

Ayo Priscille DOUMATEY, Ph.D., MSc, BS

CONTACT INFORMATION

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EDUCATION

2008: Ph.D., Department of medical Microbiology, Howard University, College of Medicine, Washington DC

Dissertation title: Polymorphisms in Inflammatory Pathway Markers and their Association with Obesity and Insulin Resistance in Populations of the African Diaspora

1999: Graduate Certificate in Quality Assurance and Quality Control, School of Pharmacy, Université Claude Bernard, Lyon, France.

1998: Master of Science in Biochemistry/Minor: Cellular and Molecular Endocrinology, Université Claude Bernard, Lyon, France.

1997: Bachelor of Science in Biochemistry/Minor in Microbiology, Université Claude Bernard, Lyon, France.

POST-GRADUATE TRAINING

Clinical Chemistry

- 2002 Training on Cobas and Elecsys Systems, Roche Diagnostics, Indianapolis, IN
- 1998-1999 Medical and Clinical Laboratory of Venissieux, Venissieux, France

Medical Microbiology, 1998-1999, Medical and Clinical Laboratory of Venissieux, Venissieux, France

ISO 9000 training, 1998-1999, Medical and Clinical Laboratory of Venissieux, Venissieux, France and School of Pharmacy, University Claude Bernard, France

ISO 9001 internal auditor training, 1999, Medical and Clinical Laboratory of Venissieux, Venissieux, France

POST-DOCTORAL TRAINING

Introduction to Molecular Dynamics and Advanced Molecular Dynamics, January 2013, CIT training, NIH

Design and Analysis of Protein-Ligand Interfaces, December 2012, CIT training, NIH

Analysis and Advanced Visualization of Macromolecular Structure, December 2012, CIT training, NIH

Microarray analysis with Open Source tools and advanced microarray analysis, July 2012, CIT training, NIH

Ingenuity Pathway analysis (IPA), online training, June 2012

Certificate of Clinical Research Curriculum (CCRC), December 2011, Clinical Center, NIH

Introduction to Principles and Practice of Clinical Research, Fall-Spring 2010/2011, Clinical Center. NIH
Ethical and Regulatory Aspects of Clinical Research, Fall 2010, NIH Clinical Center, Department of Bioethics.
Affymetrix Pharmacogenetics genotyping platform (DMET), in-house training by vendor, 2010. NHGRI
Core laboratory, NIH
Luminex Technology for multiplex bioassays, Bio-RAD, In-house training, 2009, NHGRI, NIH

PROFESSIONAL EXPERIENCE

2015- Present: Staff Scientist/Lab Manager

Center for Research on Genomics and Global Health, National Human Genome Research Institute, National Institutes of Health, Bethesda, MD.

2008- 2015: Research Fellow/ Lab Manager

Center for Research on Genomics and Global Health, National Human Genome Research Institute, National Institutes of Health, Bethesda, MD.

2000-2008: Research Laboratory Manager

National Human Genome Center, Howard University, Washington DC.

1999: Quality Assurance/ Quality Control Analyst

Institute Pasteur-Merieux Connaught, Marcy-l'Etoile, France.

1998-1999: Quality Assurance Consultant

Medical and Clinical Laboratory of Venissieux, Venissieux, France

1997: Research Assistant (Internship)

Institut National de la Santé et de la Recherche Medicale (INSERM), Lyon, France.

1996: Laboratory Technician

University Claude Bernard, Lyon, France

RESEARCH EXPERIENCE

Research Activities

2016-PRESENT: Research Coordinator and Associate Investigator, Consortium on Asthma among African-ancestry Populations in the Americas (CAAPA)(PIs: Dr. K Barnes, Dr. C Rotimi)

2008- PRESENT: Associate Investigator, Genetic of Type 2 Diabetes in Diverse populations (PI: Dr. C Rotimi), NIH

2008- PRESENT: Associate Investigator, Genetic of Type 2 Diabetes among Han Chinese (PI: Dr. C Rotimi), NIH

2008- PRESENT: Associate Investigator Genetic of Obesity, Diabetes and Heart Diseases in African Diaspora populations (PI: Dr. C Rotimi), NIH

2003- 2008: Laboratory Director Black Women's Health Study, Boston University, Slone Epidemiology Center, Boston, MA; Howard University Cancer Center, Washington, District of Columbia

2000-2008: Research Coordinator Africa America Diabetes Study (AADM) and Howard University Family Study, National Human Genome Institute, Howard University.

Peer-review Activities

2011-Present: Reviewer for peer-review journals including Plos One, American Journal of Human Genetics, International Journal of Obesity, JAMA.

2010- Present: Review Editor, Frontiers in Applied Genetic Epidemiology

TEACHING AND RELATED TRAININGS

Fall 2012 **Scientists Teaching Science, Pedagogy course**, Office of Intramural Training & Education, NIH

Fall 2006 **Cellular and Molecular Immunology, Graduate course in Microbiology**
Howard University, Washington DC

2005-2006 **Medical Microbiology Labs, Dental and Medical course**
Graduate Teaching Program, Howard University, Washington DC

MENTORING

Summer 2016: Mentored and supervised an undergraduate student for 11 weeks. Trainee was initiated to biomedical research and conducted a genetic epidemiology study of circulating ghrelin in West Africans. Primary results were presented at the NIH Summer Festival 2016.

Poster title: Type 2 Diabetes and Variants in GHRL are associated with Fasting Ghrelin

Summer 2015: Mentored a high School student for 8 weeks- trained mentee to molecular biology techniques including RT-PCR, serum miRNA extraction, gene expression data analysis, experimental design. Supervised mentee in conducting a pilot study to identify miRNAs differentially expressed between metabolically healthy obesity (MHO) and metabolically abnormal obesity (MAO). Project was presented at the NIH Summer Festival 2015.

Poster title: Serum miRNAs as Potential Biomarkers in Metabolically Healthy Obese Phenotype

Summer 2011: Mentored a high School student for 6 weeks- trained mentee in understanding biological and genetic basis of metabolic diseases as well as molecular techniques such as DNA/RNA extraction, RT-PCR; supervised mentee in conducting a gene expression study, which was presented at the NIH Summer Festival 2011.

Poster title: Differential Expression of SOCS7, PDIA3, TBRG1, and COL4A2 genes in Omental Adipose Tissue of Obese Diabetic African Americans

2010-2011: Mentored and supervised a Post-Baccalaureate IRTA for one year – trained mentee to molecular laboratory techniques, good laboratory practices (GLP), quality control, experimental design, and data cleaning. Supervised mentee to conduct a study; data generated was presented at the NIH Spring Festival 2011 and I was mentee's preceptor for this presentation.

Poster title: Profiling adipokines in a cohort of West Africans with type 2 diabetes using multiplexing arrays

2009-2011: Mentored and supervised a Pre-doctoral IRTA in the laboratory. Actively participated in the design, implementation, and troubleshooting of mentee's dissertation experiments; trained mentee to genomics and basic

statistical tools. Reviewed and edited mentee's dissertation document and coached mentee to orally defend her dissertation.

Trainee dissertation title: I κ B kinase Beta (IKK-Beta), Nuclear Factor kappa B (NF κ B) signaling in the Obesity-Inflammation Relationship in African Americans (AAs)

2001- 2008: Mentored and supervised 8 students at different academic levels (high school interns, undergraduate students, graduate students). Taught them different molecular biology techniques, clinical chemistry, and sample processing and management. Designed and oversaw students' projects.

PRESENTATIONS AND ABSTRACTS

INVITED TALKS:

Insights into gut microbiota dysbiosis in Africans with type 2 diabetes: The 11th conference of African Society of Human Genetic, Kigali, Rwanda (September 19th -21st, 2018)

Molecular Changes Associated with Obesity and Obesity-related in population of African Ancestry: The 10th conference of African Society of Human Genetic, Cairo, Egypt (November 16th -18th, 2017)

Omics: New Approaches to Understand Biology: The 3rd African Diabetes Congress, Yaoundé, Cameroon (April 19th - 22nd, 2017)

Elucidating the Biology of Metabolic disorders with Omics Data: The 3rd African Diabetes Congress, Yaoundé, Cameroon (April 19th - 22nd, 2017)

Genome-wide analysis identifies a variant in SEMA4D that is associated with BMI: The 9th Congress of the African Society of Human Genetic, Dakar, Senegal (May 15th -17th, 2016)

Molecular Basis of Metabolic Diseases in Populations of African Ancestry: The case of Obesity: Microbiology Faculty Seminar, Howard University, Washington DC, December 1st, 2015

Health Disparities: Effective Strategies and Practices for Engaging with Communities Around Biomedical Research. Human Heredity and Health in Africa (H3Africa) Community Engagement Trans NIH Meeting (October 14th, 2015), **Panelist**

Genetic Epidemiology of Obesity Traits in Populations of the African Diaspora: The 2nd African Diabetes Congress, Yaoundé, Cameroon (February 25th – 28th, 2014)

Adipokines, Adiposity and Insulin Resistance in Populations of African Descent: The 6th Meeting of the African Society of Human Genetics, Yaoundé, Cameroon (March 12th-15th, 2009)

POSTERS PRESENTATIONS

Microbiome Associations with Metabolic Markers in Sub Saharan Africans: The 36th Annual Scientific meeting of the obesity Society, Nashville, TN, November 11th -15th, 2018.

Type 2 Diabetes and variants in GHRL are associated with Fasting Ghrelin Levels: The 77th Scientific sessions, American Diabetes Association (ADA), San Diego, CA, June 9th- 13th, 2017.

Insulinotropic Adipokines are Associated with Obesity in African Americans: The 34rd Annual Scientific Meeting of the Obesity Society, New Orleans, LA, Oct.31st -Nov. 4th, 2016

Profiling serum miRNAs in Metabolically Healthy Obese African American Women: The 9th Congress of the African Society of Human Genetic, Dakar, Senegal (May 15th -17th, 2016)

Proteomics of the Metabolically Healthy Obese Phenotype in African Americans: The 33rd Annual Scientific Meeting of the Obesity Society, Los Angeles, CA, Nov 2nd -7th, 2015

Whole Exome Sequencing in Metabolically Healthy but Obese African American Women: The 32nd Annual Scientific Meeting of the Obesity Society, Boston, MA, Nov 2nd -7th, 2014

Adipocytokines and obesity-related hormones profiling in Africans: The 31st Annual Scientific Meeting of the Obesity Society, Atlanta, GA, Nov.11th -16th, 2013.

Genome-wide association of percentage fat mass (PFM) in Africans: The 31st Annual Scientific Meeting of the Obesity Society, Atlanta, GA, Nov.11th -16th, 2013.

A missense mutation in exon 2 of Adiponectin receptor 2 (ADIPOR2) is associated with serum insulin in African-American overweight and obese subjects. The 62nd Annual Meeting of American Society of Human Genetic (ASHG), San Francisco, CA Nov. 6th -10th, 2012

Differential Expression of SOCS7, PDIA3, TBRG1, and COL4A2 genes in Omental Adipose Tissue of Obese Diabetic African Americans: The 30th Annual Scientific Meeting of the Obesity Society, San Antonio, TX, Sep.20-24, 2012.

Whole genome gene expression profile of omental adipose tissue in obese Type 2 diabetic African Americans: The 61st Annual Meeting of American Society of Human Genetic (ASHG), Montreal, Oct.11-15, 2011

Genetic Variants in the promoter region of the gene encoding C - reactive protein (CRP) are associated with serum CRP levels in African Americans: The 60th Annual Meeting of American Society of Human Genetic (ASHG), Washington DC, Nov.2-6, 2010

Circulating Resistin is associated with Biomarkers of Inflammation in Populations of African ancestry". NIH Research Festival, October 5-8, 2010, Bethesda, MD

Understanding the Genetic Basis of the Association between Adiponectin, Obesity and Cardiovascular Diseases in West Africans and African Americans" The 137th annual meeting and exposition of the American Public Health Association (APHA), Philadelphia, PA, Nov. 7- 12, 2009.

The IL6 -174 G/C Polymorphism is Associated with Serum Triglycerides Independently of Obesity in African Americans: The 27th Annual Scientific Meeting of the Obesity Society, Washington DC, Oct.24-28, 2009.

Genome-wide association study identified novel susceptibility loci for Adiponectin in a population-based cohort of African Americans: The 59th Annual Meeting of American Society of Human Genetic (ASHG), Honolulu, Oct.20-24, 2009.

MEETING ATTENDANCE

The 34th Annual Scientific Meeting of the Obesity Society, Washington DC, Oct. 29-Nov. 2nd,2017

Public Responsibility in Medicine and Research (PRIM& R) AER Annual Conference, Anaheim, CA, Nov. 13th -16th, 2016

The 4th Annual Biospecimen Research Network (BRN) Symposium, Bethesda, MD, Mar. 28-29th, 2011

The 28th Annual Scientific Meeting of the Obesity Society, San Diego, CA, Oct.8-12, 2010.

MEMBERSHIPS AND AFFILIATIONS

2017-2018: Member, American Association for the Advancement of Science (AAAS)

2011- Present: Member, Obesity Society

2009- Present: Member, African Society of Human Genetics

2002-2003: Member, American Society of Human Genetics

SERVICE TO NIH

2012- 2018: Scientist affiliated member: Institutional Review Board (IRB), National Human Genome Research Institute, NIH

2009- Present: French Interpreter: Social work Department, Clinical Center, NIH

2010-2011: Science Teacher - Children's Inn Outreach, Children's Inn, NIH

LANGUAGES

French: Reading- Advanced; Writing- Advanced; Speaking-Fluent

AWARDS AND HONORS

2018- Service Recognition Award, IRB, NHGRI, NIH

2018- Special Recognition, Research in Diverse populations Section, Poster Award (TOS)

2017- NHGRI GREAT Award, Diversity and Inclusion Category, NIH

2015- Special Recognition, Basic Science Section, Poster Award. Obesity Society (TOS)

2012- Special Recognition, Diversity Section, Poster Award. Obesity Society (TOS)

PUBLICATIONS (N= 63)

SELECTED PUBLICATIONS

Doumatey AP, HE WJ, GAYE A, ET AL. **Circulating MiR-374a-5p is a potential modulator of the inflammatory process in obesity.** SCI REP. 2018 MAY 16;8(1):7680. DOI: 10.1038/s41598-018-26065-5.

Gaye A, **Doumatey AP***, Davis SK, Rotimi CN, Gibbons GH. **Whole-genome transcriptomic insights into protective molecular mechanisms in metabolically healthy obese African Americans.** NPJ Genom Med. 2018 Jan 29; 3:4. doi: 10.1038/s41525-018-0043-x. eCollection 2018. PubMed PMID: 29387454; PubMed Central PMCID: PMC5789085. (* *co-first-author*)

Rotimi CN, Bentley AR, **Doumatey AP**, Chen G, Shriner D, Adeyemo A. **The genomic landscape of African populations in health and disease.** Hum Mol Genet. 2017 Oct 1;26(R2): R225-R236. doi: 10.1093/hmg/ddx253

Chen G, **Doumatey AP***, Zhou J, Lei L, Bentley AR, Tekola-Ayele F, Adebamowo SN, Baker JL, Fasanmade O, Okafor G, et al. **Genome-wide analysis identifies an african-specific variant in SEMA4D associated with**

body mass index. Obesity (Silver Spring). 2017 Apr;25(4):794-800. doi: 10.1002/oby.21804. Epub 2017 Mar 13. PubMed PMID: 28296344; PubMed Central PMCID: PMC5373947 (* co-first author)

Böger CA, Gorski M, McMahon GM, Xu H, Chang YC, van der Most PJ, Navis G, Nolte IM, de Borst MH, Zhang W, et al. **NFAT5 and SLC4A10 Loci Associate with Plasma Osmolality.** J Am Soc Nephrol. 2017 Mar 30. pii: ASN.2016080892. doi: 10.1681/ASN.2016080892. [Epub ahead of print] PubMed PMID: 28360221.

Adebamowo SN, Adeyemo AA, Tekola-Ayele F, **Doumatey AP**, et al. **Impact of Type 2 Diabetes on Impaired Kidney Function in Sub-Saharan African Populations.** Front Endocrinol (Lausanne). 2016 May. PubMed PMID: 27303364; PubMed Central, PMCID: PMC4884893.

Doumatey AP, Zhou J, Zhou M, Prieto D, Rotimi CN, Adeyemo A. **Proinflammatory and lipid biomarkers mediate metabolically healthy obesity: A proteomics study.** Obesity (Silver Spring). 2016 Jun; 24(6):1257-65. PubMed PMID: 27106679; PubMed Central PMCID: PMC4882259.

Adeyemo AA, Tekola-Ayele F, **Doumatey AP**, Bentley AR, et al. **Evaluation of Genome Wide Association Study Associated Type 2 Diabetes Susceptibility Loci in Sub Saharan Africans.** Front Genet. 2015 Nov 24; 6:335. PubMed PMID: 26635871; PubMed Central PMCID: PMC4656823.

Tekola-Ayele F, **Doumatey AP**, Shriner D, Bentley AR, et al. **Genome-wide association study identifies African-ancestry specific variants for metabolic syndrome.** Mol Genet Metab. 2015

Dec; 116(4):305-13. PubMed PMID: 26507551.

Doumatey AP, Xu H, Huang H, Trivedi NS, et al. **Global Gene Expression Profiling in Omental Adipose Tissue of Morbidly Obese Diabetic African Americans.** J Endocrinol Metab. 2015 Jun; 5(3):199-210. PubMed PMID: 26504501; PubMed Central PMCID: PMC4618674.

Doumatey AP, Bentley AR, Zhou J, Huang H, et al. **Paradoxical Hyperadiponectinemia is Associated with the Metabolically Healthy Obese (MHO) Phenotype in African Americans.** J Endocrinol Metab. 2012 Apr 1; 2(2):51-65. PubMed PMID: 23293696; PubMed Central PMCID: PMC3534968.

Chen G, Bentley A, Adeyemo A, Shriner D, Zhou J, **Doumatey A**, et al. **Genome-wide association study identifies novel loci association with fasting insulin and insulin resistance in African Americans.** Hum Mol Genet. 2012 Oct 15; 21(20):4530-6. PubMed PMID: 22791750; PubMed Central

PMCID: PMC3459464.

Doumatey AP, Chen G, Tekola Ayele F, Zhou J, et al. **C-reactive protein (CRP) promoter polymorphisms influence circulating CRP levels in a genome-wide association study of African Americans.** Hum Mol Genet. 2012 Jul 1; 21(13):3063-72. PubMed PMID: 22492993; PubMed Central PMCID: PMC3373247.

Charles BA, **Doumatey A**, Huang H, Zhou J, et al. **The roles of IL-6, IL-10, and IL-1RA in obesity and insulin resistance in African-Americans.** J Clin Endocrinol Metab. 2011 Dec; 96(12). PubMed PMID: 21956416; PubMed Central PMCID: PMC3232609.

Ramos E, Chen G, Shriner D, **Doumatey A**, et al. **Replication of genome-wide association studies**

(GWAS) loci for fasting plasma glucose in African Americans. Diabetologia. 2011 Apr; 54(4):783-8. PubMed PMID: 21188353; PubMed Central PMCID: PMC3052446.

Sumner AE, Zhou J, **Doumatey A**, Imoisili OE, et al. **Low HDL-Cholesterol with Normal Triglyceride Levels is the Most Common Lipid Pattern in West Africans and African Americans with Metabolic Syndrome: Implications for Cardiovascular Disease Prevention.** CVD Prev Control. 2010 Sep 1; 5(3):75-80. PubMed PMID: 21113431; PubMed Central PMCID:PMC2989612.

Doumatey AP, Lashley KS, Huang H, Zhou J, et al. Relationships among obesity, inflammation, and insulin resistance in African Americans and West Africans. Obesity (Silver Spring). 2010 Mar; 18(3):598-603. PubMed PMID: 19798069; PubMed Central PMCID: PMC4151268.

COLLABORATIVE PUBLICATIONS:

GOURH P, REMMERS EF, BOYDEN SE, ALEXANDER T, MORGAN ND, SHAH AA, MAYES MD, **DOUMATEY A** ET AL. **WHOLE-EXOME SEQUENCING TO IDENTIFY RARE VARIANTS AND GENE NETWORKS THAT INCREASE SUSCEPTIBILITY TO SCLERODERMA IN AFRICAN AMERICANS.** ARTHRITIS RHEUMATOL. 2018 MAY 6. DOI: 10.1002/ART.40541

Pattaro C..., **Doumatey A**, et al. Genetic associations at 53 loci highlight cell types and biological pathways relevant for kidney function. *Nat Commun.* 2016 Jan 21;7: 10023. *PubMed PMID: 26831199; PubMed Central PMCID: PMC4735748.*

Locke AE..., **Doumatey A**, et al. **Genetic studies of body mass index yield new insights for obesity biology.** *Nature* 2015 Feb 12; 518(7538):197-206. *PMID: 25673413*

Shungin D..., **Doumatey A** et al. **New genetic loci link adipose and insulin biology to body fat distribution.** *Nature* 2015 Feb 12; 518(7538):187-96. *doi: 10.1038/nature14132.*

PMID: 25673412

Ng MC ..., **Doumatey A**, et al. **Meta-analysis of genome-wide association studies in African Americans provides insights into the genetic architecture of type 2 diabetes.** *PLoS Genet.* 2014 Aug 7; 10(8):e1004517. *eCollection 2014 Aug. (Collaborative study with several consortia)*

Steinthorsdottir V..., **Doumatey A** et al. **A variant in CDKAL1 influences insulin response and risk of type 2 diabetes.** *Nat Genet.* 2007 Jun; 39(6):770-5. *Epub 2007 Apr 26. PubMed PMID: 17460697.*

Helgason A., **Doumatey A**, et al. **Refining the impact of TCF7L2 gene variants on type 2 diabetes and adaptive evolution.** *Nat Genet.* 2007 Feb; 39(2):218-25. *Epub 2007 Jan 7. PubMed*

PMID: 17206141.

Complete List of Published Work in MyBibliography

<https://www.ncbi.nlm.nih.gov/sites/myncbi/ayo.doumatey.1/bibliography/50115451/public/?sort=date&direction=ascending>