

## **MARGUERITE MULRYAN DICKSON IRVIN, PH.D., M.S.**

### **Work:**

*Postdoctoral Fellow  
Department of Epidemiology  
Ryals Public Health Building, 230P  
University of Alabama at Birmingham  
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### **Home:**

*Patton Creek LN  
Hoover, AL*

### **EDUCATION**

#### **Doctor of Philosophy, Epidemiology**

*The University of Alabama at Birmingham, Ryals School of Public Health, August 2008  
GPA: 4.0*

#### **Master of Science, Biostatistics**

*Medical University of South Carolina, Charleston, May 2004  
GPA: 3.95*

#### **Bachelor of Science, Biology**

*University of North Carolina at Chapel Hill, Dec 1999  
GPA: 3.85 (Major) with Honors, 3.77 (Overall)*

### **Honors**

1999 Golden Key National Honors Society  
1999 Phi Beta Kappa Society  
2009 Nominated Member of AAAS/Science Program for Excellence in Science

### **Professional Memberships**

2006 International Genetic Epidemiology Society

### **RESEARCH EXPERIENCE**

#### ***POSTDOCTORAL RESEARCH***

##### **Department of Epidemiology at UAB, August 2008-Present**

Fellowship in genetic epidemiology with a focus on study design, phenotype definition, laboratory issues and statistical analysis of genome wide association studies of single nucleotide polymorphisms and copy number variants with heart disease and diabetes outcomes. An additional focus includes the application of statistical methods to examine the role of the environment in genome wide association studies. (Advisor's Name: Donna K Arnett, Phone: (205) 975-7669)

#### ***DOCTORAL RESEARCH***

##### **Department of Epidemiology at UAB, August 2004-August 2008**

My dissertation research involved the study of genetic and psychiatric treatment related risk factors for type 2 diabetes (T2D) in participants affected with schizophrenia or schizoaffective disorder in the PAARTNERS Familial Study of Schizophrenia Liability (1 R01 MH66181). Results showed transcription factor 7 like 2 (*TCF7L2*) is a risk factor for T2D in African-American patients with schizophrenia or schizoaffective disorder and that a possible antipsychotic treatment by *TCF7L2* interaction may exist. Further research in larger populations of patients is needed to confirm any gene by treatment interaction and determine if T2D candidate gene polymorphisms are of interest in the pharmacogenetics of antipsychotic treatment.

I also worked on two projects in Alzheimer's Disease (AD) with my mentor resulting in two published, first author papers (see publication list below). One on genetic association of transforming growth factor  $\beta$  1 (*TGFB1*) with AD, and a linkage scan for age at onset of disease in the National Institute of Mental Health AD genetic initiative sample. (Advisor's Name: Rodney Go, email: RGo@ms.soph.uab.edu)

## **WORK EXPERIENCE**

### **Project Manager and Multi-Site Coordinator, UAB Dept of Epidemiology**

**August 2004-August 2008**

- Project manager for the PAARTNERS Familial Study of Schizophrenia Liability (1 R01 MH66181) in African Americans centered at UAB.
- Performed data quality control, data analysis, and scientific writing.
- Statistical software utilized: SAS, FBAT, Genehunter and SOLAR.
- Corresponded with the other 7 sites regarding data submission, data quality control, and discuss study protocol procedures.
- Advisor's Name: Rodney C.P. Go, email: RGo@ms.soph.uab.edu

### **Ph.D. Candidate Research Assistant, Department of Biostatistics at UAB**

**August 2007-August 2008**

- Assessed the association of candidate gene, environment (diet), and gene by environment interactions with obesity related traits in the Yu'pik Eskimo population as pertaining to the study titled "Genetics of Obesity in Yup'ik Eskimos" (3R01DK074842-02S1).
- Calculated descriptive statistics, Hardy-Weinberg equilibrium testing, and linkage disequilibrium between SNPs
- Performed association testing using mixed models and explored methods to adjust for relatedness in datasets with very large pedigrees.
- Advisor's Name: Hemant Tiwari, Phone: (205) 934-4907

### **Statistical and Research Analyst II, Department of Pulmonary and Critical Care Medicine at the Medical University of South Carolina, 2000-2004**

- Manager of the Alpha-1 Foundation's National Research Registry for persons affected by Alpha-1 Antitrypsin Deficiency
- Involved in subject recruitment, survey data collection, data entry, database design, database maintenance, website design, and study protocol maintenance,
- Performed descriptive data analysis and scientific writing
- Advocated for the registry and gave presentations at regional research and awareness meetings
- Utilized Filemaker Pro, STATA, Excel and Power Point
- Supervisor's Name: Charlie Strange, Phone: (843) 792-3712

### **Research Assistant, Department of Biology, University of North Carolina at Chapel Hill 1998-2000**

- Performed wet-lab work to knock out the gene for the E2F2 protein in *Drosophila melanogaster*
- Investigated the protein's function in the cell cycle
- Duties included fly care, fly crosses and administration of mutagen exposure to the flies
- Supervisor's Name: Bob Duronio, Phone: (919) 962-7749

### **Intern National Institute of Environmental Health Sciences, Research Triangle Park, NC Summer 1999**

- Organized and prepared a mouse cDNA library to create a microarray chip
- Supervisor's Name: Rick Paules, Phone: (919) 541-3710

## **PUBLICATIONS**

Wiener HW, Klei L, **Irvin MR**, Perry RT, Aliyu MH, Allen TB, Bradford LD, Calkins ME, Devlin B, Edwards N, Gur RE, Gur RC, Kwentus J, Lyons PD, McEvoy JP, Nasrallah HA, Nimgaonkar VL, O'Jile J, Santos AB, Savage RM, Go RC. Linkage Analysis of Schizophrenia in African-American Families. *Scz Res*. 2009 Apr;109(1-3):70-9

**Dickson MR**, Carter CL, Carpenter MJ, McClure RL, McGee DA, Zapka JG, Strange C. Barriers to genetic testing among persons at risk for alpha-1 antitrypsin deficiency. *Genet Test*. 2008 Dec;12(4):501-5.

**Dickson MR**, Li J, Wiener H, Perry RT, Blacker D, Bassett SS, Go R C.P. A Genomic Scan for Age at Onset of Alzheimer's Disease in 437 Families from the NIMH Genetic Initiative. *Am J Med Genet B Neuropsychiatr Genet*. 2008 Sep 5;147B(6):784-92.

Carpenter MJ, Strange C, Jones Y, **Dickson MR**, Carter C, Moseley MA, Gilbert GE. Does genetic testing result in behavioral health change? Changes in smoking behavior following testing for alpha-1 antitrypsin deficiency. *Ann Behav Med*. 2007 Feb;33(1):22-8.

Strange C, Stoller JK, Sandhaus RA, **Dickson R**, Turino G. Results of a survey with alpha-1 antitrypsin deficiency. *Respiration*. 2006 Aug 3; 73(2):185-90.

**Dickson MR**, Perry RT, Wiener H, Go RC. Association Studies of transforming growth factor beta 1 and Alzheimer's Disease. *Am J Med Genet B Neuropsychiatr Genet*. 2005 Nov 5; 139(1):38-41.

Strange C, **Dickson MR**, Carter C, Carpenter MJ, Holladay B, Lundquist R, Brantly ML. Genetic testing for alpha-1 antitrypsin deficiency. *Genet Med*. 2004 Jul-Aug; 6(4):204-10.

Cayirlioglu P, Bonnette PC, **Dickson MR**, Duronio RJ. Drosophila E2f2 promotes the conversion from genomic DNA replication to gene amplification in ovarian follicle cells. *Development* 2001; 128(24): 5085-98.

## **MANUSCRIPTS SUBMITTED FOR PEER REVIEW BUT NOT YET ACCEPTED**

**Irvin MR**, Wiener H, Perry RT, Savage RP, Go R C.P. Genetic And Psychiatric Treatment Related Risk Factors For Type 2 Diabetes In Schizophrenia And Schizoaffective Disorder Patients. *Scz Res*.

## **BOOK CHAPTER**

Padilla MA, **Irvin MR**, Tiwari HK (2008). Gene-environment Interactions: Gene-environment interactions in human traits (in press in Encyclopedia on Environmental Health, Nriagu (editor)) (in press).

## **ABSTRACTS AND POSTERS**

**Dickson MR**, Wiener HW, Perry RP, Go R CP. Genetic Risk Factors for Type 2 Diabetes with Pharmacologic Intervention in Patients with Schizophrenia and Schizoaffective Disorder. Poster Presentation at Genome-wide Association: Analyze This! August 2008 Bethesda, MD

Go R C.P., Weiner H, **Dickson MR**, Perry R, Chen Z, Simmons M. Association between Neuregulin 1 and Schizophrenia in the PAARNTERS Study. Poster Presentation at the 2007 Annual American Society of Human Genetics Meeting, San Diego, CA.

**Dickson MR**, Go R CP, Wiener H, Blacker D, Bassett SS. A Genomic Scan for Age at Onset of Alzheimer's Disease from the NIMH Genetic Initiative. Poster Presentation at the 2006 Annual International Genetic Epidemiology Society Meeting, Tampa Bay, FL.

**Dickson MR**, Strange C. DLCO in the Alpha<sub>1</sub>-Antitrypsin Deficiency Registry. *American Journal of Respiratory and Critical Care Medicine* 2002; 165(8): A591 (Abstract)