BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Charles Garrison Fathman	Professor
eRA COMMONS USER NAME Fathman.Garrison	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Kentucky, Lexington, KY	B.A.	1964	Pre-Medicine
Washington University School of Medicine, St. Louis, MO	M.D.	1969	Medicine

NOTE: The Biographical Sketch may not exceed four pages. Items A and B (together) may not exceed two of the four-page limit. Follow the formats and instructions on the attached sample.

A. Positions and Honors:

1969 – 1971 Intern and Resident in Medicine, Dartmouth Affiliated Hospitals, Hanover, NH
1971 – 1973 Postdoctoral Fellow in Immunology, Division of Immunology, Stanford University School of Medicine, Stanford, CA
1973 – 1975 Clinical Associate, Immunology Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD
1975 – 1977 Member, Basel Institute for Immunology, Switzerland
1977 – 1981 Associate Professor, Department of Immunology, Mayo Clinic, Rochester, MN
1981 – 1989 Associate Professor of Medicine, Division of Immunology and Rheumatology, Stanford University School of Medicine, Stanford, CA
1989 – present Professor, Department of Medicine, Division of Immunology and Rheumatology, Stanford University School of Medicine, Stanford, CA
1997 – present Director, Center for Clinical Immunology and Division Chief, Division of Immunology and Rheumatology, Stanford University School of Medicine

Honors/Memberships

American Association of Immunologists (AAI)
American College of Rheumatology (ACR)
American Diabetes Association (ADA)
American Federation for Clinical Research (AFCR)
American Society for Clinical Investigation (ASCI) (Council 1984-1987)
Association of American Physicians (AAP)
Clinical Immunology Society (CIS) (Council 1993-2001) President 2000
Federation of Clinical Immunology Societies (FOCIS) Chair 2002-2004
Immunology of Diabetes Society (IDS)

B. Selected Peer-Reviewed Publications: (selected from over 250 representative publications)

Costa, Gina L., Benson, Jacqueline M., Seroogy, Christine M., Achacoso, Philip, Fathman, C. Garrison and Nolan, Garry P. (2000) Targeting rare populations of murine antigen-specific T lymphocytes by retroviral transduction for potential application in gene therapy for autoimmune disease. *J. Immunol.* 164:3581-3590.

Fasso, Marcella, Anandasabapathy, Niroshana, Crawford, Frances, Kappler, John, Fathman, C. Garrison and Ridgway, William. (2000) TCR-mediated repertoire selection and loss of TCR Vb diversity during the initiation of an immune response *in vivo*. *J. Exp. Med.*, 192:1719-1730.

Nakajima, Atsuo, Seroogy, Christine M., Sandora, Matthew R., Tarner, Ingo, H., Costa, Gina L., Taylor-Edwards, Cariel, Bachmann, Michael H., Contag, Christopher H., and Fathman, C. Garrison. (2001).

Antigen-specific T cell-mediated gene therapy in collagen-induced arthritis. *J. Clin. Invest*, 107:1293-1301.

Costa, Gina L., Sandora, Matthew R., Nakajima, Atsuo, Nguyen, Eddy V., Taylor-Edwards, Cariel, Slavin, Anthony J., Contag, Christopher H., Fathman, C. Garrison and Benson, Jacqueline M. (2001) Adoptive immunotherapy of experimental autoimmune encephalomyelitis via T cell delivery of the IL-12 p40 subunit. *J. Immunol.* 167:2379-2387.

Urbanek-Ruiz, Irene., Ruiz, Pedro J., Paragas, Violette, Garren, Hideki, Steinman, Lawrence, and Fathman, C. Garrison. (2001) Immunization with DNA encoding an immunodominant peptide of insulin prevents diabetes in NOD mice. *Clin. Immunol.* 100:164-171.

Ermann, Joerg and Fathman, C. Garrison (2001) Autoimmune diseases: genes, bugs and failed regulation. *Nat Immunol.* (9): 759-761.

Ermann, Joerg, Szanya, Veronika, Ford, Gregory, Paragas, Violette, Fathman, C. Garrison and Lejon, Kristina. (2001) CD25+CD4+ cells facilitate the induction of T cell anergy. *J. Immunol*. 167:4271-4275.

Hoffmann, Petra, Ermann, Joerg, Edinger, Matthias, Fathman, C. Garrison and Strober, Samuel. (2002). Donor type CD4+CD25+ regulatory T cells suppress lethal acute graft-versus-host disease after allogeneic bone marrow transplantation. *J Exp Med.* 196:389-99

Szanya, Veronika, Ermann, Joerg, Taylor, Cariel, Holness, Claire and Fathman, C. Garrison. (2002). The subpopulation of CD4+CD25+ splenocytes that delays adoptive transfer of diabetes expresses L-selectin and high levels of CCR7. *J. Immunol.* 169: 2461-2465.

Tarner, Ingo., Atsuo Nakajima, Christine M. Seroogy, Jorerg Ermann, Christopher H.Contag, and Fathman, C**.** Garrison.. (2002) Retroviral gene therapy of collagen-induced arthritis by local delivery of IL-4. *Clin. Imm.* 105:304-314.

Anandasabapathy, Niroshana, Ford, Gregory S., Bloom, Debra, Holness, Claire, Seroogy, Christine, Skrenta, Heidi, Paragas, Violette, Fathman, C. Garrison and Soares, Luis. (2003). GRAIL: A novel E3 ubiquitin ligase that inhibits cytokine gene transcription is expressed in anergic CD4+ T cells. *Immunity* 18: 535-47.

Edinger, Matthias, Hoffmann, Petra, Ermann, Joerg, Drago, Kathryn, Fathman, C. Garrison, Strober, Samuel and Negrin, Robert S. (2003) CD4+ CD25+ regulatory T cells preserve graft-versus-tumor activity while inhibiting graft-versus-host disease after bone marrow transplantation. *Nature Med*. 9:1144-1150.

Smith, Richard, Tarner, Ingo, Hollenhorst, Marie, Lin, Chen, Levicnik, Alenka U., Fathman, C. Garrison and Nolan, Garry P. (2003) Localized expression of an anti-TNF single chain antibody prevents development of collagen-induced arthritis. *Gene Therapy*, 10:1248-1247.

Soares, Luis, Seroogy, Christine, Skrenta, Heidi, Anandasabapathy, Niroshana, Lovelace, Patricia, Chung, Chan D., Engleman, Edgar, and **Fathman, C. Garrison**. (2004) Two isoforms of otubain 1 regulate T cell anergy via GRAIL. *Nat Immunology* 5:45-54.

Tarner, Ingo, Muller-Ladner, Ulf and **Fathman, C. Garrison**. (2004). Targeted gene therapy: frontiers in the development of "smart drugs". *In: Trends in Biotechnology*, 22:6.

Jeon, Myung-Shin, Atfield, Alex, Venuprasd, K., Krawcyzk, Connie, Sarao, Renu, Elly, Chris, Yang, Chun, Arya, Sudha, Bachmaier, Kurt, Su, Leon, Bouchard, Dennis, Jones, Russel, Gronski, Mathew, Ohashi, Pamela, Wada, Teiji, Bloom, Debra, **Fathman, C. Garrison,** Liu, Yun-Cai**,** and Penninger, Josef M. (2004) Essential role of the E3 ubiquitin ligase Cbl-b in T cell anergy induction. *Immunity* 21:167-177.

Seroogy, CM, Soares, L., Ranheim, EA, Su., L. Holness, C., Bloom, D., and **Fathman, C. Garrison**. (2004) The gene related to anergy in lymphocytes, an E3 ubiquitin ligase, is necessary for anergy induction in CD4 T cells. *J. Immunol.* 173:79-85.

Creusot, Remi and **Fathman, C. Garrison** (2004). Gene therapy for type 1 diabetes: a novel approach for targeted treatment of autoimmunity. *J. Clin. Invest.*, 114:892-894.

Su, Leon, Creusot, Remi J., Gallo, Elena, Chan, Steven M., Utz, Paul J., **Fathman, C. Garrison** and Ermann, Joerg. (2004) Murine CD4+CD25+ regulatory T cells fail to undergo chromatin remodeling across the proximal promoter region of the IL-2 gene. *J. Immunol* 173:4994-5001.

Ermann, J., Hoffmann, P., Edinger, M., Dutt, S., Higgins, J.P., Negrin, R.S., **Fathman, C.G.** and Strober, S. (2004) Only the CD62L+ subpopulation of CD4+CD25+ regulatory T cells protects from lethal acute GVHD. *Blood,* December.

Chan, Steven M., Ermann, Joerg, Su, Leon, **Fathman, C. Garrison** and Utz, Paul J. (2004) Protein microarrays for multiplex analysis of signal transduction pathways. *Nat Med* 10:1390-1396.

C. Research Support:

R33 AI55468-03 Fathman (PI) 09/01/04 – 08/31/07
NIH
"Adoptive Cellular Gene Therapy in Type 1 Diabetes (T1D)"
The major goal of this project is to study adoptive cellular gene therapy in type 1 diabetes. This grant must begin human studies as the next level, an R33 application due 11-03.
Role: Principal Investigator

2 PO1 AI 36535-09 Fathman (PI) 06/01/04 – 05/31/09
NIH
"**Autoimmunity: Mechanisms of Unresponsiveness"**
The major goal of this study is to study retroviral gene-based treatment of experimental allergic encephalomyelitis (EAE) and Collagen Induced Arthritis (CIA). Dr. Fathman also serves as the overall Program Director. Competing renewal.
Role: Principal Investigator

2 R01 CA65237-16 Fathman (PI) 05/01/04 - 04/30/09
NIH/NCI
"Ternary Complex That Drives T-Cell Activation"
The major goals of this project are studies aimed at using cellular immunology and molecular biology to study structure/function relationships between T cell receptor and antigen/MHC recognition.
Role: Principal Investigator

5 U19 DK61934-03 Fathman (PI) 09/29/01 – 06/30/06
NIH
"Strategies for Prevention of Autoimmunity"
(PI: Dr. C. Garrison Fathman, Co-PI's: Drs. PJ Utz, Jeffrey Bluestone, and Lawrence Steinman)
The major goal of this project is the use of gene therapy and DNA vaccination to prevent autoimmune disease progression.
Role: Principal Investigator

5 U01 DK61925-04 Fathman (PI) 09/30/01 – 07/31/06
NIH
"CD25+ Regulatory CD4+ T Cells"
The major goal of this project is to study CD25 regulatory T cells in IDDM and collagen-induced arthritis in mouse models.
Role: Principal Investigator

Collaborative Network for Clinical Research in Immune Tolerance (Subcontract PI: Fathman) 09/30/99 – 09/29/06
NIH
Sponsor**:** University of California San Francisco
Subcontract – RFP-NIH-NIAID-99-30
The major goal of this study is to review applications for clinical trials in three areas of human disease: autoimmunity, asthma and transplantation.
Role: Co-Principal Investigator

DK-61042 Wilson (PI) 09/01/01 – 6/31/08
NIH
"Type I Diabetes TrialNet at Stanford"
The major goal of this study is the international consortium to review applications to treat T1D and its complications.
Role: Co-Principal Investigator

(Subcontract PI: Fathman) 03/01/05 – 02/28/06
University of Colorado/NIH
"A Roadmap to Inflammation in NOD Mice"
A study to provide insight into the pathophysiology of NOD disease by analyzing various tissues from NOD mice at several time points by microarray, tetramer and autoantibody analysis.
Role: Principal Investigator

Completed Research Support:

#4-2001-910 (Fathman PI) (Co-PI's: Drs. Kay, Kim, Contag) 10/01/01 – 06/30/05
Juvenile Diabetes Research Foundation
"JDRF Center for Gene Therapy of IDDM and Its Complications at Stanford University"
Projects 1, 2 and Core A
The major goal of this study proposes gene therapy of IDDM and its complications. Studies supported by this grant allowed the development of the dendritic cell based transduction studies.
Role: Principal Investigator

5 R01 DK39959-14 Fathman (PI) 03/01/98 - 02/28/03
NIH/NIDDK
Immunotherapy in Murine Diabetes
The Nonobese Diabetic (NOD) Mouse
The major goal of this projects it to study and analyze TCR utilization of the earliest infiltrating T cells in NOD disease.
Role: Principal Investigator
OVERLAP: None

NO1-AR-6-2227-05 Fathman (PI) 09/30/96 – 03/31/02
NIH
"Retroviral-Mediated Gene Therapy of Rheumatoid Arthritis"
This Contract proposes to use innovative technology recently developed in our laboratories to induce de novo synthesis of proteins leading to improvement of host homeostasis in an autoimmune disease, rheumatoid arthritis (RA).
Role: Principal Investigator

5-2001-39 04/01/01 – 03/31/02
Juvenile Diabetes Research Foundation (Fathman PI)
"Gene Therapy and Imaging Studies of NOD IDDM"
To allow important characterization of gene transfer immunotherapy, both to prevent and possibly reverse IDDM, as well as an understanding of the pathophysiology and kinetics of beta cell destruction.
Role: Principal Investigator

AI39646 Fathman (PI)
National Institutes of Health 12/01/97 – 11/30/00
"Novel Immunotherapeutic Approaches to the Treatment of Insulin-Dependent Diabetes Mellitus (IDDM)"
Role: Principal Investigator

DK44837 Fathman (PI)
National Institutes of Health 01/01/96 – 04/30/97
"**Pathophysiology and Immunotherapy of Non-Obese Diabetic (NOD) Mice**"
Role: Principal Investigator