Phyllis Gardner
Professor of Medicine (Clinical Pharmacology)
Medicine - Clinical Pharmacology

Bio

ACADEMIC APPOINTMENTS
- Professor, Medicine - Clinical Pharmacology

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS
We are interested in the general process of signal transduction, focusing on the role that ion channels play in this process. By means of path clamp recording and associated cell and molecular biological techniques, we have studied:

1. Voltage-insensitive Ca2+ channels, Ca2+-dependent K+ channels, other downstream Ca2+ dependent effector molecules; role in cellular activation and signal transduction.

2. Cystic fibrosis C1-channels in epithelial cells and lymphocytes; associated signal transduction pathways and cell biological coupling mechanisms. Phase I/II AAV-CFTR gene therapy trials.

3. NFAT mediated gene transcription; modulations by kinases and phosphatases.

Publications

PUBLICATIONS
- **Genetic Analysis of Presbycusis by Arrayed Primer Extension** *ANNALS OF CLINICAL AND LABORATORY SCIENCE*
  2008; 38 (4): 352-360

- **Comprehensive arrayed primer extension array for the detection of 59 sequence variants in 15 conditions prevalent among the (Ashkenazi) Jewish population** *JOURNAL OF MOLECULAR DIAGNOSTICS*
  Schrijver, I., Kulm, M., Gardner, P. I., Pergament, E. P., Fiddler, M. B.
  2007; 9 (2): 228-236

- **Simultaneous multigene mutation detection in patients with sensorineural hearing loss through a novel diagnostic microarray: A new approach for newborn screening follow-up** *PEDIATRICS*
  Gardner, P., Oitmaa, E., Messner, A., Hoefsloot, L., Metspalu, A., Schrijver, I.
  2006; 118 (3): 985-994

- **Microfabricated nanochannel implantable drug delivery devices: trends, limitations and possibilities.** *Expert opinion on drug delivery*
  Gardner, P.
  2006; 3 (4): 479-487
Hereditary sensorineural hearing loss: advances in molecular genetics and mutation analysis  
**EXPERT REVIEW OF MOLECULAR DIAGNOSTICS**
Schrijver, I., Gardner, P.
2006; 6 (3): 375-386

Genotyping microarray for the detection of more than 200 CFTR mutations in ethnically diverse populations  
**JOURNAL OF MOLECULAR DIAGNOSTICS**
Schrijver, I., Oitmaa, E., Metspalu, A., Gardner, P.
2005; 7 (3): 375-387

Diagnostic testing by CFTR gene mutation analysis in a large group of Hispanics novel mutations and assessment of a population-specific mutation spectrum  
**JOURNAL OF MOLECULAR DIAGNOSTICS**
2005; 7 (2): 289-299

A phase II, double-blind, randomized, placebo-controlled clinical trial of tgAAVCF using maxillary sinus delivery in patients with cystic fibrosis with antrostomies  
**HUMAN GENE THERAPY**
2002; 13 (11): 1349-1359

Safety and biological efficacy of an adeno-associated virus vector cystic fibrosis transmembrane regulator (AAV-CFTR) in the cystic fibrosis maxillary sinus  
**11th Annual North American Cystic Fibrosis Conference**
JOHN WILEY & SONS INC.1999: 266–74

Maxillary sinusitis as a surrogate model for CF gene therapy clinical trials in patients with antrostomies  
**JOURNAL OF GENE MEDICINE**
1999; 1 (1): 13-21

Adenovirus-mediated transduction of intestinal cells in vivo  
**HUMAN GENE THERAPY**
1998; 9 (9): 1313-1321

Efficient and persistent gene transfer of AAV-CFTR in maxillary sinus  
**LANCET**
1998; 351 (9117): 1702-1703

A phase I/II study of tgAAV-CF for the treatment of chronic sinusitis in patients with cystic fibrosis  
**HUMAN GENE THERAPY**
1998; 9 (6): 889-909

Nuclear export of NF-ATc enhanced by glycogen synthase kinase-3  
**SCIENCE**
Beals, C. R., Sheridan, C. M., Turck, C. W., Gardner, P., Crabtree, G. R.
1997; 275 (5308): 1930-1933

Toward cystic fibrosis gene therapy  
**ANNUAL REVIEW OF MEDICINE**
Wagner, J. A., Gardner, P.
1997; 48: 203-216

Reduced IL-10 secretion by CD4(+) T lymphocytes expressing mutant cystic fibrosis transmembrane conductance regulator (CFTR)  
**CLINICAL AND EXPERIMENTAL IMMUNOLOGY**
Moss, R. B., BOCIAN, R. C., Hsu, Y. P., Dong, Y. J., Kemna, M., Wei, T., Gardner, P.
1996; 106 (2): 374-388

Mechanism of the antiproliferative action of leflunomide - A77 1726, the active metabolite of leflunomide, does not block T-cell receptor-mediated signal transduction but its antiproliferative effects are antagonized by pyrimidine nucleosides  
**JOURNAL OF HEART AND LUNG TRANSPLANTATION**
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1995; 14 (6): 1016-1030
- **CALCIUM-DEPENDENT AND CAMKII-DEPENDENT CHLORIDE SECRETION INDUCED BY THE MICROSMAL CA2+-ATPASE INHIBITOR 2,5-DI-(TERT-BUTYL)-1,4-HYDROQUINONE IN CYSTIC-FIBROSIS PANCREATIC EPITHELIAL-CELLS** *JOURNAL OF CLINICAL INVESTIGATION*
  Chao, A. C., Kouyama, K., Heist, E. K., Dong, Y. J., Gardner, P.
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- **ACTIVATION OF CFTR CHLORIDE CURRENT BY NITRIC-OXIDE IN HUMAN T-LYMPHOCYTES** *EMBO JOURNAL*
  Dong, Y. J., Chao, A. C., Kouyama, K., Hsu, Y. P., BOCIAN, R. C., Moss, R. B., Gardner, P.
  1995; 14 (12): 2700-2707

- **MOLECULAR STRATEGIES FOR THERAPY OF CYSTIC-FIBROSIS** *ANNUAL REVIEW OF PHARMACOLOGY AND TOXICOLOGY*
  Wagner, J. A., Chao, A. C., Gardner, P.
  1995; 35: 257-276

- **INHIBITION BY SK-AND-F-96365 OF CA2+ CURRENT, IL-2 PRODUCTION AND ACTIVATION IN T-LYMPHOCYTES** *BRITISH JOURNAL OF PHARMACOLOGY*
  Chung, S. C., McDonald, T. V., Gardner, P.
  1994; 113 (3): 861-868

- **VOLUME-ACTIVATED CHLORIDE CURRENT IS NOT RELATED TO P-GLYCO PROTEIN OVEREXPRESSION** *CANCER RESEARCH*
  Dong, Y. J., Chen, G., Duran, G. E., Kouyama, K., Chao, A. C., Sikic, B. I., Gollapudi, S. V., Gupta, S., Gardner, P.
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- **INTERLEUKIN-2 TRANSCRIPTIONAL BLOCK BY MULTIFUNCTIONAL CA2+/CALMODULIN KINASE** *NATURE*
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- **ACTIVATION OF CA2+ CURRENT IN JURKAT T-CELLS FOLLOWING THE DEPLETION OF CA2+ STORES BY MICROSMAL CA2+-ATPASE INHIBITORS** *JOURNAL OF IMMUNOLOGY*
  Premack, B. A., McDonald, T. V., Gardner, P.
  1994; 152 (11): 5226-5240

- **STIMULATION OF CHLORIDE SECRETION BY P-1 PURINOCEPTOR AGONISTS IN CYSTIC-FIBROSIS PHENOTYPE AIRWAY EPITHELIAL-CELL LINE CFPEO-** *BRITISH JOURNAL OF PHARMACOLOGY*
  Chao, A. C., ZIFFERBLATT, J. B., Wagner, J. A., Dong, Y. J., Gruenert, D. C., Gardner, P.
  1994; 112 (1): 169-175

- **ACTIVATION OF INTESTINAL CFTR CL- CHANNEL BY HEAT-STABLE ENTEROTOXIN AND GUANYLIN VIA CAMP-DEPENDENT PROTEIN-KINASE** *EMBO JOURNAL*
  1994; 13 (5): 1065-1072

- **PROPERTIES OF CA CURRENTS ACTIVATED BY T-CELL RECEPTOR SIGNALING** *5th International Conference on Mechanisms of Lymphocyte Activation and Immune Regulation*
  Premack, B. A., Gardner, P.
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- **CLONING AND ANALYSIS OF 2 NEW ISOFORMS OF MULTIFUNCTIONAL CA2+/CALMODULIN-DEPENDENT PROTEIN-KINASE - EXPRESSION IN MULTIPLE HUMAN TISSUES** *JOURNAL OF BIOLOGICAL CHEMISTRY*
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  Premack, B. A., Gardner, P.
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• ANTISENSE OLIGODEOXYNUCLEOTIDES TO THE CYSTIC-FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR INHIBIT CAMP-ACTIVATED BUT NOT CALCIUM-ACTIVATED CHLORIDE CURRENTS PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA
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• REGULATION OF CL- CHANNELS BY MULTIFUNCTIONAL CAM KINASE NEURON
  Nishimoto, I., Wagner, J. A., Schulman, H., Gardner, P.
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• ACTIVATION OF CHLORIDE CHANNELS IN NORMAL AND CYSTIC-FIBROSIS AIRWAY EPITHELIAL-CELLS BY MULTIFUNCTIONAL CALCIUM CALMODULIN-DEPENDENT PROTEIN-KINASE NATURE
  1991; 349 (6312): 793-796

• PATCH CLAMP STUDIES OF LYMPHOCYTE-ACTIVATION ANNUAL REVIEW OF IMMUNOLOGY
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• CALCIUM AND LYMPHOCYTE-T ACTIVATION CELL
  Gardner, P.
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• MODULATION OF MEMBRANE K+ CONDUCTANCE IN LYMPHOCYTES-T BY SUBSTANCE-P VIA A GTP-BINDING PROTEIN JOURNAL OF MEMBRANE BIOLOGY
  SCHUMANN, M. A., Gardner, P.
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• IDENTIFICATION OF A HEMOLYSIN FROM ACTINOBACILLUS-PLEUROPNEUMONIAE AND CHARACTERIZATION OF ITS CHANNEL PROPERTIES IN PLANAR PHOSPHOLIPID-BILAYERS JOURNAL OF BIOLOGICAL CHEMISTRY
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• A CAMP-REGULATED CHLORIDE CHANNEL IN LYMPHOCYTES THAT IS AFFECTED IN CYSTIC-FIBROSIS SCIENCE
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