

Robert Barber, PhD  
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Institute for Healthy Aging  
Pharmacology & Neuroscience  
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## Area of Expertise

Work in my lab is focused on how an individual's genetic makeup impacts their risk for Alzheimer's disease, as well as their age at symptom onset and the rate of disease progression. The goal of our research is to use a combination of genetic variation, demographics, and environmental factors to predict disease risk, age at onset, and progression rate. We are also interested in how disease mechanisms and risk factors differ among ethnic groups, particularly between Mexican Americans and non-Hispanic whites. Research in our group is highly collaborative and active projects are ongoing with labs and scientists across the state and nation.

A second area of research we are interested in is how an individual gut bacteria profile may impact risk for neurodegeneration and the age at onset of cognitive decline.

## Qualifications

MS in Marine Biology, Texas A & M University

PhD in Genetics, Texas A & M University

BS in Biology, Tulane University

## Recent Publications

**A blood screening tool for detecting mild cognitive impairment and Alzheimer's disease among community-dwelling Mexican Americans and non-Hispanic Whites: A method for increasing representation of diverse populations in clinical research**

for the HABLE Study Team, 2021, (Accepted/In press) In: Alzheimer's and Dementia.

**Multomics investigation of hypertension and white matter hyperintensity as a source of vascular dementia or a comorbidity to Alzheimer's disease**

Pathak, G. A., Barber, R. C. & Phillips, N. R., 2021, In: Current Alzheimer Research. 18, 2, p. 171-177 7 p.

**The health & aging brain among latino elders (Hable) study methods and participant characteristics**

O'bryant, S. E., Johnson, L. A., Barber, R. C., Braskie, M. N., Christian, B., Hall, J. R., Hazra, N., King, K., Kothapalli, D., Large, S., Mason, D., Matsiyevskiy, E., McColl, R., Nandy, R., Palmer, R., Petersen, M., Philips, N., Rissman, R. A., Shi, Y., Toga, A. W. & 4 others, Vintimilla, R., Vig, R., Zhang, F. & Yaffe, K., 2021, In: Alzheimer's and Dementia: Diagnosis, Assessment and Disease Monitoring. 13, 1, e12202.

**Differentiation of Hispanic biogeographic ancestry with 80 ancestry informative markers**

Setser, C. H., Planz, J. V., Barber, R. C., Phillips, N. R., Chakraborty, R. & Cross, D. S., 1 Dec 2020, In: Scientific Reports. 10, 1, 7745.

**Exceptionally low likelihood of Alzheimer's dementia in APOE2 homozygotes from a 5,000-person neuropathological study**

The Alzheimer's Disease Genetics Consortium, 1 Dec 2020, In: Nature Communications. 11, 1, 667.

**Identification of novel alternative splicing biomarkers for breast cancer with LC/MS/MS and RNA-Seq**

Zhang, F., Deng, C. K., Wang, M., Deng, B., Barber, R. & Huang, G., Dec 2020, In: BMC Bioinformatics. 21, 541.

**Two-stage Bayesian GWAS of 9576 individuals identifies SNP regions that are targeted by miRNAs inversely expressed in Alzheimer's and cancer**

for the Alzheimer's Disease Neuroimaging Initiative, Breast and Prostate Cancer Cohort Consortium, and Alzheimer's Disease Genetics Consortium, 1 Jan 2020, In: Alzheimer's and Dementia. 16, 1, p. 162-177 16 p.

### **Blood-based protein predictors of dementia severity as measured by $\delta$ : Replication across biofluids and cohorts**

Royall, D. R., Bishnoi, R. J., Palmer, R. F., Pavlik, V., Massman, P., Darby, E., Rodriguear, M., Ansari, A. K., DeToledo, J. C., Reddy, H., Wilms, H., Johnson, K., Perez, V., Fairchild, T., Knebl, J., O'Bryant, S. E., Hall, J. R., Johnson, L., Barber, R. C., Mains, D. & 22 others, Alvarez, L., Cullum, M., Rosenberg, R., Williams, B., Quiceno, M., Reisch, J., Hynan, L. S., Huebinger, R., Smith, J., Nguyen, T., Royall, D., Palmer, R., Polk, M., Stevens, A., Ory, M., Paydarfar, D., Bertelson, J., Woon, M., Ayres, G., Aguirre, A., Wilhelmsen, K. C. & Tilson, J. L., Dec 2019, In: *Alzheimer's and Dementia: Diagnosis, Assessment and Disease Monitoring*. 11, p. 763-774 12 p.

### **Author Correction: Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates A $\beta$ , tau, immunity and lipid processing (Nature Genetics, (2019), 51, 3, (414-430), 10.1038/s41588-019-0358-2)**

Alzheimer Disease Genetics Consortium (ADGC), The European Alzheimer's Disease Initiative (EADI), Cohorts for Heart and Aging Research in Genomic Epidemiology Consortium (CHARGE) & Genetic and Environmental Risk in AD/Defining Genetic, Polygenic and Environmental Risk for Alzheimer's Disease Consortium (GERAD/PERADES), 1 Sep 2019, In: *Nature Genetics*. 51, 9, p. 1423-1424 2 p.

### **Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates A $\beta$ , tau, immunity and lipid processing**

Alzheimer Disease Genetics Consortium (ADGC), The European Alzheimer's Disease Initiative (EADI), Cohorts for Heart and Aging Research in Genomic Epidemiology Consortium (CHARGE), & Genetic and Environmental Risk in AD/Defining Genetic, Polygenic and Environmental Risk for Alzheimer's Disease Consortium (GERAD/PERADES), 1 Mar 2019, In: *Nature Genetics*. 51, 3, p. 414-430 17 p.

## **Sponsored Projects**

### **A Blood-Based Screening Tool for Alzheimer's Disease**

O'Bryant, S. & Barber, R.  
NIA: National Institute on Aging  
15/04/12 → 31/03/15

### **DNA Methylation of Brain Tissue in Alzheimer's Disease**

Barber, R.  
Intramural Research(UNTHSC)  
1/04/14 → 31/08/15

### **Epigenetic Risk Factors for AD Age at Onset and Health Disparities: HABLE Epigenetics Study**

Barber, R.  
National Institute on Aging  
15/09/21 → 31/05/22

### **Epigenetic Risk Factors for Early Age at Onset of Alzheimer's & MCI Among Non-Caribbean Hispanics**

Barber, R., Phillips, N. & Zhou, Z.  
Alzheimer's Disease Program  
22/08/18 → 31/08/20

### **Manifestations of Depression in Alzheimer's Disease**

Barber, R.  
Intramural Research(UNTHSC)  
1/10/14 → 31/12/15

### **Mild Cognitive Impairment: Cerebrovascular Dysfunction and Exercise Training**

Barber, R.  
University of Texas Southwestern Med  
1/04/11 → 31/08/13

### **Polymorphism and CYP450 in Alzheimer's Disease with TCOM Student Spencer Septien**

Barber, R.

Intramural Research(UNTHSC)  
1/09/13 → 31/08/14

**Texas Alzheimer's Research Consortium**  
Barber, R.  
Alzheimer's Disease Program  
1/09/16 → 31/08/17

**Texas Alzheimer's Research Consortium**  
Barber, R.  
Alzheimer's Disease Program  
1/09/10 → 31/08/15

**Texas Alzheimer's Research Consortium**  
Barber, R.  
Alzheimer's Disease Program  
1/09/14 → 31/08/15

**Texas Alzheimer's Research Consortium**  
Barber, R.  
University of Texas Southwestern Med  
1/04/10 → 31/08/10

**Texas Center of Minority Health, Education, Research and Outreach - Admin Supplement**  
Vishwanatha, J., Phillips, N., Barber, R. & Zhou, Z.  
NIMHD: Natl Institute on Minority Health  
23/09/17 → 31/05/22

**Texas Consortium of Alzheimer's Disease Centers**  
Barber, R. & Knebl, J.  
Alzheimer's Disease Program  
1/09/17 → 31/08/18

**Travel to TARCC Science Symposium 2019**  
Barber, R.  
Alzheimer's Disease Program  
17/12/18 → 1/03/19