# Curriculum Vitae
# F.A. Fitzpatrick

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**Frank A. Fitzpatrick**

**EDUCATION**

B.S. Chemistry, Villanova University, 1969
Ph.D. Analytical Chemistry, University of Massachusetts at Amherst, 1972

**PROFESSIONAL EXPERIENCE**

Kansas City University of Medicine and Biosciences, Kansas City, MO
2009 – now Professor, Division of Biomedical Sciences, Pharmacology & Microbiology
2012 – 2015 Director, Second Year Curriculum, College of Medicine

The Huntsman Cancer Institute / University of Utah School of Medicine, Salt Lake City, Utah
1997 – 2009 Professor, Department of Oncological Science and Department of Medicinal Chemistry
1999 – 2001 Senior Director of Research & Development
2001 – 2004 Senior Director for Translational Research

The University of Colorado School of Medicine Denver, Colorado
1992 - 1994 Professor, Department of Pharmacology
1987 - 1992 Associate Professor, Department of Pharmacology

Pharmacia & Upjohn Company (formerly The Upjohn Company) Kalamazoo, Michigan
1996 - 1997 Vice President, Discovery Research
1994 - 1996 Director, Cell Biology & Inflammation Research
1987 Director, Chemical and Biological Screening
1982-1987 Lipids Research
Distinguished Research Scientist IV of V
1974-1982 Drug Metabolism Research
Scientist I, 1974-75
Scientist II, 1975-80
Senior Scientist III, 1980-83

Karolinska Institute Stockholm, Sweden
1982-1983 Visiting Research Scientist
Department of Physiological Chemistry
Professor Bengt Samuelsson, M.D., Nobel Laureate

Vick Research and Development Mt. Vernon, New York
1972-1974 Department of Analytical Chemistry/-Pharmacokinetics/Metabolism
Senior Analytical Chemist

Olin Corporation New Haven, Connecticut
1970 Process Control Instrumentation Development
Analytical Chemist

**PROFESSIONAL AFFILIATIONS**

- American Chemical Society 1973 – 2010
- American Society of Biological Chemists and Molecular Biologists 1985 – 2010
- American Society of Pharmacology and Experimental Therapeutics 1987 – present
- American Association of Cancer Research 1997 – 2009

- Member, Medicinal Biochemistry Study Section of the NIH, 1989 – 1993
- Member, American Heart Association, Thrombosis Research Review Committee, 1993– 1995
- Member, Veterans Administration Peer Review Committee Medical Biochemistry, 1998 –2000
- Associate Editor, Lipids, 1982–1985
- Associate Editor, Journal of Lipid Mediators, 1988 – present
- Associate Editor, Journal of Biological Chemistry, 1991 – 1996
- Associate Editor, Archives of Biochemistry and Biophysics, 1992 – 1997
- Associate Editor, International Immunopharmacology, 1995 – 2010
- Councilor, American Society of Experimental Therapeutics Division of Drug Discovery, Development, and Regulatory Affairs
- Member, American Cancer Society CDD Study Section / Review Committee, 2004 – 2006

**COMPETITIVE AWARDS & HONORS**

- Full tuition scholarship to Villanova University, 1965-1969
- Undergraduate student award, Eastern Analytical Symposium, 1968
- Merck Award in Chemistry, 1969
- DuPont Fellowship, University of Massachusetts, 1969
- American Chemical Society Fellowship in Analytical Chemistry, 1971
- The Upjohn Award, 1984
- U of Colorado Health Science Center (UCSHC) Excellence in Teaching Award - 1988
- UCHSC Excellence in Teaching Award - 1989
- UCHSC President's Junior Teaching Scholar Award - 1989
- UCHSC Excellence in Teaching Award - 1990
- UCHSC Excellence in Teaching Award - 1991
- Kaiser Permanente Teaching Award: Outstanding Basic Science Teacher School of Medicine - 1991
- UCHSC Excellence in Teaching Award - 1992
- UCHSC Excellence in Teaching Award - 1993
- UCHSC Excellence in Teaching Award - 1994
- Kaiser Permanente Teaching Award: Outstanding Basic Science Teacher School of Medicine - 1994
- Dee Glenn & Ida W. Smith Endowed Chair for Cancer Research – 1999, reappointed 2004–2009
- Advocate for Academic Excellence Award - 2014, Kansas City University of Medicine, AOA Student Honor Society.
- Finalist for the Northup Educator of the Year Award, 2015. http://youtu.be/1_MTgpg4KaU . Finished in 2nd place of 5 nominees selected by the Student Osteopathic Medical Association (SOMA) at the SOMA spring convention in Washington, D.C. other finalists were: ACOM - Dr. Kevin Hayes, CCOM - Dr. Karen Nichols Edward Via VCOM- Dr. Krista Johansen and (Winner) LMU-DCOM - Dr. John Williamson.
- Advocate for Academic Excellence Award -2015, Kansas City University of Medicine, AOA Student Honor Society.
- Invited Member, Faculty Council, First Aid /USMLE-Rx, 2016 – present. Review Q bank questions
- Advocate for Academic Excellence Award -2016, Kansas City University of Medicine, AOA Student Honor Society

**PROFESSIONAL EXPERIENCE AND INTERESTS-CHRONOLOGICAL**

1972-1986 Upjohn Company

- Quantitative analysis based on organic functional group chemistry.

- Chemistry and metabolism of labile lipids and drugs.
- Pharmacological modulation of eicosanoid activity. Role of eicosanoids in vascular biology, host defense, inflammation thrombosis/hemostasis, and cancer.
- Member of corporate interdisciplinary research teams: i) Prostaglandin Activity Modulation Project ii) Leukotriene Project iii) Antiviral /Anticancer Project iv) Upjohn Diagnostics Division.
- Contributed directly to IND and NDA filings of the following FDA approved drugs: PROSTIN ® VR Pediatric (alprostadil injection, USP); PROSTIN E2® (dinoprostone vaginal suppository); ANSAID® (flurbiprofen tablets, USP); HEMABATE® (carboprost tromethamine injection, USP); LUTALYSE ® dinoprost tromethamine. Contributed directly to IND and /or NDA filings of following drugs that reached phase III development: Bropirimine for prostate cancer.
- Director of Chemical and Biological Screening at Upjohn [staff of 50 with 10 Ph.D.]

1987-1994 University of Colorado School of Medicine

- Principal investigator for NIH funded research programs [RO1 AI26730, RO1 GM41026, R01 HL43180 and PO1 HL34303].
- Course Director, 1987-1993 for "*Medical School Pharmacology 6000"* for ~ 110 second year medical students. Lecturer on pharmacokinetics (2), dose-response (2), antithrombotic drugs (2), antimicrobial drugs (7), antihyperlipidemic drugs (1), and anti-inflammatory drugs (2).
- Course Director, 1993 for *"Dental School Basic Science 6600"*. Lecturer on pharmacokinetics, dose-response, antimicrobial drugs and OTC drugs.
- Graduate School Pharmacology. Lecturer in "*Introductory Pharmacology 620*" on thermodynamics and chemical bonds, drug discovery. Lecturer and laboratory advisor in *Pharmacology 618* for second year graduate students and second year M.D. / Ph.D. candidates. Lecture on antiviral/anti-neoplastic agents. Laboratory on platelet aggregation.
- Chairman of Departmental and School of Medicine Curriculum Committee 1991 - 1993. *Successfully introduced new Primary Care Curriculum requirements in collaboration with committee members.*
- Member of Hospital Pharmacy and Therapeutics Committee.
- Consultant to Monsanto Corporate Research 1990 - 1994.

1994- 1997 The Upjohn Company

- Director of Cell Biology and Inflammation Research, 1994-1995. Worked with a staff of 75 including 18 Ph.D. The challenge was to re-orient, integrate, direct a unit with about 50% experienced, but somewhat complacent scientists and about 50% newer, inexperienced but very motivated scientists.
- Responsible Director for Lung Inflammation Program at Upjohn Company [Two phase I clinical candidates].
- Responsible Director for Adhesion Biology Programs at Pharmacia and Upjohn.
- Responsible Director for Tanabe / Pharmacia & Upjohn Collaboration.
- Champion for strategic initiative on Genomics. Responsible Director for Genomics Program.
- Vice President responsible for Corporate Center on High Throughput Screening.
- Vice President responsible for Chemical and Biological Screening Unit [staff of 60 with 15 Ph.D. scientists.] and Cell Biology and Inflammation Research Unit [staff of 75 with 18 Ph.D. scientists]

- Vice President responsible for Inflammation Discovery Research worldwide. Member of Strategic Business Team-Inflammation Business, 1996-1997.

1997 to 2009 The Huntsman Cancer Institute at The University of Utah School of Medicine

- Chief, Division of Molecular Pharmacology, Department of Oncological Sciences, Huntsman Cancer institute 1997-2000. *This position was eliminated by a new chair appointed in 2000.*
- Champion for strategic partnership with Incyte Pharmaceuticals Inc. An agreement between Incyte Genomics and HCI, signed August 1999, was the first partnership between Incyte and a non-profit research organization.
- Course Director, *Oncological Science 6220 "Introduction to Pharmacology"* [14 classes, 21 lecture hours Twelve [12] graduate students enrolled in the course. Class met from March 03 – April 28 two times per week for 3 hours. I organized & directed the course, prepared the syllabus, and presented all 12 lectures (18hrs) on principles of pharmacology that students encounter during their thesis research in the Oncological Sciences Department. I administered 2 tests and graded 1 term paper. This course is offered on alternate years as an elective.
- Course Director *PHPRC 5124 " Longitudinal Care Service Learning Course"* 16 classes, 32 hrs Forty five (45) undergraduate pharmacy students met weekly from January 10 through April 28, 2000 for 2 hours per class. I was Course Master for Longitudinal Care PHPRC 5124. I organized the course and lecture schedule, consulted with students, read & evaluated student essays, consulted with community partners, and administered grades.
- Lecturer Pathology 3010 "Introduction to Microbiology". I present 3 lectures each year on anti-microbial agents.
- Course Director *MDCRC 6040 "Design & Implementation of Clinical Trials"*. This course is part of a K30 curriculum for M.D. fellows. This course is offered yearly.
- Senior Director of Research & Development at Huntsman Cancer Institute, 1999-2001. Responsible for administration and executive direction of HCI Research Programs [Disease Programs = Colon Cancer, Childhood Cancer, Emerging Programs (Melanoma, Sarcoma, Breast Cancer); Basic Programs = Nuclear Regulation, Molecular Pharmacology & Cell Biology]. Annual budget during this period was ~ $6 millions.
- Senior Director of Translational Research at Huntsman Cancer Institute, 2001-2004. Responsible for the program in Experimental Therapeutics; the emerging clinical research programs programs in Melanoma, Ovarian Cancer, Breast Cancer, Sarcoma; the Technology Cores, cDNA Microarray and Tissue Acquisition and Imaging; the Incyte-HCI Research Collaboration.
- Dee Glenn & Ida W. Smith Endowed Chair of Cancer Research, 1999-2004 and renewed for 2004-2009. Reactive mediators of inflammation and carcinogenesis.
- 1997- present. Principal investigator for NIH funded research programs. *"Transcellular Leukotriene Biosynthesis: Inflammation and Cancer"* RO1 AI26730-16 was active until 2005 and it is currently being prepared for an A2 submission. Currently active research support includes:

  NIH. Principal investigator on Project 5 *"The Role of Chronic Inflammation in Colon Cancer Risk"* P01 CA-73992 period 09/01/2003 – 08/31/2008.

  NCCN (National Comprehensive Cancer Network). Principal investigator on "Molecular Determinants of Sunitinib Efficacy" period 01/15/2007 – 01/15/2008.

2009 - present Kansas City University of Medicine and Biosciences

- Education and advisement of 1st and 2nd year medical students. Lectures on neuropharmacology and pain (narcotics, anti-seizures agents, local anesthetics, sedative-hypnotics, migraine drugs);

musculoskeletal pharmacology (anti-inflammatory drugs and muscle relaxants); antibiotics, anti-fungal agents, anti-tuberculosis drugs; anti-neoplastic drugs and chemotherapy of cancer; geriatric and pediatric pharmacology; diuretics, male disorders; pulmonary pharmacology of asthma and COPD; vasodilators.

- Development of elective course PHAR 101 " Deconstructing NSAID Anti-Inflammatory Drugs" for the KCUMB Professional Enhancement Program (PEP-II)
- Committee service: Chairman Institutional Review Board (IRB), 2009-2012; Chairman Institutional Animal Care and Use Committee (IACUC) and Co-chair, COCA Accreditation Review Sub-Committee: Research Standard 7

**BUSINESS ADDRESS**

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Kansas City, MO 64106
email: ffitzpatrick@kcumb.edu

**PERSONAL**

Birthdate – July 5, 1947
Hobby – reading, mountaineering, family.
Married – One child

## Research Publications

**1972**

1. F.A. Fitzpatrick, S. Siggia, J. Dingman. High Speed Liquid Chromatography of Derivatized Urinary 17-Ketosteroids. *Analytical Chemistry* 44, 2211-2216 (1972).

**1973**

2. F.A. Fitzpatrick. Nitrile Terminated Hydrocarbons as Stationary Phases for High Performance Liquid Chromatography of Steroid Hormones. *Clinical Chemistry* 19, 1293-1295 (1973).

3. F.A. Fitzpatrick, S. Siggia. High Resolution Liquid Chromatography of Derivatized Non-Ultraviolet Absorbing Hydroxy Steroids. *Analytical Chemistry* 45, 2310-2314 (1973).

**1975**

4. F.A. Fitzpatrick, A.F. Summa, A.D. Cooper. Quantitative Analysis of Methyl and Propylparaben by High Performance Liquid Chromatography. *Journal of the Society of Cosmetic Chemists* 26, 377-387 (1975).

**1976**

5. F.A. Fitzpatrick. High Performance Liquid Chromatographic Determinations of Prostaglandins $F_2$, $E_2$, and $D_2$ from *In Vitro* Enzyme Incubations. *Analytical Chemistry* 48, 499-502 (1976).

6. F.A. Fitzpatrick, M.A. Wynalda. A Rapid Solid Phase Radioimmunoassay for Prostaglandin $F_2$, and Its Main Circulating Metabolite. *Analytical Biochemistry* 73, 198-208 (1976).

7. F.A. Fitzpatrick. High Performance Liquid Chromatographic Analysis of Prostaglandins Formed During Incubations *In Vitro* with Prostaglandin 15-Dehydrogenase. *Journal of the Pharmaceutical Sciences* 65, 1609-1613 (1976).

8. F.A. Fitzpatrick, M.A. Wynalda. *In Vivo* Suppression of Prostaglandin Biosynthesis by Non-Steroidal Anti-Inflammatory Agents. *Prostaglandins* 12, 1037-1051 (1976).

**1977**

9. F.A. Fitzpatrick, R.R. Gorman, M.A. Wynalda. Electron Capture Gas Chromatographic Detection of Thromboxane $B_2$. *Prostaglandins* 13, 201-208 (1977).

10. F.A. Fitzpatrick, M.A. Wynalda, D.G. Kaiser. Oximes for High Performance Liquid and Electron Capture Gas Chromatographic Analysis of Prostaglandins and Thromboxanes. *Analytical Chemistry* 49, 1032-1035 (1977).

11. F.A. Fitzpatrick, R.R. Gorman, R.C. Kelly, J.C. McGuire, M.A. Wynalda, F.F. Sun. A Radioimmunoassay for Thromboxane $B_2$. *Analytical Biochemistry* 82, 1-7 (1977).

12. R.R. Gorman, G.L. Bundy, D.L. Petersen, F.F. Sun, O.V. Miller, F.A. Fitzpatrick. Inhibition of Human Platelet Thromboxane Synthetase by 9,11-Azoprosta-5,13-dienoic Acid. *Proceedings of The National Academy of Science, USA* 74, 4007-4011 (1977).

13. F.A. Fitzpatrick, R.R. Gorman. Platelet Rich Plasma Transforms Exogenous $PGH_2$ into Thromboxane $A_2$. *Prostaglandins* 14, 881-889 (1977).

14. R.R. Gorman, F.A. Fitzpatrick, O.V. Miller. A Selective Thromboxane Synthetase Inhibitor Blocks the cAMP Lowering Activity of $PGH_2$. *Biochemical and Biophysical Research Communications* 79, 305-313 (1977).

**1978**

15. F.A. Fitzpatrick, R.R. Gorman. A Comparison of Imidazole and 9,11-Azoprosta-5,13-dienoic Acid: Two Selective Thromboxane Synthetase Inhibitors. *Biochimica Biophysica Acta* 539, 162-172 (1978).

16. F.A. Fitzpatrick. Separation of Prostaglandins and Thromboxanes by Gas Chromatography with Open Tubular Glass Capillary Columns. *Analytical Chemistry* 50, 47-52 (1978).

17. F.A. Fitzpatrick, R.R. Gorman. An Antiserum Against 9-Deoxy-6, 9-epoxy-$PGF_1$ Recognizes and Binds Prostacyclin ($PGI_2$). *Prostaglandins* 15, 725-735 (1978).

18. F.A. Fitzpatrick, R.R. Gorman, G.L. Bundy. An Antiserum Against 9,11-Azo-15-Hydroxy-prosta-5,13-dienoic Acid Recognizes and Binds Prostaglandin Endoperoxides ($PGG_2$, $PGH_2$). *Nature* 273, 302-304 (1978).

19. F.A. Fitzpatrick, G.L. Bundy. A Hapten Mimic Elicits Antibodies Recognizing Prostaglandin $E_2$. *Proceedings of The National Academy of Science, USA* 75, 2689-2693 (1978).

20. F.A. Fitzpatrick, G.L. Bundy, R.R. Gorman, T. Honohan. 9,11-Epoxyimino-prosta-5,13-dienoic Acid is a Thromboxane $A_2$ Antagonist in Human Platelets. *Nature* 275, 764-766 (1978).

21. D. Stringfellow, F.A. Fitzpatrick, F.F. Sun, J.C. McGuire. Prostacyclin Biosynthesis in Activated, Stimulated, and Normal Mouse Peritoneal Cell Populations. *Prostaglandins* 16, 901-910 (1978).

**1979**

22. F.A. Fitzpatrick, R.R. Gorman. Regulatory Role of Cyclic 3',5'-Adenosine Phosphate on the Platelet Cyclooxygenase and Platelet Function. *Biochimica Biophysica Acta* 582, 44-58 (1979).

23. F.A. Fitzpatrick, R.R. Gorman, G.L. Bundy, T. Honohan, J.C. McGuire, F.F. Sun. 9,11-Iminoepoxy-prosta-5,13-dienoic Acid is a Selective Thromboxane $A_2$ Synthetase Inhibitor. *Biochimica Biophysica Acta* 573, 238-244 (1979).

24. F.A. Fitzpatrick, D.A. Stringfellow. Prostaglandin $D_2$ Formation by Malignant Melanoma Cells Correlates Inversely with Cellular Metastatic Potential. *Proceedings of The National Academy of Science, USA* 76, 1765-1769 (1979).

25. F.A. Fitzpatrick, D.A. Stringfellow, J. Maclouf, M. Rigaud. Glass Capillary Gas Chromatography with Electron Capture Detection: Separation of Prostaglandins and Thromboxanes. *Journal of Chromatography* 177, 51-60 (1979).

26. M.A. Wynalda, F. Lincoln, F.A. Fitzpatrick. High Performance Liquid Chromatographic Analysis of Prostaglandin $I_2$ (Prostacyclin). *Journal of Chromatography* 176, 413-417 (1979).

27. D.A. Stringfellow, F.A. Fitzpatrick. Prostaglandin $D_2$ Controls Pulmonary Metastasis of Malignant Melanoma Cells. *Nature* 282, 76-78 (1979).

28. M. Whittaker, A. Wyche, F.A. Fitzpatrick, H. Sprecher, P. Needleman. Triene Prostaglandins: Prostaglandin $D_3$ and Eicosapentaenoic Acid as Potential Antithrombotic Substances. *Proceedings of The National Academy of Science, USA* 76, 5919-5923 (1979).

29. M. Bach, J. Brashler, F.A. Fitzpatrick. Production of SRS by Mononuclear Cells and Progress Towards Determining Its Structure. *Monographs in Allergy* 14, 163-180 (1979).

**1980**

30. T. Honohan, F.A. Fitzpatrick, D. Booth, J.P. McGrath, D.R. Morton, E.E. Nishizawa. Hydrolysis of an Orally Active Platelet Inhibitory Prostanoid Amide in the Plasma of Several Species. *Prostaglandins* 19, 123-138 (1980).

31. F.A. Fitzpatrick, R. Aguirre, J.E. Pike, F. Lincoln. The Stability of 13,14¬Dihydro-15-Keto-Prostaglandin $E_2$. *Prostaglandins* 19, 917-931 (1980).

32. F.A. Fitzpatrick, D. Stringfellow. Virus and Interferon Effects on Cellular Prostaglandin Biosynthesis. *Journal of Immunology* 125, 431-437 (1980).

33. M.A. Wynalda, F.A. Fitzpatrick. High Performance Liquid Chromatographic Determination of 5-Halo-Pyrimidinone Interferon Inducers. *Analytical Chemistry* 52, 1931-1934 (1980).

34. M.A. Wynalda, F.A. Fitzpatrick. Albumin Stabilizes Prostaglandin $I_2$. *Prostaglandins* 20, 853-861 (1980).

**1981**

35. F.A. Fitzpatrick, M.A. Wynalda. Albumin-Lipid Interactions: Prostaglandin Stability as a Probe for Characterizing Binding Sites on Vertebrate Albumins. *Biochemistry* 20, 6129-6134 (1981).

36. L. McManus, R.N. Pinckard, F.A. Fitzpatrick, R. O'Rourke, M. Crawford, W., Johanson, D.J. Hanahan. Acetyl Glyceryl Ether Phosphorylcholine (AGEPC): Intravascular Alterations Following Intravenous Infusion into the Baboon. *Laboratory Investigation* 45, 303-307 (1981).

37. E. Schulman, H. Newball, L. Demers, F.A. Fitzpatrick, N.F. Adkinson. Anaphylactic Release of Thromboxane $A_2$, Prostaglandin $D_2$, and Prostacyclin from Human Lung Parenchyma. *American Review of Respiratory Disease* 124, 404-406 (1981).

**1982**

38. W.M. Bothwell, M.T. Verburg, M.A. Wynalda, E.G. Daniels, F.A. Fitzpatrick. A Radioimmunoassay for the Unstable Pulmonary Metabolites of Prostaglandin $E_1$ and $E_2$: An Indirect Index of Their *in vivo* Disposition and Pharmacokinetics. *Journal of Pharmacology and Experimental Therapeutics* 220, 229-235 (1982).

39. F.A. Fitzpatrick, D.R. Morton, M.A. Wynalda. Albumin Stabilizes Leukotriene $A_4$. *Journal of Biological Chemistry* 257, 4680-4683 (1982).

40. M.A. Wynalda, D.R. Morton, R.C. Kelly, F.A. Fitzpatrick. Liquid Chromatographic Analysis of Intact Leukotriene $A_4$. *Analytical Chemistry* 54, 1079-1082 (1982).

41. M.K. Bach, J.R. Brashler, F.A. Fitzpatrick, R.L. Griffin, H.G. Johnson, J.C. McGuire, M.L. McNee, H.W. Smith, F.F. Sun, M.A. Wasserman. A New Selective Inhibitor of Leukotriene C and D Synthesis with Selective Action on Leukotriene Induced Contraction of Smooth Muscle. *Prostaglandins* 23, 759-771 (1982).

42. M.T. Verburg, W.M. Bothwell, E.G. Daniels, F.A. Fitzpatrick. *In vivo* Disposition of Prostaglandin $E_1$ via Pharmacokinetic Characterization of its Pulmonary Metabolite. *Journal of Cardiovascular Pharmacology* 4, 980-985 (1982).

43. R.D. Hamilton, M.A. Wynalda, F.A. Fitzpatrick, D.L. Teagarden, A. Hamdy, B. Snider, S.D. Weed, D.A. Stringfellow. Comparison Between Circulating Interferon and Drug Levels Following Administration of 2-Amino-5-Bromo-6-Phenyl-4(3H)-Pyrimidinone (ABPP) to Different Animal Species. *Journal of Interferon Research* 2, 317-327 (1982).

**1983**

44. F. Coceani, I. Bishai, C.A. Dinarello, F.A. Fitzpatrick. Prostaglandin $E_2$ and Thromboxane $B_2$ in Cerebrospinal Fluid of Afebrile and Febrile Cat. *American Journal of Physiology* 244, R785-R793 (1983).

45. M.A. Wynalda, W.F. Liggett, F.A. Fitzpatrick. Sodium 5-(3'-Pyridinylmethyl)-Benzofuran-2-Carboxylate (U-63557a), A New Selective Thromboxane Synthase Inhibitor: Intravenous and Oral Pharmacokinetics in Dogs and Correlations with *ex situ* Thromboxane $B_2$ Production. *Prostaglandins* 26, 311-324 (1983).

46. L. McManus, F.A. Fitzpatrick, D.J. Hanahan, R.N. Pinckard. Thromboxane $B_2$ Release Following Acetyl Glyceryl Ether Phosphorylcholine (AGEPC) Infusion in the Rabbit. *Immunopharmacology* 5, 197-207 (1983).

47. F.A. Fitzpatrick, J. Haeggstrom, E. Granstrom, B. Samuelsson. Metabolism of Leukotriene $A_4$ by an Enzyme in Blood Plasma: A Possible Leukotactic Mechanism. *Proceedings of the National Academy of Sciences USA* 80, 5425-5429 (1983).

48. F.A. Fitzpatrick, D.A. Stringfellow. Influence of Thromboxane Synthetase Inhibitors on Virus Replication in Human Lung Fibroblasts *in vitro*. *Biochemical and Biophysical Research Communications* 116, 264-271 (1983).

49. F.A. Fitzpatrick, M.A. Wynalda. Albumin Catalyzed Metabolism of Prostaglandin $D_2$: Products Formed *in vitro*. *Journal of Biological Chemistry* 258, 11713-11718 (1983).

50. J. Haeggstrom, F.A. Fitzpatrick, O. Radmark, B. Samuelsson. Albumin Stabilizes 14,15-Leukotriene $A_4$. *FEBS Letters* 164, 181-184 (1983).

**1984**

51. O. Radmark, T. Shimizu, F.A. Fitzpatrick, B. Samuelsson. Hemoprotein Catalysis of Leukotriene Formation. *Biochimica Biophysica Acta* 792, 324-329 (1984).

52. F.A. Fitzpatrick, W.F. Liggett, M.A. Wynalda. Albumin-Eicosanoid Interactions: A Model System to Determine Their Attributes and Inhibition. *Journal of Biological Chemistry* 259, 2722-2727 (1984).

53. F.A. Fitzpatrick, R.R. Gorman, K. Green, W.P. Schneider, R.C. Kelly. Development of a Gas Chromatographic Mass Spectrometric Method for Quantitation of Thromboxane $B_2$ and Comparison Between RIA and GC/MS Measurements. *Thrombosis Research* 35, 121-131 (1984).

54. M.A. Wynalda, J.R. Brashler, M.K. Bach, D.R. Morton, F.A. Fitzpatrick. Determination of Leukotriene $C_4$ by Radioimmunoassay with a Specific Antiserum Generated from a Synthetic Hapten Mimic. *Analytical Chemistry* 56, 1862-1865 (1984).

55. F.A. Fitzpatrick, W. Liggett, J. McGee, S. Bunting, D. Morton, B. Samuelsson. Metabolism of Leukotriene $A_4$ by Human Erythrocytes: A Novel Cellular Source of Leukotriene $B_4$. *Journal of Biological Chemistry* 259, 11403-11407 (1984).

56. B. Creese, M.K. Bach, F.A. Fitzpatrick, W.M. Bothwell. Leukotriene Induced Contraction and Thromboxane Production in Guinea Pig Lung Parenchymal Strips. *European Journal of Pharmacology* 102, 197-204 (1984).

**1985**

57. S. Bhagwat, P. Hamann, W. Still, S. Bunting, F.A. Fitzpatrick. Synthesis and Structure of the Platelet Aggregating Factor Thromboxane $A_2$. *Nature* 315, 511-513 (1985).

58. J.C. McGuire, J.E. McGee, N.J. Crittenden, F.A. Fitzpatrick. Cell Damage Unmasks 15-Lipoxygenase Activity in Human Neutrophils. *Journal of Biological Chemistry* 260, 8315-8319 (1985).

59. J. Haeggstrom, O. Radmark, F.A. Fitzpatrick. Leukotriene $A_4$ Hydrolase Activity in Guinea Pig and Human Liver Cytosol. *Biochimica Biophysica Acta* 835, 378-384 (1985).

60. J.E. McGee, F.A. Fitzpatrick. Enzymatic Hydration of Leukotriene $A_4$: Purification and Characterization of a Novel Epoxide Hydrolase from Human Erythrocytes. *Journal of Biological Chemistry* 260, 12832-12837 (1985).

61. F.A. Fitzpatrick. Do Leukotrienes Account Fully for Immediate Hypersensitivity Reaction. *Annales de L'Institute Pasteur*: Forum, 136D, 203-205 (1985).

**1986**

62. C.F. Lawson, H.W. Smith, F.A. Fitzpatrick. Effect of Piriprost, a 5-Lipoxygenase Inhibitor on Leukocyte Accumulation During Thioglycollate Induced Acute Inflammation. *Wiener Klinische Wochenschrift* 4, 110 (1986).

63. J.E. McGee, F.A. Fitzpatrick. Erythrocyte-Neutrophil Interactions: Formation of Leukotriene $B_4$ via Transcellular Biosynthesis. *Proceedings of the National Academy of Sciences, USA*, 83, 1349-1353 (1986).

64. A. Rios, D.A. Stringfellow, F.A. Fitzpatrick, S.B. Reele, G.D. Gutnecht, H. Hersch. Phase I Study of 2-Amino-5-Bromo-6-Phenyl-4(3H)-Pyrimidone (ABPP) an Oral Interferon Inducer in Cancer Patients. *Journal of Biological Response Modifiers* 5, 330-338 (1986).

65. C.F. Lawson, S. Bunting, H.H. Holzgrefe, F.A. Fitzpatrick. Leukotriene $B_4$ and 20-hydroxyl-leukotriene $B_4$ contract guinea pig trachea strips *in vitro*. *Journal of Pharmacology and Experimental Therapeutics* 237, 888-892 (1986).

66. F.A. Fitzpatrick, M.D. Ennis, M.E. Baze, M.A. Wynalda, J.E. McGee, W.F. Liggett. Inhibition of cyclooxygenase activity and platelet aggregation by epoxyeicosatrienoic acids: influence of stereochemistry. *Journal of Biological Chemistry* 261, 15334-15338 (1986).

67. J.W. Cox, W.M. Bothwell, R.H. Pullen, M.A. Wynalda, F.A. Fitzpatrick, J.T. VanderLugt. Plasma levels of Arbaprostil [(15R)-15-Methylprostaglandin $E_2$] an antiulcer prodrug and its active (15S) epimer in man after single dose oral administration. *Journal of Pharmaceutical Sciences* 75, 1107-1112 (1986).

**1987**

68. R.J. Smith, D.E. Epps, J.M. Justen, L. Sam, M.A. Wynalda, F.A. Fitzpatrick, F.S. Yein. Human neutrophil activation with interleukin-1: a role for intracellular calcium and arachidonic acid lipoxygenation. *Biochemical Pharmacology* 36, 3851-3858 (1987).

69. R.J. Smith, L. Sam, J. Justen, G.L. Bundy, F.A. Fitzpatrick, M.A. Wynalda. Arachidonic acid and 15(S) hydroxy-5,8,11-cis-13-trans-eicosatetraenoic acid modulate human polymorphonuclear neutrophil activation by monocyte derived neutrophil activating factor. *Biochemical and Biophysical Research Communications* 148, 636-645 (1987).

**1988**

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**CHAPTERS/REVIEW ARTICLES**

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2. F.A. Fitzpatrick. Gas Chromatography of the Prostaglandins and Thromboxanes. In *Advances in Prostaglandin and Thromboxane Research*, (B. Samuelsson and R. Paoletti, eds.) Volume 5, 95-118, Raven Press, New York (1978).

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11. F.A. Fitzpatrick. A Radioimmunoassay for Thromboxane $B_2$. In *Methods in Enzymology, Vol. 86, Prostaglandins and Arachidonate Metabolites*, (W.E.M. Lands and W.L. Smith, volume eds.; S.P. Colowick and N.O. Kaplan, series eds.) 286-297, Academic Press, New York (1982).

12. E. Granstrom, F.A. Fitzpatrick, H. Kindahl. Radioimmunological Determination of 15-keto-13,14-dihydro-$PGE_2$: A Method for its Stable Degradation Product, 11-Deoxy-15-keto-13,14-dihydro-11, 16-cyclo-$PGE_2$. In *Methods in Enzymology*, (W.E.M. Lands and W. Smith, volume eds.; S.P. Colowick and N.O. Kaplan, series eds.) Volume 86, 306-319, Academic Press, New York (1982).

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21. W. Smith, P. Borgeat, F.A. Fitzpatrick. The Arachidonate Cascade: Cyclooxygenase, Lipoxygenase, and Epoxygenase Pathways in: *The Biochemistry of Lipids and Membranes* edited by D. Vance and J. Vance, Elsevier, 1991.

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23. F. A. Fitzpatrick, R. Lepley, L. Orning, K. Duffin. Effects of leukotriene $A_4$ on Neutrophil Activation in *Annals of the New York Academy of Sciences* 714, 64-74, 1994. "Platelet-Dependent Vascular Occlusion" edited by G. A. Fitz Gerald, L. K. Jennings and C. Patrono, Third International Meeting on Platelets and Vascular Occlusion, Santa Fe, New Mexico, 1994.

24. F.A. Fitzpatrick, R. Lepley, L. Orning, K. Duffin. Suicide Inactivation Leukotriene $A_4$ Hydrolase/Aminopeptidase in *Annals of the New York Academy of Sciences* 744, 31-38, 1994. "Cellular Generation, Transport and Effects of Eicosanoids: Biological Roles and Pharmacological Intervention. E. J. Goetzl and M. Rolek-Pleszczynski, Conference Chairs, 1994.

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26, F.A. Fitzpatrick and L. Orning. Alternate Functions for Aminopeptidases: Hydrolysis of Leukotriene $A_4$ in: *Aminopeptidases* edited by Allen Taylor, pp129-149 Chapman & Hall .1996.

**U.S. PATENTS**

- Patent No. 4,192,799, March 11, 1980, "Conjugates Formed by Reacting a Prostaglandin Mimic Compound with a Carrier Molecule." Inventor, F.A. Fitzpatrick.
- Patent No. 4,218,436, August 19, 1980, "Compounds and Methods." Inventor, F.A. Fitzpatrick.
- Patent No. 4,303,671, December 1, 1981, "Albumin Stabilized Prostacyclin." Inventor, F.A. Fitzpatrick.
- Patent pending. Case 6055.N CN1 and 6055.P CN1 Submitted December 03, 1997 Method for Treating Multiple Sclerosis, Inventors S.E. Buxser & F. A. Fitzpatrick. *Patent application abandoned by Pharmacia in 2001*.

**Seminars/Symposia Attendance**
**as Invited Participant**

**1976**

- "Clinical Applications of Assay Methods for Prostaglandins." Workshop sponsored by Commission of European Communities, November 18-19, 1976, Brussels, Belgium. J.M. Boeynaems, organizer.

**1978**

- Winter Prostaglandin Conference, Sarasota, Fl, January 28-31, 1978. Pharmacology Session, Dr. John Oates, M.D., Chairman.
- "Prostacyclin and Its Analogs." Workshop sponsored by the Wellcome Foundation and The Upjohn Co., October 2-4, 1978, Brook Lodge, Kalamazoo, Michigan.

**1979**

- Second International Workshop on Interferon, Rockefeller University, April 22-24, 1979. Dr. Mathilde Krim, organizer.
- "Prostaglandins, Prostacyclin, and Thromboxane Measurements: Methodological Problems and Clinical Prospects." Workshop sponsored by the Commission of European Communities, November 15-16, 1979, Nivelles, Belgium. A. Hermann, organizer.

**1980**

- Visiting Consultant, Michigan Diabetes Research and Training Center, University of Michigan, January 7, 1980, Ann Arbor, Michigan. Dr. Sumer B. Pek, host.
- Seminar, "Prostaglandins and Thrombosis," University of Illinois, Department of Pharmacology, April 4, 1980, Urbana, Illinois. Dr. Guy LeBreton, host.
- Winter Prostaglandin Conference, April 6-11, 1980, Snowbird, Utah. Growth and Differentiation Session, Dr. Bernard Jaffe, Chairman.
- International Congress on Thrombosis and Haemostasis. Subcommittee Meeting on Guidelines for Radioimmunoassay of Prostaglandins and Thromboxanes, Massachusetts Institute of Technology, August 14, 1980, Cambridge, Massachusetts. Dr. J. Bryan Smith, organizer.
- Seminar, "Prostaglandins and Host Defense," Michigan Cancer Institute, September 10, 1980, Detroit, Michigan. Dr. Gloria Heppner, host.

**1981**

- American Chemical Society Symposium in Recognition of the Analytical Fellowship Program, ACS 181 National Meeting, March 30, 1981, Atlanta, Georgia. T.R. Williams, organizer.
- Symposium, Prostaglandins in Cardiovascular Thrombotic Disorders, Rush Medical College and Northwestern University, School of Medicine, May 5-7, 1981, Chicago, Illinois. Dr. K.K. Wu, M.D. and Dr. E.C. Rossi, M.D., organizers.
- Symposium, "Are There Alternative Methodologies to GC/MS?" American Society for Mass Spectrometry 29th Annual Conference, May 27, 1981, Minneapolis, Minnesota. Dr.Sandy Markey, organizer.
- International Conference on Prostaglandins and Cancer, August 30-September 2, 1981, Washington, D.C. Drs. T. Powles, R. Bockmann, K.V. Honn, and P. Ramwell, organizers.

**1982**

- "Workshop on methods of analysis of arachidonic acid metabolites," sponsored by The Hospital for Sick Children and McMaster University, March 29, 1982, The Hospital for Sick Children, Toronto, Canada. Dr. C. Pace-Asciak and Dr. J. Rosenfeld, organizers.
- Drug Metabolism Discussion Group, "Radioimmunoassay: Principles and Application to Lipid Analysis," May 6, 1982, Philadelphia, Pennsylvania. Dr. A.G. Zacchei, Ph.D., organizer.

**1983**

- Winter Prostaglandin Conference, January 4-8, 1983, Keystone, Colorado. Analytical Methodology Session, Dr. Elisabeth Granstrom, Chairman.
- Workshop on Plant Lipoxygenase and Animal Tissues, sponsored by industrial donors, May 16-17, 1983, Limoges, France. Dr. M. Rigaud and J. Maclouf, organizers.
- Workshop on Evaluation of Assay Methods for Platelet and Vascular Arachidonic Acid Metabolites, sponsored by the CEC Concerted Action on Thrombosis Program, May 19-20, 1983, Florence, Italy. Prof. G.G. Neri Serneri, organizer.
- Symposium on Prostaglandins, sponsored by the Swedish Academy of Pharmaceutical Sciences, May 25, 1983, Stockholm, Sweden. Dr. Anders Gonlund, organizer.
- IXth International Congress on Thrombosis and Haemostasis. "Arachidonic Acid Metabolism: Theoretical and Clinical Aspects," July 8, 1983, Stockholm, SWEDEN. Prof.P. Majerus, M.D. and E. Granstrom, M.D., Chairpersons.

**1984**

- Winter Prostaglandin Conference, March 20-24, 1984, Keystone, Colorado. Analytical Methods Session, F.A. Fitzpatrick and L. Levine, co-chairman.
- Chicago Eicosanoid Forum, "The Limits of Eicosanoid Analysis," University of Illinois at Chicago, June 13, 1984, Chicago, Illinois. W.E.M. Lands, organizer.
- International Union of Pharmacology Ninth International Congress of Pharmacology, Symposium on Leukotrienes and Other Lipoxygenase Products, "Formation and Mechanism of Action of $LTB_4$," July 29-August 3, 1984, London, England. R. Paoletti and B. Samuelsson, co-chairman.
- III International Conference of Inflammation, "Metabolism of Leukotriene $A_4$ by Blood Cells," September 3-7, 1984, Paris, France. Pierre Borgeat and A.G. Herman, co-chairman.

**1985**

- Winter Prostaglandin Conference, "Metabolism of Arachidonic Acid Epoxides," January 2-5, 1985, Keystone, Colorado. Epoxygenase Session, J.E. Pike, Chairman.
- Seminar, "Metabolism of Leukotriene $A_4$ by Human Blood," Michigan State University, Department of Medicine, January 30, 1985. Dr. H. Hassouna, Special Coagulation Center.
- Institute Scientifique Roussel Symposium: "Lipoxygenase Products and Polyunsaturated Fatty Acids," October 13-16, Limoges, France. Jacques Maclouf, R.C. Murphy, and M.Rigaud, organizers.

**1986**

- Seminar, "Formation and Mechanism of Action of Leukotriene $B_4$,"University of Colorado Health Sciences Center, March 3, 1986. Dr. R.C. Murphy.
- Seminar, "Analytical Approaches to Eicosanoid Determinations,"Villanova University, Department of Chemistry, March, 1986. Dr. Robert Grob.
- 6th International Prostaglandins Conference, "Effect of Epoxyeicosatrienoic Acids on Cyclooxygenase Enzyme and Platelet Aggregation," June 3-6, 1986, Florence, Italy. L. Marnett, Session Chairman.
- NATO Advanced Research Workshop on Biology of Eicosanoids and Related Substances in Blood and Vascular Cells, "Plasma Metabolism of Eicosanoids," September 10-13, 1986, Lyon, France. M. Lagarde, organizer.

**1988**

- Ares-Serono Symposium on Platelets and Vascular Occlusion, "Platelet Active Epoxides of Arachidonic Acid: Effects of Epoxyeicosatrienoic Acids on Cyclooxygenase Activity and Platelet Aggregation," June 1-3, 1988, Rome, Italy. Garret FitzGerald, Carlo Patrono, organizers.
- FASEB Symposium on Cardiovascular and Renal Action of Epoxyeicosatrienoic Acids (EETs), "EETs:Pharmacological Effects on Blood Cells," May 5, 1988, Las Vegas, Nevada, Kenneth Proctor, organizer.

- International School of Pharmacology, "Eicosanoids and Drugs," September 5-16, 1988, Erice, Sicily, G. Folco and C. Berti, organizers.

**1989**

- XIIth Congress of the International Society for Thrombosis and Hemostasis Symposium on Eicosanoid Metabolism and Blood Cell Activation," Transcellular Biosynthesis of Eicosanoids by Blood Cells" August 21, 1989, Tokyo, Japan. Dr. Aaron Marcus, organizer.
- Bayer International Symposium on Trends in Eicosanoid Biology, "Novel Eicosanoids Generated by Cytochrome P-450: Effects on Platelet Aggregation and Protein Phosphorylation", September 11-16, Interlaaken, Switzerland. Dr. P. Hedquist, Dr. S.E. Dahlen organizers.

**1990**

- VIIth International Conference on Prostaglandins and Related Compounds. Chairman of Symposium: Eicosanoid Biosynthesis: Lipoxygenase Pathways. Florence, Italy, May 28-June 1. Fondazione Giovanni Lorenzini.
- American Society for Biochemistry and Molecular Biology. Symposium on Arachidonic Acid Metabolites, Philip Needleman, Chairman. New Orleans, Louisiana, June 3-7, 1990.

**1991**

- Workshop on Dietary Fatty Acids and Thrombosis. International Life Sciences Institute, F. Seligson organizer, J. Hoak, chairman. Washington, D.C. March 18-20, 1991.
- Cell-Cell Interactions in the Lung. Cooperative Scientific Exchange National Institutes of Heart, Lung, and Blood Institute and the Italian Government. Denver, Colorado, April 4-5, 1991.
- Trends in Basic Cardiovascular Research. University of Rome and Sigma Tau. Rome, Italy, April 11, 1991.
- Second International Conference on Molecular Biology of Hematopoiesis, N. Abraham and Gunther Konwanlinka, organizers, Innsbruck, Austria.
- FASEB Conference on Cytokines. FASEB Summer Research Conferences, Cooper Mountain, Colorado, R. Lewis and P-K Wong, organizers. August 11-16, 1991.

**1992**

- Winter Prostaglandin Conference, Keystone, Colorado January 8-11, 1992 Co-organizer, Chairman session on 'Lipoxygenase Molecular and Cellular Biology'.

**1993**

- Winter Prostaglandin Conference, Keystone, Colorado January 17-21, 1991 'Epoxygenase Eicosanoids' - Invited Speaker.
- Third International Meeting on Platelets & Vascular Occlusion, New York Academy of Science, June 6-9, 1993 Santa Fe, New Mexico - Invited Speaker.
- Eighth International Symposium: Molecular Biology of Hematopoiesis, Geneva, Switzerland, July 9-14, 1993 - Invited Speaker.
- New York Academy of Science Conference: Cellular Generation, Transport and Effects of Eicosanoids-Biological Roles and Pharmacological Intervention, November 15-17, 1993. Stockholm, Sweden - Invited speaker.

**1998**

- 1998 Second International Workshop on COX-2, International Study Group on COX-2; chair Peter Lipsky, University of Texas Southwestern Medical Center, July 28-31, Kapalua, Hawaii, invited participant

**1999**

- Keystone Sympposia on Molecular and Cellular Biology “Molecular Mechanisms for Gastrointestinal Cancer/Lipid Mediators” April 1-7, 1999 - Invited Speaker, Keystone, Colorado.
- Third International Workshop on COX-2, International Study Group on COX-2; Chair Peter Lipsky, University of Texas Southwestern Medical Center, August 3 – September 05, Hualalai, Hawaii, invited participant.

**2000**

- None

**2001**

- National Cancer Institute Workshop "NSAID in Colon Cancer Prevention". Organizers D. Hwang, M.D., R. DuBois, M.D. and Andrew Dannenberg, M.D Bethesda, MD. January 07 -08, 2001. Invited participant

**2002**

- Keystone Symposia on Molecular and Cellular Biology "Regulation of Cellular Responses by Lipid Mediators" Organizer, Dr. Philip Majerus, M.D. and Dr. Stephen Prescott, M.D. February 03-06, Taos, NM Invited Speaker

**2003**

- 8th International Symposium Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation and Related Diseases. Organizers, Kenneth Honn, September 7-10, Chicago, Illinois. Invited speaker.

**2004**

- Nobel Symposium No. 46. Karolinska Institute, Stockholm, Sweden "Redox Signalling & Cellular Function" Organizers, Arne Holmgren & Elias Arner June 05-10, Stockholm, Sweden. Invited speaker

- American Society of Molecular Biology Symposium "Redox Signaling and Biology" Roy Soberman organizer. Oct. 21-24, 2004, Kiawah Island Resort, South Carolina. Invited speaker.

**2005**

- Keystone Symposium " Bioactive Lipids, Lipidomics and Their Targets", Garret FitzGerald, Ian Blair and Ron Evans, Whistler, British Columbia April 12-17, 2005. Invited speaker.

**2006**

- Gordon Conference "Thiol-based Redox Regulation and Signaling" Organizers, Vadim Gladyshev and Ruma Banerjee . June 18-23, University of New England, Biddefird, Maine. Invited speaker.

**2015**

- Osteopathic Medicine Conference 2015. American Association of Osteopathic Medicine

**RESEARCH FUNDING: 1987-Present**

**NIH FUNDING**

**COMPLETED**

**NIH/NCI**

**P01 CA 073992-06 Molecular / Clinical Approaches to Colon Cancer Precursors**
**Funding period; 09/01/2003-08/31/2008**
P.I. of Program Project: Randall Burt, M.D,
P.I. of Project 5: F.A. Fitzpatrick,
This program project grant investigates the genetics, molecular and cell biology of the adenomatous polyp; and clinical investigation of its prevention and natural history.
F. A. Fitzpatrick, P.I. Project 5 "The Role of Chronic Inflammation in Colon Cancer Risk"
Direct costs requested: $225,000 per year. Period 09/01/2003-08/31/2008

**R21 CA 1222270-01A1 Epigenetic Potentiation of Interferon Using Decitabine**
**Funding period: 7/09/2007 – 08/31/2009**
P.I. Wolfram Samlowski, M.D., Nevada Cancer Institute
Co-investigator (10% effort) F.A. Fitzpatrick, Ph.D Sub-contract Aim 2
Direct costs requested: $240,000. Period 07/09/2007-08/31/2009

**NIH/NIAID**
Active period, including no cost extensions : 08/01/1988- to 07/31/2006
**R01-AI26730-14-A2 Transcellular Leukotriene Biosynthesis: Inflammation and Cancer**
F.A. Fitzpatrick, P.I.
To be re-submitted as an A2 in July 2008.
This is a long standing R01 grant first funded in 1988. It lapsed during the period 1994-1998 when I worked at The Upjohn Company. It was re-instated in 1998 and due for its 3rd competing renewal in 2005. That application and an A1 re-submittal were not judged as competitive.

**COMPLETED /FUNDING HISTORY**

**PO1-HL34303 'Ether Lipids, Eicosanoids and Lung Cell Pathophysiology'**
P01-HL34303 P. Henson, P.I. for Program Project.
F.A. Fitzpatrick, P.I. Project 7 "Suicide Substrate Inactivation of Eicosanoid Biosynthesis"
9/30/1988 to 9/29/1994
This project ended when I took a position with the Upjohn Company in 1994

**R01-GM41026 Biochemical Pharmacology of Epoxygenase Eicosanoids**
F.A. Fitzpatrick, P.I. 12/01/88 - 11/30/92
Direct costs = $ 317,280 / Indirect costs $ 133,017 / Total = $ 450,297
This project was completed and I did not submit a competing renewal due to change of directions.

**R01 HL43180-03 Deficient Prostacyclin Synthesis in Pulmonary Hypertension**
Norbert Voelkel, P.I.
F.A. Fitzpatrick, Co. P.I. 15% effort
07/31/1992-06/30/1995
This project was completed. My role ended when I took a position with The Upjohn Company in 1994.

**National Comprehensive Cancer Network (NCCN)**
01/07/07– 03/31/08
**Molecular Determinants of Sunitinib Efficacy**

We hypothesize that PTEN is a molecular determinant of sunitinib efficacy. Drugs that prevent inactivation of PTEN protein, or enhance its expression, could be combined with sunitinib to improve its efficacy in certain tumors.
F.A. Fitzpatrick, P.I. Direct costs $80,000.