

# CURRICUM VITAE

## DEMOGRAPHIC AND PERSONAL INFORMATION

**Peisong Gao, M.D., Ph.D.**

### Current Appointment

Assistant Professor, Division of Allergy and Clinical Immunology, Johns Hopkins Asthma & Allergy Center, Johns Hopkins University School of Medicine.

### Personal Data

Division of Allergy and Clinical Immunology  
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### Education and Training (in chronological order)

07/83-07/89            B.S. in Medicine, The Fourth Military Medical University (FMMU), Xi'an, P.R. China.  
07/93-07/96            M.D. in Respiratory Medicine, The Fourth Military Medical University (FMMU), Xi'an, P.R. China.  
09/97- 01/99            Visiting Research Fellow, Osler Chest Unit, Churchill Hospital, Oxford University, UK  
01/99-01/02            Ph.D. in Experimental Medicine, University of Wales Swansea, UK

### Professional Experience (in chronological order)

09/90-09/91            Resident at the Department of Emergency Medicine, Xiyu Hospital, Urumuqi, P R China.  
09/91-08/93            Resident at the Department of Respiratory Medicine, Xiyu Hospital, Urumuqi, P R China  
09/94-08/95            Attending physician at the Department of Respiratory Medicine, The Fourth Military Medical University, P R China.  
07/95-09/97            Visiting Research Fellow at Osler Chest Unit, Oxford University, Oxford, UK.  
04/02-07/05            Postdoctoral Research Fellow at the Division of Allergy and Clinical Immunology, Johns Hopkins Asthma and Allergy Centre.  
07/05-06/08            Instructor, Division of Allergy and Clinical Immunology, Johns Hopkins Asthma & Allergy Center, Johns Hopkins University School of Medicine.  
07/05-06/07            Manager, Johns Hopkins Bayview Genetics Research Facility (BGRF), Hopkins University School of Medicine.

07/08-present            Assistant Professor, Division of Allergy and Clinical Immunology, Johns Hopkins Asthma & Allergy Center, Johns Hopkins University School of Medicine.

### **Doctoral research**

Epidemiology of asthma and atopy: environmental and genetic factors. Supervisor: **Professor Julian M. Hopkin.**

Supported by studentship from **GlaxoSmithKline (GSK), UK.**

### **Postdoctoral research**

Molecular genetics of asthma. Supervisor: **Professor Shau-Ku Huang.**

### **ORGANIZATIONAL ACTIVITIES**

2002- Member, American Academy of Allergy Asthma & immunology (AAAAI)

2005- Member, American College of Allergy, Asthma & Immunology (ACAAI)

2007- Member, Genetics, Molecular Biology and Epidemiology Committee (GMBEC)

2007- David G Marsh Grant Review Committee

### **RECOGNITION**

**Awards, Honors** (title, date, description, sponsor)

01//01/1999    Studentship from **GlaxoSmithKline, UK.** Ref: S1577.

01/01/2000    Studentship from **Henry Lester Trust**, UK Ref: 313892.

04/10/2002    **David G Marsh** postdoctoral Fellowship

02/03/2004    2004**AAAAI/Sepracor** Research Excellent Awards.

06/10/2005    Annual Respiratory Disease Young Investigator Award.

03/01/2007    American Academy of Allergy, Asthma and Immunology (**AAAAI**) Interest Section Award.

06/18/2007    American Lung Association of Maryland Award (**ALAM**)

10/01/2007    NIH Rheumatic Disease Research Core Center (**RDRCC**) Award

04/27/2009    Johns Hopkins Clinical Research Junior Faculty Award

01/20/2010    Outstanding Pediatric Allergy, Asthma and Immunology Abstract Award (**AAAAI**)

### **RESEARCH ACTIVITIES**

**Peer-reviewed original research articles:**

1. **Gao PS** Li HZ, Qi HW. Fos statement in airway and lung in an asthma model of guinea pig. Natl Med China, 1996; 76(9): 703-704.
2. Qi HW Liu ZQ, **Gao PS.** C-jun statement in epithelium in an asthma model of guinea pig. Chin J Med, 1997; 36 (7): 476-477.
3. **Gao PS,** Li HZ, Qi HW. The relationship between the attack of asthma and c-myc gene statement in airway and lung tissue from the asthmatic guinea pigs. J Fourth Milit Med Univ, 1997; 18(5): 401

4. Li HZ, **Gao PS**, Qi HW, L. Study on relationship between proto-oncogene statement of c-fos and c-myc in airway, lung tissue and asthma in guinea pigs. *Chin J Appl Physiol*, 1997 Nov; 13(4): 356-8
5. Mitsuyasu H, Izuhara K, Mao XQ, **Gao PS**, Arinobu Y, Enomoto T, Kawai M, Sasaki S, Dake Y, Hamasaki N, Shirakawa T, Hopkin JM. Ile50Val variant of IL4R alpha upregulates IgE synthesis and associates with atopic asthma. **Nat Genet.** 1998 Jun; 19(2):119-20
6. **Gao PS**, Mao XQ, Kawai M, Enomoto T, Sasaki S, Tanabe O, Yoshimura K, Shaldon SR, Dake Y, Kitano H, Coull P, Shirakawa T, Hopkin JM. Negative association between asthma and variants of CC16 (CC10) on chromosome 11q13 in British and Japanese populations. **Hum Genet.** 1998 Jul; 103(1):57-9.
7. **Gao PS**, Mao XQ, Kawai M, Enomoto T, Sasaki S, Shaldon SR, Dake Y, Kitano H, Coull P, Hagihara A, Shirakawa T, Hopkin JM. Lack of association between ACE gene polymorphisms and atopy and asthma in British and Japanese populations. **Clin Genet.** 1998 Sep; 54(3):245-7.
8. Adra CN, **Gao PS**, Mao XQ, Baron BW, Pauker S, Miki T, Shirakawa T, Hopkin JM. Variant of B cell lymphoma 6 (BCL6) and marked atopy. **Clin Genet.** 1998 Oct; 54(4):362-4.
9. **Gao PS**, Mao XQ, Jouanguy E, Pallier A, Doffinger R, Tanaka Y, Nakashima H, Otsuka T, Roberts MH, Enomoto T, Dake Y, Kawai M, Sasaki S, Shaldon SR, Coull P, Adra CN, Niho Y, Casanova JL, Shirakawa T, Hopkin JM. Nonpathogenic common variants of IFNGR1 and IFNGR2 in association with total serum IgE levels. **Biochem Biophys Res Commun.** 1999; 263(2):425-9.
10. Mitsuyasu H, Yanagihara Y, Mao XQ, **Gao PS**, Arinobu Y, Ihara K, Takabayashi A, Hara T, Enomoto T, Sasaki S, Kawai M, Hamasaki N, Shirakawa T, Hopkin JM, Izuhara K. Cutting edge: dominant effect of Ile50Val variant of the human IL-4 receptor alpha-chain in IgE synthesis. **J Immunol.** 1999 Feb 1; 162(3):1227-31.
11. Mao XQ, **Gao PS**, Roberts MH, Enomoto T, Kawai M, Sasaki S, Shaldon SR, Coull P, Dake Y, Adra CN, Hagihara A, Shirakawa T, Hopkin JM. Variants of endothelin-1 and its receptors in atopic asthma. **Biochem Biophys Res Commun.** 1999; 262(1):259-62.
12. **Gao PS**, Mao XQ, Baldini M, Roberts MH, Adra CN, Shirakawa T, Holt PG, Martinez FD, Hopkin JM. Serum total IgE levels and CD14 on chromosome 5q31. **Clin Genet.** 1999 Aug; 56(2):164-5.
13. Adra CN, Mao XQ, Kawada H, **Gao PS**, Korzycka B, Donate JL, Shaldon SR, Coull P, Dubowitz M, Enomoto T, Ozawa A, Syed SA, Horiuchi T, Khaeraja R, Khan R, Lin SR, Flinter F, Beales P, Hagihara A, Inoko H, Shirakawa T, Hopkin JM. Chromosome 11q13 and atopic asthma. **Clin Genet.** 1999; 55(6):431-7.
14. **Gao PS**, Kawada H, Kasamatsu T, Mao XQ, Roberts MH, Miyamoto Y, Yoshimura M, Saitoh Y, Yasue H, Nakao K, Adra CN, Kun JF, Moro-oka S, Inoko H, Ho LP, Shirakawa T, Hopkin JM. Variants of NOS1, NOS2, and NOS3 genes in asthmatics. **Biochem Biophys Res Commun.** 2000 Jan 27; 267(3):761-3.
15. **Gao PS**, Mao XQ, Roberts MH, Arinobu Y, Akaiwa M, Enomoto T, Dake Y, Kawai M, Sasaki S, Hamasaki N, Izuhara K, Shirakawa T, Hopkin JM. Variants of STAT6 (signal transducer and activator of transcription 6) in atopic asthma. **J Med Genet.** 2000 May;37(5):380-2.
16. **Gao PS**, Fujishima S, Mao XQ, Remus N, Kanda M, Enomoto T, Dake Y, Bottini N, Tabuchi M, Hasegawa N, Yamaguchi K, Tiemessen C, Hopkin JM, Shirakawa T, Kishi F. Genetic variants of NRAMP1 and active tuberculosis in Japanese populations. International Tuberculosis Genetics Team. **Clin Genet.** 2000 Jul;58(1):74-6
17. Heinzmann A, Mao XQ, Akaiwa M, Kreomer RT, **Gao PS**, Ohshima K, Umeshita R, Abe Y, Braun S, Yamashita T, Roberts MH, Sugimoto R, Arima K, Arinobu Y, Yu B, Kruse S, Enomoto T, Dake Y, Kawai M, Shimazu S, Sasaki S, Adra CN, Kitaichi M, Inoue H, Yamauchi K, Tomichi N, Kurimoto F, Hamasaki N, Hopkin JM, Izuhara K, Shirakawa T, Deichmann KA. Genetic

- variants of IL-13 signalling and human asthma and atopy. **Hum Mol Genet.** 2000 Mar 1; 9(4):549-59.
18. Kruse S, Mao XQ, Heinzmann A, Blattmann S, Roberts MH, Braun S, **Gao PS**, Forster J, Kuehr J, Hopkin JM, Shirakawa T, Deichmann KA. The Ile198Thr and Ala379Val variants of plasmatic PAF-acetylhydrolase impair catalytical activities and are associated with atopy and asthma. **Am J Hum Genet.** 2000 May; 66(5):1522-30.
  19. **Gao PS**, Mao XQ, Hopkin JM, Adra CN, Yang X, Shirakawa T. Functional significance of polymorphisms of the interleukin-4 and interleukin-13 receptors in allergic disease. **Clin Exp Allergy** 2000 Dec; 30(12): 1672-5.
  20. Fukunaga K, Asano K, Mao XQ, **Gao PS**, Roberts MH, Oguma T, Shiomi T, Kanazawa M, Adra CN, Shirakawa T, Hopkin JM, Yamaguchi K. Genetic polymorphisms of CC chemokine receptor 3 in Japanese and British asthmatics. **Eur Respir J.** 2001 Jan; 17(1):59-63.
  21. Seah GT, **Gao PS**, Hopkin JM, Rook GA. Interleukin-4 and its alternatively spliced variant (IL-4delta2) in patients with atopic asthma. **Am J Respir Crit Care Med.** 2001 Sep 15; 164(6):1016-8.
  22. **Gao PS**, Mao XQ, Enomoto T, Feng Z, Gloria-Bottini F, Bottini E, Shirakawa T, Sun D, Hopkin JM. An asthma-associated genetic variant of STAT6 predicts low burden of ascaris worm infestation. **Genes Immun.** 2004 Jan; 5(1):58-62
  23. **Gao PS**, Heller NM, Walker W, Chen CH, Plunkett B, Roberts MH, Schleimer RP, Hopkin JM, Huang SK. Variation in dinucleotide (GT) repeat sequence in the first exon of the STAT6 gene is associated with atopic asthma and differentially regulates the promoter activity in vitro. **J Med Genet** 2004; 41(7):535-9.
  24. Huang JL, **Gao PS**, Mathias RA, Hsu SC, Plunkett B, Togias A, Barnes KC, Stellato C, Beaty TH and Huang SK. Sequence variants of the gene encoding chemoattractant receptor expressed on Th2 cells (CRTH2) is associated with asthma and differentially influences the mRNA stability. **Hum Mol Genet** 2004; 13(21):2691-7.
  25. **Gao PS**, Mathias RA, Plunkett B, Togias A, Barnes KC, Beaty TH, Huang SK. Genetic variants of the T-cell immunoglobulin mucin (TIM-1), but not TIM-3, genes are associated with asthma in an African American population. **J Allergy Clin Immunol** 2005; 115(5): 982-8.
  26. Shimizu M, Matsuda A, Yanagisawa K, Hirota T, **Gao PS**, Huang SK, Shirakawa T. Functional SNPs in the distal promoter of the ST2 gene are associated with atopic dermatitis. **Hum Mol Genet** 2005; 14(19):2919-27.
  27. Mathias RA, **Gao PS**, Goldstein J, Barnes KC, Beaty TH, Pugh EW, Wilson AF, Huang SK. Sliding window haplotype tests of association to identify asthma susceptibility loci on chromosome 11q: A graphical assessment of sliding p-values. **BMC Genet.** 2006 Jun 14;7(1):38.
  28. Barnes K, Grant A, **Gao PS**, Battadjieva D, Bers T, Chi P, Zhang S, Zambelli-Weiner A, Ehrlich E, Zardkoobi O, Brummet ME, Stockton M, Watkins T, Gao L, Gittens M, Wills-Karp M, Cheadle C, Beck LA, Beaty TH, Becker KG, Garcia GN, Mathias RA. Polymorphisms in the novel gene *acyloxyacyl hydroxylase (AOAH)* are associated with asthma and associated phenotypes. **J Allergy Clin Immunol** 2006; 118(1): 70-77.
  29. Gao L, Grant CV, Rafaels N, Chi P, **Gao PS**, Muñoz M, Stockton-Porter M, Watson H, Hansel N, Dunston G, Togias A, Mathias RA, Brower R, Sevransky J, Maloney JP, Moss M, Shanholtz C, Garcis LGN, Beaty TH, Barnes KC. Haplotypes in the myosin light chain kinase (*MYLK*) gene that confer risk of severe sepsis are associated with a lower risk of asthma. **J Allergy Clin Immunol** 2007;119(5):1111-8.
  30. Howell MD, Kim BE, **Gao PS**, Grant AV, Boguniewicz M, DeBenedetto A, Beck L, Barnes KC, Leung DY. Cytokine modulation of atopic dermatitis filaggrin skin expression. **J Allergy Clin Immunol** 2007; 120:150-5.

31. Moller M, Gravenor MB, Robert SE, Sun D, **Gao PS**, Hopkin JM. Genetic haplotypes of Th-2 immune signaling link allergy to enhanced protection to parasitic worms. **Hum Mol Genet** 2007; 16(15):1828-36.
32. Matsuda A, Okayama Y, Ebihara N, Yokoi N, **Gao P**, Hamuro J, Hopkin JM, Kinoshita S. High-affinity IgE receptor-beta chain expression in human mast cells. **J Immunol Methods** 2008; 336(2):229-34.
33. Harris ML, Darrah E, Lam GK, Bartlett SJ, Giles JT, Grant AV, **Gao P**, Scott WW Jr, El-Gabalawy H, Casciola-Rosen L, Barnes KC, Bathon JM, Rosen. Association of autoimmunity to peptidyl arginine deiminase type 4 with genotype and disease severity in rheumatoid arthritis. **Arthritis Rheum** 2008; 58:1958-67.
34. **Gao PS**, 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. A Filaggrin Mutation Strongly Associated with Atopic Dermatitis Confers Greater Risk for Eczema Herpeticum in Diverse Ethnic Groups. **J Allergy Clin Immunol** 2009; 124(3):507-13.
35. Mathias RA, Grant AV, Rafaels NM, Hand T, Vergara, C, Tsai YJ, **Gao PS**, Togias A, Liu M, Adkinson F, Moffatt MF, Cookson WOC, Ruczinski I, Beaty TH, Barnes KC. A Genome-Wide Association Study of Asthma on Populations of African Descent Identifies Multiple Susceptibility Variants. **J Allergy Clin Immunol** 2009;125:336-47.
36. Hattori T, Konno S, Hizawa N, Isada A, Takahashi A, Shimizu K, Shimizu K, **Gao PS**, Beaty TH, Barnes KC, Huang SK, Nishimura M. Genetic variants in the mannose receptor gene (*MRC1*) are associated with asthma in two independent populations. **Immunogenetics** 2009; 61:731-8.
37. **Gao PS**, Shimizu K, Grant AV, Rafaels NM, Zhou LF, Hudson SA, Konno S, Zimmermann Z, Araujo MI, Ponte EV, Cruz AA, Nishimura M, Su SN, Hizawa N, Beaty TH, MathiasRA, RothenbergME, BarnesKC, Bruce S. Bochner BS. Polymorphisms in the sialic acid-binding immunoglobulin-like lectin-8 (Siglec-8) gene are associated with susceptibility to asthma. **Eur. J Hum Genet** 2010; 18(6):713-9.
38. **Gao PS**, Leung DYM, Rafaels NM, T Hand T, Boguniewicz N, Hata T, Schneider JT, Hanifin JM, Gallo RL, Gao L, Yang M, Beaty TH, Beck LA, Barnes KC. Genetic variants in *TSLP* and its receptors are associated with risk for atopic dermatitis and eczema herpeticum. **J Allergy Clin Immunol** 2010, 125(6):1403-1407.
39. Sherrill JD, **Gao PS**, Stucke EM, Blanchard C, Collins MH, Putnam PE, Franciosi JP, Kushner JP, Abonia JP, Assa'ad AH, Kovacic MB, Myers JMB, Bochner BS, He H, Hershey GK, Martin LG, Rothenberg MC. Variants of thymic stromal lymphopoietin associate with eosinophilic esophagitis. **J Allergy Clin Immunol** 2010;126(1):160-165.
40. **Gao PS**, Grigoryev DN, Rafaels NM, Mu DG, Wright JM, Plunkett B, Cheadle C, Togias A, Beaty TH, Mathias RA, Schroeder JT, Barnes KC. *CD14*, a Key Candidate Gene Associated with Specific Immune Response to Cockroach. **Clin Exp Allergy** 2010, Jul 4. [Epub ahead of print].

#### Review articles:

41. **Gao PS**, Li HZ, Qi HW. The genetics of asthma. *Guo Wai Yi Xue Wen Zhai* 1994; 37 (5); 112-116.
42. **Gao PS**, Huang SK. Genetic aspects of asthma. *Panminerva Medica* 2004; 46(2):121-34.
43. Barnes KC, Grant CV, **Gao PS**. A review of the genetic epidemiology of resistance to parasitic disease and atopic asthma: common variants for common phenotypes? *Curr Opin Allergy Clin Immunol*. 2005 Oct;5(5):379-85.
44. Barnes KC, Grant CV, **Gao PS**. African Americans with Asthma: Genetic insights. *PATS* 2007; 4(1):58-68.



The goal of this proposal is 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.

Barnes CORE E

Genomics and Genotyping

Barnes (PI)

09/30/03 – 06/30/10

This project is focused on understanding the complex interplay between mechanical ventilation & increased morbidity & mortality associated with acute lung injury. The program will examine the genetic basis of the development of ventilator-associated lung injury, evaluate new therapies & identify new molecular targets for ventilator-associated lung injury.

HHSN266200400029C

Barnes/Gao (PI)

8/01/06 – 6/31/10

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).