

## BIOGRAPHICAL SKETCH

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|   |   |         |                |
|---|---|---------|----------------|
| NAME<br>Frank C. Arnett, MD   | POSITION TITLE<br>Professor of Internal Medicine/Rheumatology, and<br>Pathology and Laboratory Medicine |         |                |
| eRA COMMONS USER NAME   |   |         |                |
| EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i> |   |         |                |
| INSTITUTION AND LOCATION  | DEGREE<br><i>(if applicable)</i>  | YEAR(s) | FIELD OF STUDY |
| University of Cincinnati, Cincinnati, Ohio  | BA  | 1964    | Zoology        |
| University of Cincinnati, Cincinnati, Ohio  | MD  | 1968    | Medicine       |

Please refer to the application instructions in order to complete sections A, B, and C of the Biographical Sketch.

### A. Positions and Honors.

1968-69 Intern in Medicine, Johns Hopkins Hospital, Baltimore, MD  
 1969-70 Assistant Resident in Medicine, Johns Hopkins Hospital, Baltimore MD  
 1970-72 Postdoctoral Fellow in Rheumatology, Johns Hopkins Univ., Baltimore, MD  
 1972-74 Chief, Internal Medicine and Chief of the Rheumatology Section,  
 Wilford Hall USAF Medical Center, Lackland AFB, Texas  
 1973-74 Clinical Assistant Professor of Medicine, Univ. of Texas School of Medicine, San Antonio, TX  
 1974-75 Instructor in Medicine, Johns Hopkins University School of Medicine, Baltimore, MD  
 1975-80 Assistant Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD  
 1980-84 Associate Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD  
 1984-2001 Professor and Director, Div. of Rheumatology and Clinical Immunogenetics, Dept. of Internal  
 Medicine, University of Texas-Houston Health Science Center, Houston, TX  
 1984- Professor of Internal Medicine-Rheumatology, and Pathology and Laboratory Medicine, UT  
 Medical School  
 1991-2000 Vice-Chairman, Department of Internal Medicine, UT Medical School  
 1997-2006 Director, NIAMS Specialized Center of Research (SCOR) in Scleroderma  
 2000-2001 Interim Chairman, Department of Internal Medicine, UT Medical School  
 2001-2004 Chairman, Department of Internal Medicine, UT Medical School  
 2006- Director, NIAMS Center of Research Translation in Scleroderma  
 2006- Executive Director, NCCR Clinical and Translational Science Award (CTSA)

### Honors and Awards

1968 Alpha Omega Alpha  
 1968 Peter T. Kilgour Prize, Univ of Cincinnati School of Medicine for Outstanding Graduating Senior  
 1991-1993 Alpha Omega Alpha, Board of Directors; national Secretary-Treasurer  
 1993-1995 Vice President (AOA)  
 1995-1996 President (AOA)  
 1979- Fellow, American College of Physicians  
 1978-1983 Senior Investigator Award, Arthritis Fdn  
 1991 Howard and Martha Holly Research Prize in Rheumatology, Southeastern Region American  
 College of Rheumatology  
 1993 Association of American Physicians (elected)  
 1995 Johns Hopkins Society of Scholars (elected)  
 1997- Elizabeth Bidgood Chair in Rheumatology  
 1998 Mark Flapan Lifetime Achievement Award for Scleroderma Research-Scleroderma Fdn.  
 2001 Herbert L. and Margaret W. DuPont Master Clinical Teaching Award, U.T. Medical School  
 2001,2003 John P. McGovern Outstanding Clinical Teacher Award, UT Med School

|      |  |
|------|--|
| 2005 | President's 'Scholar Award for Teaching, UTHSC                     |
| 2005 | University of Texas Academy of Health Science Education (selected) |
| 2006 | TIAA-CREF Distinguished Medical Educator Award                     |

**Editorial Boards** Johns Hopkins Med. J. (1976-82), J. Rheumatology (1982-), Arthritis and Rheumatism (1982-87), Clin Exp Rheumatol (1990-1997), American Journal of Medicine (2001-), Curr Opin Rheumatol (Section Editor for SSc) (2005-).

**B. Selected peer-reviewed publications (in chronological order) (out of 199 refereed papers, 53 invited articles, 65 book chapters and 207 abstracts)**

1. Harley JB, Reichlin M, Arnett FC, Alexander EL, Bias WB, Provost TT: Gene interaction at HLA-DQ enhances autoantibody production in primary Sjogren's syndrome. *Science* 232:1145-1147, 1986.
2. Reveille JD, MacLeod MJ, Whittington K, Arnett FC: Specific amino acid residues in the second hypervariable region of HLA-DQA1 and DQB1 chain genes promote the Ro (SS-A)/La (SS-B) autoantibody responses. *J Immunol* 146:3871-3876, 1991.
3. Reveille JD, Owerbach D, Goldstein R, Moreda R, Isern RA, Arnett FC: Association of polar amino acids at position 26 of the HLA-DQB1 first domain with the anticentromere autoantibody response in systemic sclerosis (scleroderma). *J Clin Invest* 89:1208-1213, 1992.
4. Reveille JD, Durban E, MacLeod-St. Clair MJ, Goldstein R, Moreda R, Altman RD, Arnett FC: Association of amino acid sequences in the HLA-DQB1 first domain with the anti-topoisomerase antibody response in scleroderma (progressive systemic sclerosis). *J Clin Invest* 90:973-980, 1992.
5. Arnett FC, Targoff IN, Mimori T, Goldstein R, Warner N, Reveille JD: Interrelationship of major histocompatibility complex class II alleles and autoantibodies in four ethnic groups with various forms of myositis. *Arthritis Rheum* 39:1507-1518, 1996.
6. Arnett FC, Howard RF, Tan F, Moulds JM, Bias WB, Durban E, Cameron HD, Paxton G, Hodge T, Weathers E, and Reveille JD: Increased prevalence of systemic sclerosis (scleroderma) in a Native American tribe in Oklahoma: Association with an Amerindian HLA haplotype. *Arthritis Rheum* 39:1362-1370, 1996.
7. Tan FK, Wang N, Chakraborty R, Kuwana M, Bona CA, Milewicz DM, Arnett FC: Association of fibrillin-1 single nucleotide polymorphism (SNP) haplotypes with systemic sclerosis in native American and Japanese populations. *Arthritis Rheum* 44: 893-901, 2001.
8. Wallis DD, Tan FK, Kielty CM, Arnett FC, Milewicz DM: Abnormalities in fibrillin-1-containing microfibrils in dermal fibroblast cultures from patients with systemic sclerosis (scleroderma). *Arthritis Rheum* 44: 1855-1864, 2001.
9. Johnson RW, Reveille JD, McNearney T, Fischbach M, Friedman AW, Ahn C, Arnett FC, Tan FK: Lack of association of a functionally relevant single nucleotide polymorphism matrix metalloproteinase-1 promoter with systemic sclerosis (scleroderma). *Genes Immun.* 2:273-275, 2001.
10. Tew MB, Reveille JD, Arnett FC, Friedman AW, McNearney T, Fischbach M, Ahn C, Tan FK: Glutathione S-transferase genotypes in systemic sclerosis and their association with clinical manifestations in early disease. *Genes Immun* 2:236-238, 2001.
11. Zhou X, Tan FK, Ziong M, Milewicz DM, Feghali CA, Fritzler MJ, Reveille JD, Arnett FC: Systemic sclerosis (scleroderma): specific autoantigen genes are selectively over expressed in scleroderma fibroblasts. *J Immunol* 167:7126-7133, 2001.
12. Johnson RW, Tew MB, Arnett FC: The genetics of systemic sclerosis. *Curr Rheumatol Reports* 4: 99-107, 2002.
13. Zhou X, Tan FK, Reveille JD, Wallis D, Milewicz DM, Ahn C, Wang A, Arnett FC: Association of novel polymorphisms with the expression of SPARC in normal fibroblasts and with susceptibility to scleroderma. *Arthritis Rheum* 46:2990-2999, 2002.
14. Planque S, Zhou Y, Nishiyama Y, Sinha M, O'Connor-McCourt M, Arnett F, Paul S: Autoantibodies to the epidermal growth factor receptor in systemic sclerosis, lupus and autoimmune mice. *FASEBJ* 17: 136-143, 2003.
15. Zhou X, Tan FK, Wang N, Xiong M, Maghidman S, Reveille JD, Chakraborty R, Arnett FC: Genome-wide association study for systemic sclerosis susceptibility regions in a Choctaw population with high disease prevalence. *Arthritis Rheum* 48: 2585-2592, 2003.

16. Tan FK, Tercero GM, Arnett FC, Wang N, Chakraborty R: Examination of the possible role of biologically relevant genes around FBN1 in systemic sclerosis in the Choctaw population. *Arthritis Rheum* 48: 3295-3300, 2003.
17. Wallis DD, Tan FK, Kessler R, Kimball MD, Cretoiu JS, Arnett FC, Milewicz DM: Fibrillin-1 abnormalities in dermal fibroblast cultures from first-degree relatives of patients with systemic sclerosis (scleroderma). *Arthritis Rheum* 50: 329-332, 2004.
18. Zhou X, Dimachkie MM, Xiong M, Tan FK, Arnett FC: cDNA microarrays reveal distinct gene expression clusters in idiopathic inflammatory myopathies. *Med Res Monit* 10:BR191-197, 2004.
19. Wang N, Zhou X, Tan FK, Foster MW, Arnett FC, Chakraborty R: Genetic signatures of pre-expansion bottleneck in the Choctaw population of Oklahoma. *Am J Phys Anthropol* 124(4):373-379, 2004.
20. Zhou X, Tan FK, Guo X, Wallis D, Milewicz DM, Xue S, Arnett FC: Small interfering RNA inhibition of SPARC attenuates the profibrotic effect transforming growth factor beta in cultured normal human fibroblasts. *Arthritis Rheum* 52(1): 257-261, 2005.
21. Tan FK, Hildebrand BA, Lester MS, Stivers DN, Pounds S, Zhou X, Wallis DD, Milewicz DM, Reveille JD, Mayes MD, Jin L, Arnett FC Jr: Classification analysis of the transcriptome of nonlesional cultured dermal fibroblasts from systemic sclerosis patients with early disease. *Arthritis Rheum* 52(3): 865-876, 2005.
22. Zhou X, Tan FK, Xiong M, Arnett FC, Feghali-Bostwick CA. Monozygotic twins with clinically discordant scleroderma show concordance for fibroblast gene expression profiles. *Arthritis Rheum* 52: 3305- 3314, 2005.
23. Xiong M, Feghali-Bostwick CA, Arnett FC, Zhou X. A system biology approach to genetic studies of complex diseases. *FEBS Lett* 579: 5325-5332, 2005.
24. Zhou X, Tan FK, Milewicz DM, Guo X, Bona C, Arnett FC. Autoantibodies to fibrillin-1 activate normal human fibroblasts in culture through the TGF beta pathway to recapitulate the "scleroderma phenotype". *J Immunol* 175: 4555-4560, 2005.
25. Tan FK, Zhou X, Mayes MD, Marcum C, Guo X, Gourh P, Jin L, Arnett FC. Signatures of dysregulated interferon gene expressions and vasculotropism in peripheral blood cells from patients with early systemic sclerosis. *Rheumatology (Oxford)* 45: 694-702, 2006.
26. O'Hanlon TP, Carrick DM, Arnett FC, Reveille JD, Carrington M, Gao X, et al: Immunogenetic risk and protective factors for the idiopathic inflammatory myopathies. *Medicine (Baltimore)* 84: 338-349, 2005.
27. Zhou X, Tan FK, Guo X, Arnett FC. Attenuation of collagen production with SPARC siRNA in cultured fibroblasts from the skin of scleroderma patients. *Arthritis Rheum* 54:2626-2631, 2006.
28. O'Hanlon TP, Mercatante C, Targoff IN, Arnett FC, Reveille JD, Carrington M, Gao X, Oddis CV, Morel PA, Malley JD, Malley K, Shamim EA, Rider LG, Chanock SJ, Foster CB, Bunch T, Blackshear PJ, Plotz PH, Love LA, Miller FW. HLA-A, -B, Cw, -DRB1 and DQA1 allelic profiles for the idiopathic inflammatory myopathies: distinct immunogenetic risk and protective factors distinguish European American patients with different myositis autoantibodies. *Medicine (Baltimore)* 85:111-127, 2006.
29. Battilana J, Fagundes NJR, Heller AH, Goldani A, Freitas LB, Tarazona-Santos E, Munkhbat B, Munkhtuvshin N, Tsuji K, Krylov MLU, Benevolenskaia L, Arnett FC, Batzer MA, Deininger PL, Salzano FM, Bonatto SL. Alu insertion polymorphisms in native Americans and related Asian populations. *Ann Hum Biol* 33: 142-160, 2006.
30. Ahmed SS, Tan FK, Arnett FC, Jin Li, Geng Y-J. Scleroderma sera containing endothelial cell antibodies induce apoptosis and fibrillin-1 in human dermal endothelial cells. *Arthritis Rheum* 54: 2250-2262, 2006.
31. Arnett FC, Merrill C, Albardaner F, Mackowiak PA: A mariner with crippling arthritis and bleeding eyes. *Amer J Med Sci* 332: 123-130, 2006.
32. Arnett FC. Is scleroderma an autoantibody mediated disease? Editorial. *Curr Opin Rheumatol* 18: 579-581, 2006.
33. Gourh P, Tan FK, Assassi S, McNearney TA, Fischbach M, Arnett FC, Mayes MD. Association of the PTPN22 R620W polymorphism with anti-topoisomerase I and anticentromere autoantibody systemic sclerosis. *Arthritis Rheum* 54:3945-3953, 2006.
34. Zhou XD, Xiong MM, Tan FK, Guo XJ, Arnett FC. SPARC, an upstream regulator of connective tissue growth factor in response to transforming growth factor beta stimulation. *Arthritis Rheum*. 54:3885-3889, 2006.
35. O'Hanlon TP, Rider LG, Mamyrova G, Targoff IN, Arnett FC, Reveille JD, Carrington M, Gao X, Oddis CV, Morel PA, Malley JD, Malley K, Shamim EA, Chanock SJ, Foster CB, Bunch T, Reed AM, Love LA,

- Miller FW. HLA polymorphisms in African Americans with idiopathic inflammatory myopathy: allelic profiles distinguish patients with different clinical phenotypes and myositis autoantibodies. *Arthritis Rheum.* 54:3670-81, 2006.
36. Wu SP, Leng L, Feng Z, Liu N, Zhao H, McDonald C, Lee A, Arnett FC, Gregersen PK, Mayes MD, Bucala R. Macrophage migration inhibitory factor promoter polymorphisms and the clinical expression of scleroderma. *Arthritis Rheum.* 54:3661-9, 2006.
  37. McNearney TA, Reveille JD, Fischbach M, Friedman AW, Lisse JR, Goel N, Tan FK, Zhou X, Ahn C, Feghali-Bostwick C, Fritzler MJ, Arnett FC, Mayes MD. Pulmonary involvement in systemic sclerosis in the GENISOS cohort: associations with genetic, serologic, sociodemographic and behavior factors. *Arthritis Rheum* 57(2):318-326, 2007.
  38. Wu H, Boackle SA, Hanvivadhanakul P, Ulgiati D, Grossman JM, Lee Y, Abraham LJ, Mercer TR, Park E, Hebert LA, Rovin BH, Birmingham DJ, Chang D-M, Chen CJ, McCurdy D, Badsha HM, Thong BYH, Chng HH, Arnett FC, Wallace DJ, Yu CY, Hahn BH, Cantor RM, Tsao BP. Association of a common haplotype of complement receptor 2 (*CR2*) with increased risk of systemic lupus erythematosus. *Proc Nat Acad Sci USA* 104:3961-3966, 2007.
  39. Alkassab F, Gourh P, Tan FK, McNearney T, Fischbach M, Ahn C, Arnett FC, Mayes MD. An allograft inflammatory factor 1 (*AIF1*) polymorphism (SNP) is associated with anti-centromere antibody positive systemic sclerosis. *Rheumatology (Oxford)* (in press).
  40. Assassi S, Arnett FC, Reveille JD, Gourh P, Mayes MD. Clinical, immunological and genetic features of familial systemic sclerosis. *Arthritis Rheum* 56:2031-2037, 2007.

### C. Research Support

#### Current

**NIH/NCRR Clinical and Translational Sciences Award (CTSA) 1 UL1 RR024148-01: PI-Frank C. Arnett, MD. 09/30/2006 - 06/30/2011.** One of the first 12 Roadmap CTSA awards designed to transform clinical research at academic institutions.

**NIH/NIAMS Center of Research Translation (CORT) in Scleroderma 1P50AR054144-01: P.I. Frank C. Arnett, MD. 9/1/06-8/31/11.** Through 3 Projects and 2 Cores, 1) to use functional genomic approaches and gene networks to better characterize and understand pathways in the pathogenesis of SSc, 2) to apply gene expression analyses to a large number of outcome measures in a longitudinally-followed SSc cohort (GENISOS) to define profiles correlating with disease activity, severity, phenotype and outcomes, and 3) to compare with human SSc the molecular pathways of fibrosis in 2 recombinant (TGF beta and CTCF over-expressing) murine models of fibrosis. 35% effort

**NIH-NIAMS-N01-AR-0-2251; P.I. Maureen D. Mayes, MD, MPH, Scleroderma Family Registry and DNA Repository, 09/00/00 – 09/29/05, (no cost extension through 09/29/07).** Aims to collect nationwide large numbers of scleroderma patients, their family members and normal spouse/friend controls and perform SNP-based candidate gene association studies. (Frank C. Arnett, MD, Co-Investigator) 10% effort

**NIH, NIAMS. R03- AR050517-10: P.I. Xiaodong Zhou, MD. Regulation of SPARC in Scleroderma. 4/1/2005-3/31/2008.** Aims to define the pathway(s) in which SPARC participates in normal and scleroderma fibroblasts and its role (s) in fibrosis. (collaborator, Frank C. Arnett, MD) 0% effort

**Amer College of Rheumatology/Research and Education Foundation, July 1, 2006-June 30, 2008** (mentored Clinical Investigator Fellowship Award to Shervin Assassi, MD (mentors FKTan, MD Mayes and FC Arnett), Peripheral blood gene profiles as biomarkers in scleroderma. 10% effort

**Department of Defense-PR064803; P.I. Xiaodong Zhou, MD, The integrative studies of genetic and environmental factors in SSc. 4/1/2007 - 3/31/2011, (Co-investigator, Frank C. Arnett, MD) 5% effort**