenesis (George K. Michalopoulos, P.I., Duke University). Total amount awarded - \$25,000.
12. NIH - National Cancer Institute Grant RO1 CA 39225: January 1, 1991 to December 31, 1995. Hepatic Oval Cells in Culture and In Vivo. Total direct cost amount - \$633,141. Total amount direct costs awarded for 1st year - \$119,983; 2nd year - \$125,720; 3rd - year \$124,948; 4th year - \$127,347; 5th year - \$135,143.
13. American Association of Pathologists, Inc.: Awarded \$4000. to support 2nd Symposium and Workshop on the Pathobiology of Neoplasia. Date of Award: May 20, 1991.
14. Wellcome Visiting Professorship in the Basic Medical Sciences to support Dr. Harriet C. Isom in Pathology (1991-1992). Total amount awarded - \$1,850.
15. Awarded private funds in support of the 2nd Symposium & Workshop on the Pathobiology of Neoplasia: \$500, Innovative Research of America, 10/7/91; \$1000, Bristol-Myers Oncology Division, 10/10/91, \$1,000, Burroughs Wellcome Co., 1/17/92; \$500, ILSI, Risk Science Institute, 4/8/92.

16. NIH - National Cancer Institute Grant 1R13 CA 57240-01: September 10, 1992 - September 9, 1993. 2nd Symposium on the Pathobiology of Neoplasia. Total amount of direct cost - \$6,750.
17. Gifts in the amount of \$1,440 made in memory of James Lee Tate, Jr., to support liver tumor research. Provided through the Massey Cancer Center, MCV-VCU, August 19, 1993.
18. NIH - National Cancer Institute Grant 2R01CA39225-12-16: Hepatic Oval Cells in Culture and In Vivo. Total project period: 02/16/96-12/31/00, Total amount of award: \$1,241,989. Total amount of direct costs awarded for 1st year - \$153,080; 2nd year - \$166,479; 3rd year - \$169,722; 4th year - \$176,389; 5th year - \$183,319. Supplemental funds in the total amount of \$72,352 awarded for years 13-16 of grant.
19. Principal Investigator on NIH-National Cancer Institute R13 Grant Application 1R13CA81974-01: F.A.S.E.B. Summer Research Conference entitled FASEB Growth Factor Receptor Tyrosine Kinases Conference held July 31-August 5, 1999 in Snowmass Village, CO. Submitted by F.A.S.E.B. on October 1, 1998. Total amount awarded - \$9,000.
20. Awarded private funds in support of F.A.S.E.B. Summer Research Conference entitled "FASEB Growth Factor Receptor Tyrosine Kinases Conference". \$1,000, Lilly Research Laboratories; \$1,000, New England BioLabs, Inc.; \$2,000, Novartis; \$1,000, Biogen; \$2,000, Pfizer; \$2,000, Glaxo Wellcome; \$2,500, Juvenile Diabetes Foundation; \$7,500, FASEB; \$500, Merck Research Laboratories; \$2,000, Pharmacia & UpJohn; \$1,000, Wyeth-Ayerst Research; \$500, Johnson & Johnson.
21. NIH-National Cancer Institute R01 Grant 1 R01 CA 83650-01-05: Altered Growth Factor Pathways In Biliary Cancer. Total project period: 02/08/00-01/31/05. Total amount of award: \$1,381,457. Total amount awarded 1st year: \$277,690; 2nd year: \$273,422; 3rd year: \$280,546; 4th year: \$287,904; 5th year: \$261,895.
22. NIH-National Cancer Institute Grant 2R01 CA 39225-17-21: Hepatic Oval Cells in Culture and In Vivo. Total project period: 01/15/01-12/31/05. Total amount of award: \$1,378,405. Total amount awarded 1st year: \$275,681; 2nd year: \$275,681; 3rd year: \$275,681; 4th year: \$275,681; 5th year: \$275,681. No cost project extension: 1/1/06-6/30/07.
23. Principal Investigator on NIH - National Cancer Institute R13 Conference Grant 1 R13 CA 91851-01 entitled FASEB Growth Factor Receptor Tyrosine Kinase Conference – 2 held as a FASEB Summer Research Conference, August 4 – August 9, 2001 in Snowmass Village, Colorado. Submitted by F.A.S.E.B. for October 1, 2000. Total amount awarded in 2001- \$10,000.
24. Awarded private funds in support of FASEB Summer Research Conference entitled Growth Factor Receptor Tyrosine Kinases in Mitogenesis, Morphogenesis, and Tumorigenesis. \$7,500, FASEB; \$5,000, Amgen; \$1,000, Johnson & Johnson; \$2,000, Novartis; \$1,000, Biogen; \$1,000, Eli Lilly; \$2,500, Bristol Myers Squibb; \$1,000, Upstate Biotechnology; \$2,000, DNAX Research Institute; \$1,000, Merck Research Labs.; \$5,000, Merck & Co., Inc.

25. Merck Research Grant Vioxx MSGP# 284C entitled "COX-2 in Human and Rat Cholangiocarcinogenesis." Total project period: 8/1/01-7/31/03. Total amount awarded: \$50,000. Supplementary funding of \$25,000 awarded for 8/1/03-7/31/04. Total Award: \$75,000.
26. NIH-National Cancer Institute Grant 2R01 CA 83650-06-10: "Altered Growth Factor Pathways in Biliary Cancer." Total project period administratively revised by NIH in year 08 from 02/01/05-01/31/10 to 02/01/05-12/31/09. No Cost Extension: 01/01/2010-12/31/2010. Second No Cost Extension: 11/30/2010-12/31/2011. Total amount of award: readjusted after years 06 and 07 from \$1,593,750 to \$1,536,705. Total amount awarded 1<sup>st</sup> year: \$318,750; 2nd year: \$311,259; 3rd year: \$302,232; 4th year: \$302,232; 5th year: \$302,232. In May 2008, this grant was identified as an exemplar of NCI-funded translational research and selected for inclusion in the National Cancer Institute's Translational Science Meeting held November 7-9, 2008 in Washington, DC. Selected for presentation at the 2009 NCI Translational Science Meeting, held November 5-7 2009 in Vienna, VA.
27. NIH-National Cancer Institute R01 Grant 2R01 CA 39225-22A1-26: "Hepatic Oval Cells In Culture and In Vivo". Total project period: 7/01/07-5/31/12. No Cost Extension: 06/01/2012- 5/31/2013. Total amount of award: \$1,426,593. Total amount awarded 1st year: \$279,450; 2nd year \$288,953; 3rd year: \$288,953; 4th year: \$288,953; 5th year: \$280,284.
28. NIH-National Cancer Institute R01 Grant 2R01 CA 083650-11A1: "Altered Growth Factor Pathways in Biliary Cancer". Total project period: 04/01/2013-03/31/2019. Total amount requested: \$1,681,875. Total amount awarded 1st year: \$307,017; 2nd year: \$298,051; 3rd year: \$307,269; 4th year: \$307,269. 5th year: \$307,269. Total 5 year amount: \$1,526,875. (No Cost Extension: 04/01/18-03/31/19).
29. VCU School of Medicine Bridge Grant Award. Total amount awarded: \$31,304, July 2013.
30. American Association for the Study of Liver Diseases Award to sponsor conference titled "Hepatobiliary Cancers: Pathobiology and Translational Advances". Total amount awarded: \$15,000. Project Period: 09/01/16-03/31/18.
31. The Cholangiocarcinoma Foundation to sponsor conference titled "Hepatobiliary Cancers: Pathobiology and Translational Advances", 12/7/17-12/10/17. Total amount awarded: \$2,500.
32. Visiting Scholar Research Funds provided by Professor Jianming Wang, Tonji Medical College-Huazhong University of Science and Technology, Wuhan, PR China to support collaborative research and training of Yawei Qian and Wei Yao, (Visiting Ph.D. Student Scholars) under the mentorship of Dr. A.E. Sirica. Total amount awarded: \$25,825. Project Period: 03/24/2016-10/25/2017.

33. NIH-National Cancer Institute R13 Conference Grant 1R13 CA 216895-01A1:  
“Hepatobiliary Cancers: Pathobiology and Translational Advances”.  
Total amount awarded: \$2,250. Project Period: 07/01/17-06/30/18.