

BIOGRAPHICAL SKETCH

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NAME Kathleen C. Barnes, PhD		POSITION TITLE Associate Professor	
eRA COMMONS USER NAME KCBARNES			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Medical College of Virginia, Richmond, VA	B.S.N.	1984	Nursing
University of Florida, Gainesville, FL	Ph.D.	1992	Anthropology
Johns Hopkins University	Post-doc	1995	Clinical Immunology

Professional Positions:

1993-1994 Postdoctoral Fellow, School of Medicine, Johns Hopkins University, Baltimore, MD
1995-1997 Instructor, Faculty of Medicine, Johns Hopkins University, Baltimore, MD
1997-2002 Assistant Professor of Medicine, Johns Hopkins University, Baltimore, MD
2000-present Appointment in Epidemiology, Johns Hopkins Bloomberg School of Public Health, Balto., MD
2002-present Associate Professor of Medicine, Johns Hopkins University, Baltimore, MD
2004-present Mary Beryl Patch Turnbull Scholar
2004-present Director, Bayview Genetics Research Facility (BGRF) & The Lowe Family Genomics Core

Awards and Other Professional Activities:

1998, 1999 Asthma and Allergy Foundation of America – Investigator Award Grant
1999-present AAAAI Genetics, Molecular Biology & Epidemiology Committee (Vice Chair 1999-2001, Chair 2001-2004)
2005 AAAAI Basic and Clinical Immunology Interest Section Secretary
1996-2005 Johns Hopkins University Department of Medicine Task Force on Women's Academic Careers
2002-present Department of Medicine's Appointments and Promotions Committee

Professional Societies

American Association for the Advancement of Science, American Thoracic Society, American Academy of Allergy, Asthma and Immunology (AAAAI), American Society of Human Genetics, American Anthropological Association, Society for Applied Anthropology, Phi Kappa Phi Honorary Society, Pulmonary Vascular Research Institute, Collegium Internationale Allergologicum, European Respiratory Society

Relevant Publications (selected from a total of 68)

- Barnes KC**, Neely JD, Duffy DL, Freidhoff LR, Breazeale DR, Schou C, Naidu RP, Levett PN, Renault B, Kucherlapati R, Iozzino S, Ehrlich E, Beaty TH, Marsh DG. Linkage of asthma and total serum IgE concentration to markers on chromosome 12q: Evidence from Afro-Caribbean and Caucasian populations. *Genomics* 1996; 37:41-50.
- CSGA** (Collaborative Studies on the Genetics of Asthma). A genome-wide search for asthma susceptibility loci in ethnically diverse populations. *Nat Genet* 1997; 15:389-92.
- Nickel R, Wahn U, Hizawa N, Maestri N, Duffy DL, **Barnes KC**, Beyer K, Forster J, Bergmann R, Zepp F, Wahn V, Marsh DG. Evidence for linkage of chromosome 12q15-q24.1 markers and high total serum IgE concentrations in children of the German Multicenter Study (MAS '90). *Genomics* 1997; 46:159-162.
- Hizawa, N, Collins G, Rafnar T, Huang S-K, Duffy DL, Weber JL, Freidhoff LR, Ehrlich E, Marsh DG, Beaty TH, **Barnes KC**, CSGA. Linkage analysis of *Dermatophagoides pteronyssinus* (Der p)-specific IgE responsiveness with polymorphic markers on chromosome 6p21 (HLA-D region) in Caucasian families by Transmission/Disequilibrium Test (TDT). *J Allergy Clin Immunol* 1998; 102(3):443-8.
- Barnes KC**, Freidhoff LR, Chiu Y-F, Juo S-H, Duffy DL, Hizawa N, Naidu RP, Nickel R, Ehrlich E, Schou C, Beaty TH, Marsh DG. Dense mapping of chromosome 12q14.3-q24.1 and linkage to asthma and atopy. *J Allergy Clin Immunol*. 1999; 104(1, Pt. 2): 485-91.
- Nickel R, Willadsen SA, Freidhoff LR, Huang SK, Raana NP, Caraballo L, Ehrlich E, Ober C, Beaty T, **Barnes, KC**. Determination of Duffy-phenotypes in three populations of African descent using PCR and sequence specific oligonucleotides. *Human Immunol*. 1999; 60:738-42.

7. **Barnes KC**, Freidhoff LR, Horowitz EM, Mathias RA, Mulkern DM, Bonacum J, Goldman MH, Polito A, Saini SS, Marsh DG, Beaty TH, Togias A. Physician-derived asthma diagnoses made on the basis of questionnaire data are in good agreement with interview-based diagnoses and are not affected by objective tests. *Journal of Allergy and Clinical Immunology*. 1999; 104: 791-796.
8. Nickel R, Casolaro V, Wahn U, Beyer K, **Barnes KC**, Plunkett B, Freidhoff LR, Sengler C, Plitt J, Schleimer RP, Caraballo L, Naidu RN, Beaty T, Huang S-K. Atopic dermatitis is associated with a functional mutation in the promoter of the CC chemokine RANTES. *J Immunol*. 2000; 164(3):1612-16.
9. Lonjou C, **Barnes K**, Chen H, Cookson WO, Deichmann KA, Hall IP, Holloway JW, Laitinen T, Palmer LJ, Wjst M, Morton NE. A first trial of retrospective collaboration for positional cloning in complex inheritance: assay of the cytokine region on chromosome 5 by the consortium on asthma genetics. *Proc Natl Acad Sci USA*. 2000; 97(20):10942-7.
10. **Barnes KC**, Mathias RA, Nickel R, Freidhoff LR, Stockton ML, Xue X, Naidu RP, Levett PN, Casolaro V, Beaty TH. Testing for gene-gene interaction controlling total IgE in families from Barbados: Evidence of sensitivity regarding linkage heterogeneity among families. *Genomics*. 2001; 71(2):246-51.
11. Liang K-Y, Hsu F-C, Beaty TH, **Barnes KC**. A multipoint linkage disequilibrium mapping approach based on the case-parent trio design. *Am J Hum Genet*. 2001; 68:937-50.
12. Hsu FC, Liang KY, Beaty TH, **Barnes KC**. Unified sampling approach for multipoint linkage disequilibrium mapping of qualitative and quantitative traits. *Genetic Epidemiology*. 2002; 22(4):298-312.
13. Becker KG, **Barnes KC**, Bright TJ, Wang SA. The Genetic Association Database. *Nat Genet*. 2004; 36(5): 431-32.
14. Huang JL, Gao PS, Mathias RA, Yao TC, Chen LC, Kuo ML, Hsu SC, Plunkett B, Togias A, **Barnes KC**, Stellato C, Beaty TH, Huang SK. Sequence variants of the gene encoding chemoattractant receptor expressed on Th2 cells (CRTH2) are associated with asthma and differentially influence mRNA stability. *Hum. Mol. Genet*. 2004; 13(21): 2691-97.
16. Zambelli-Weiner A, Ehrlich E, Stockton ML, Grant AV, Zhang S, Levett PN, Beaty TH, **Barnes KC**. Evaluation of the CD14/-260 polymorphism and house dust endotoxin exposure in the Barbados asthma genetics study. *J Allergy Clin Immunol*. 2005; 115: 1203-9.
18. Mathias RA, Beaty TH, Bailey-Wilson JE, Bickel C, Stockton ML, **Barnes KC**. Inheritance of total serum IgE in the isolated Tangier Island population from Virginia: complexities associated with genealogical depth of pedigrees in segregation analyses. *Human Heredity*. 2005; 59: 228-38.
19. **Barnes KC**, Grant AV, Baltadzhieva D, Zhang S, Berg T, Shao L, Zambelli-Weiner A, Anderson W, Nelsen A, Pillai S, Yarnall DP, Dienger K, Ingersoll RG, Scott AF, Fallin MD, Mathias RA, Beaty TH, Garcia JGN, Wills-Karp M. Variants in the gene encoding C3 are associated with asthma and related phenotypes among African Caribbean families. *Genes and Immunity*. 2006; 7: 27-35.
20. Lima JJ, Zhang S, Grant A, Shao L, Tantisira KG, Allayee H, Wang J, Sylvester J, Holbrook J, Wise R, Weiss ST, **Barnes K**. Influence of leukotriene pathway polymorphisms on response to montelukast in asthma. *Am J Respir Crit Care Med*. 2006; 173: 379-85.
21. Gao L, Grant A, Halder I, Brower R, Sevransky J, Maloney JP, Moss M, Shanholtz C, Yates CR, Meduri GU, Shriver MD, Ingersoll R, Scott AF, Beaty TH, Moitra J, Ma SF, Ye SQ, **Barnes KC**, Garcia JGN. Novel polymorphisms in the myosin light chain kinase gene confer risk for acute lung injury. *Am J Respir Cell Mol Biol*. 2006; 34: 487-95.
22. **Barnes KC**, Grant A, Gao P, Baltadjeva D, Berg T, Chi P, Zhang S, Zambelli-Weiner A, Ehrlich E, Zardkoohi O, Brummet ME, Stockton M, Watkins T, Gao L, Gittens M, Wills-Karp M, Cheadle C, Beck LA, Beaty TH, Becker KG, Garcia JGN, Mathias RA. Polymorphisms in the novel gene *Acyloxyacyl Hydroxylase (AOAH)* are associated with asthma and associated phenotypes. *J Allergy Clin Immunol*. 2006; 118: 70-7.
23. Chi PB, Duggal P, Kao WHL, Mathias RA, Grant AV, Stockton ML, Garcia JGN, Ingersoll RG, Scott AF, Beaty TH, **Barnes KC**, Fallin MD. Comparison of SNP tagging methods using empirical data: Association study of 713 SNPs on chromosome 12q14.3-12q24.21 for asthma and total serum IgE in an African Caribbean population. *Genetic Epidemiology*. 2006; 30: 609-619.
24. Mathias RA, Gao P, Goldstein JL, Wilson AF, Pugh EW, Furbert-Harris P, Dunston GM, Malveaux FJ, Togias A, **Barnes KC**, Beaty TH, Huang SK. A graphical assessment of p-values from sliding window haplotype tests of association to identify asthma susceptibility loci on chromosome 11q. *BMC Genetics* 2006; 7:38-48.

25. Grigoryev DN, Liu M, Cheadle C, **Barnes KC**, Rabb H. Genomic profiling of kidney ischemia-reperfusion reveals expression of specific alloimmunity-associated genes: linking 'immune' and 'nonimmune' injury events. *Transplantation Proceedings* 2006; 38: 3333-6.
26. Cheadle C, Becker KG, Cho-Chung YS, Nesterova M, Watkins T, Wood W III, Prabhu V, **Barnes KC**. A rapid method for microarray cross platform comparisons using gene expression signatures. *Molecular & Cellular Probes* 2007; 21: 35-46.
27. Gao L, Grant AV, Rafaels N, Stockton-Porter M, Watkins T, Gao P, Chi P, Munoz M, Watson H, Dunston G, Togias A, Hansel N, Sevransky J, Maloney JP, Moss M, Shanholtz C, Brower R, Garcia JGN, Grigoryev DN, Cheadle C, Beaty TH, Mathias RA, **Barnes KC**. Polymorphisms in the myosin light chain kinase gene that confer risk of severe sepsis are associated with a lower risk of asthma. *J Allergy Clin Immunol.* 2007; 119: 1111-8.
30. Cheadle C, Watkins T, Fan J, Williams MA, Georas S, Hall J, Rosen A, **Barnes KC**. GSMA: Gene Set Matrix Analysis, an automated method for rapid hypothesis testing of gene expression data. *Bioinformatics and Biology Insights.* 2007; 1:49-62.
31. Grigoryev DN, Liu M, Hassoun HT, Cheadle C, **Barnes KC**, Rabb H. The local and systemic inflammatory transcriptome after acute kidney injury. *J Am. Society Nephrol.* 2008; 19:547-58.
32. Hansel NN, Cheadle C, Diette GB, Wright J, Thompson KM, **Barnes KC**, Georas SN. Analysis of CD4+ T-cell gene expression in allergic subjects using two different microarray platforms. *Allergy* 2008; 63:366-9.
33. Grigoryev DN, Mathai SC, Fisher MR, Girgis RE, Zaiman AL, Houston-Harris T, Cheadle C, Gao L, Hummers LK, Champion HC, Garcia JGN, Wigley FM, Tudor RM, **Barnes KC**, Hassoun PM. Identification of candidate genes in scleroderma-related pulmonary arterial hypertension. *Translational Res.* 2008;151:197-207.
34. Harris ML, Darrah E, Lam GK, Bartlett SJ, Giles JT, Grant AV, Gao P, Scott WW, El-Gabalawy H, Casciola-Rosen L, **Barnes KC**, Bathon JM, Rosen A. Association of autoimmunity to Peptidyl Arginine Deiminase Type 4 with genotype and disease severity in rheumatoid arthritis. *Arthritis & Rheumatism* 2008; 58:1958-67.
35. Grant AV, Araujo MI, Ponte EV, Oliveira RR, Cruz AA, **Barnes KC**, Beaty TH. High heritability but uncertain mode of inheritance for total serum IgE level and *Schistosoma mansoni* infection intensity in a Schistosomiasis-endemic Brazilian population. *J. Infect. Dis.* 2008; 198:1227-36.
36. Vergara C, Tsai YJ, Grant AV, Rafaels N, Gao L, Hand T, Stockton M, Campbell M, Mercado D, Faruque M, Dunston G, Beaty TH, Oliveira RR, Ponte EV, Cruz AA, Carvalho E, Araujo MI, Watson H, Schleimer RP, Caraballo L, Nickel RG, Mathias RA, **Barnes KC**. Gene encoding Duffy antigen/receptor for chemokines is associated with asthma and IgE in three populations. *Am J Respir Crit Care Med.* 2008; 178:1017-22.
38. Hansel NN, Gao L, Rafaels NM, Mathias RA, Neptune ER, Tankersley C, Grant AV, Connett J, Beaty TH, Wise RA, **Barnes KC**. Leptin receptor polymorphisms and lung function decline in COPD. *Eur Resp J*, 2009; In press.
39. Vergara C, Caraballo L, Mercado D, Jimenez S, Rojas W, Rafaels N, Hand T, Campbell M, Tsai YJ, Gao L, Duque C, Lopez S, Bedoya G, Ruiz-Linares A, Barnes KC. African ancestry is associated with risk of asthma and high total serum IgE in a population from the Caribbean coast of Colombia. *Hum Gen* 2009; 125:565-79.
40. Beck LA, Boguniewicz M, Hata T, Schneider LC, Hanifin J, Gallo R, Paller AS, Lieff S, Reese J, Zaccaro D, Milgrom H, **Barnes KC**, Leung DYM. Phenotype of atopic dermatitis subjects with a history of eczema herpeticum. *J Allergy Clin Immunol.* 2009; In press.
41. Gao P, Rafaels NM, Hand T, Murray T, Boguniewicz M, Hata T, Schneider L, Hanifin JM, Gallo RL, Gao L, Beaty TH, Beck LA, **Barnes KC**, Leung DYM. Filaggrin mutations that confer risk of atopic dermatitis confer greater risk for eczema herpeticum. *J Allergy Clin Immunol.* 2009; In press.
42. Mathias RA, Grant AV, Rafaels N, Hand T, Gao L, Vergara C, Tsai YJ, Yang M, Campbell M, Foster C, Gao P, Togias A, Hansel NN, Diette G, Adkinson NF, Liu MC, Faruque M, Dunston GM, Watson HR, Bracken MB, Hoh J, Maul P, Maul T, Jedlicka AE, Murray T, Hetmanski JB, Ashworth R, Ongaco CM, Hetrick KN, Doheny KF, Pugh EW, Ford J, Eng C, Burchard EG, Sleiman PMA, Hakonarson H, Forno E, Raby BA, Weiss ST, Scott AF, Kabesch M, Liang L, Abecasis G, Moffatt MF, Cookson WOC, Ruczinski I, Beaty TH, **Barnes KC**. A genome-wide association study on African-ancestry populations for asthma. *J Allergy Clin Immunol.* 2009; In press.

Research Support:

Active

- R18 AI44840 (Barnes – PI; assumed role from Toggias 10/06) 9/01/04 – 2/28/09
NIH Airway Disease and Cockroach Exposure in Public Housing
The main purpose of this project is to provide additional evidence supporting the concept that cockroach allergy has a causal relationship to asthma severity.
- HHSN266200400029C (Barnes – PI; assumed role from Beck 8/1/06) 8/01/06 – 3/31/09
NIH Atopic Dermatitis and Vaccinia Network-Clinical Studies Consortium
The overall objective is to develop & implement a research plan to reduce the risk of eczema vaccinatum, a potentially life-threatening complication of smallpox (vaccinia virus) vaccine immunization that occurs almost exclusively in patients with atopic dermatitis (AD).
- 1 P30 AR053503-01 (Rosen – PI) 9/01/06 – 7/30/11
NIH/NIAMS: Rheumatic Disease Research Core Center (Core C – Genomics)
Provide high-throughput gene expression data, including validation of expression of select candidate genes, as well as genotyping & sequencing services, to include DNA & RNA isolation, quantification, plating & tracking.
- 1 P50 HL084946-01 (Hassoun – PI) 12/1/06 – 11/30/11
NIH Molecular Determinants of Scleroderma-Associated Pulmonary Arterial Hypertension
Project 1: Scleroderma-Associated PAH
Core D: Genomics/Genotyping
Provide high-throughput gene expression data, including validation of expression of select candidate genes, as well as genotyping & sequencing services, to include DNA & RNA isolation, quantification, plating & tracking.
- R01 HL087699-01 (Barnes - PI) 09/25/06 – 07/31/09
NIH Genome-Wide Association Studies of Asthma in Populations of African Descent
The study aims to identify asthma susceptibility genes in non-white populations. The goals of this proposal are to simultaneously perform a genome-wide association (GWA) study for asthma and associated quantitative traits in a family-based, African Caribbean population and an independent population of African American asthmatics and non-asthmatics, validate findings in large panels of English families selected for asthma, and subsequently evaluate the generalizability of these findings in the larger U.S. white population. Gene-gene and gene-environmental interactions will also be tested.
- K32 HL076322 (Hansel – PI) 04/01/05 – 03/31/10
NIH Genetics of Asthma Severity and Lung Function Decline
This work will help to educate important pathways involved in cockroach sensitization and may help explain the marked race disparity in asthma seen in the U.S.
- Contract # 103019 (Halsey – PI) 11/1/407 – 11/13/09
GovWorks/NBC Genetic Polymorphisms and Hypersensitivity Reactions to Vaccines
This contract is to identify association between specific immune responses or other genetic polymorphisms.
- R21 AI079984 (Barnes – PI) 09/18/08 – 08/31/10
NIH Genetic Determinants of Food Allergy Among Pediatric Populations
The study aims to develop the research infrastructure for a future case-control-based, genome-wide association study on IgE-mediated food allergy in general & peanut allergy in particular, by establishing a DNA repository of 2,000 samples from patients of European & African descent; and perform exploratory genetic association studies between food allergy susceptibility & a limited set of candidate genes for food allergy.
- U01 HG004738 (Barnes – PI) 09/20/08 – 06/30/10
NIH Genome-Wide Associations Environmental Interactions in the Lung Health Study
The goals of this study are to perform GWAS in EA LHS dataset with individual rate of decline of lung function & COPD susceptibility as primary outcome phenotypes; cross-validate significant associations using existing GWAS data in independent populations; test for gene-environment interactions by assessing outcomes reflecting nicotine dependence & response to smoking intervention, & to validate significant associations in a replicate population.
- R03 HL095406 (Neptune – PI) 09/19/08 – 07/31/10
NIH Tissue-based Validation of COPD Genetic Studies Using Lung Health Study Cohort
The goal of this project is to provide proof-of-principle support for the use of tissue-based validation strategies for GWAS-defined candidate genes.