## BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

| NAME | POSITION TITLE |
|---|---|
| Joyce M. Richey, Ph.D. | Associate Professor<br>Associate Dean for Diversity and Inclusion, Medical Education |
| eRA COMMONS USER NAME (credential, e.g., agency login)<br>JRichey | |

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

| INSTITUTION AND LOCATION | DEGREE *(if applicable)* | MM/YY | FIELD OF STUDY |
|---|---|---|---|
| University of Michigan, Ann Arbor, MI | B.S. | 6/1981 | Zoology/Biology |
| Wayne State School of Medicine, Detroit, MI | Ph.D. | 8/1991 | Physiology |
| Keck School of Medicine of USC, Los Angeles, CA | Postdoc | 1991-1995 | Physiology |

### A. Personal Statement

My personal research program focuses on diseases that disproportionately impact minorities, understanding the mechanistic links among obesity, insulin resistance and cardiovascular diseases. I have recently parlayed many of my pre-clinical findings into human mechanistic studies, aimed at understanding ethnic differences in the pathogenesis of Type 2 diabetes. Additionally, I have significant experience serving as a research mentor and role model. As Associate Dean for Diversity and Inclusion, I participate in all aspects of institutional planning in support of the mission and goals of the university, including meeting the needs of our diverse student, faculty, and staff populations and creating a supportive and positive learning and working environment. I strongly believe that with my research background, teaching experiences and pipeline program administrative roles, I am well poised to successfully participate in this funding opportunity.

### B. Positions and Honors.

1995-1997 Research Investigator, Departments of Physiology and Internal Medicine, University of Michigan, Ann Arbor

1997 - 2001 Assistant Research Scientist, Departments of Physiology and Internal Medicine University of Michigan, Ann Arbor

1999 -2001 Visiting Assistant Professor, Department of Physiology & Biophysics, Keck School of Medicine of University of Southern California, Los Angeles

2001-2017 Research Assistant Professor, Department of Physiology & Biophysics, Keck School of Medicine of University of Southern California, Los Angeles

2011-present Assistant Dean, Educational Affairs, Keck School of Medicine of the University of Southern California, Los Angeles

2015-2017 Assistant Dean and Chief Diversity Officer, Keck School of Medicine of the University of Southern California

2017-present Associate Dean for Diversity and Inclusion, Educational Affairs, Keck School of Medicine of USC, Los Angeles

2017-present Associate Professor, Clinical Physiology and Neuroscience

**C. Contributions to Science**

My research efforts have assessed various animal models of diet-induced insulin resistance to explore the pathogenesis of Type II diabetes and its comorbidities, such as cardiovascular diseases. Early research studies included the finding that diet-induced insulin resistance with either high fat or high fructose feeding, resulted in impaired vasodilation in rodent mesenteric beds and attributable to a reduction in nitric oxide or endothelial dysfunction. These important findings helped to shape the role of nitric oxide as an important link in the metabolic syndrome. In addition, I demonstrated that chronic blockade of the endocannabinoid system (ECS) with a global receptor antagonist corrected the deleterious effects of diet-induced obesity by restoring insulin sensitivity and normalizing fat cell size and distribution. These findings were found to be in part, independent of suppressive actions on food intake garnering potential of the ECS as a therapeutic target for obesity and diabetes. Additional findings included the demonstration that hypertrophic and not hyperplastic adipocytes in the visceral fat depot are critical determinants of insulin resistance. This information provided critical support for the role of visceral (belly) fat in determining metabolic risk. I also played a significant role in the finding that elevated nocturnal plasma free fatty acids may be causal to the development of insulin resistance and/or hyper-secretion of insulin in the state of obesity.

**Selected peer-reviewed publications relevant to minority-related research**

1. Emken, AB, **Richey J**, Belcher B, Hsu YW and Spruijt-Metz D. Physical activity is negatively associated with adiponectin in minority girls. *International Journal of Pediatric Endocrinology*, 2010, 1:ID 846070,1-7.
2. Spruijt-Metz D, Emken BA, **Richey J**, Hsu Y-W, Nguyen-Rodriguez ST, Belcher BR, McClain AD, Goran MI, Weigensberg MJ. CRP is related to higher leptin levels in minority prepubertal females regardless of adiposity levels. *Obesity, 2011, Mar 24, PMID: 21436796*
4. **Richey JM**. The vascular endothelium, a benign restrictive barrier? NO! Role of nitric oxide in regulating insulin action. *Diabetes, 2013, Dec Vol 62 4006-4007*. PMID: 24264403
5. Ren J, Mahajan M, Trigo E, Hartiala J, Takayanagi M, **Richey JM**, Bergman RN, Allayee H, Xiang A, Buchanan TA and RM Watanabe. Genetic variation in MTNR1B is associated with gestational diabetes mellitus and contributes only to the absolute level of beta cell compensation in Mexican Americans**.** *Diabetologia 2014 Jul;57(7):1391-9.* PMID:24728128

**D. Research Support**

**Current**

**NCI (U54)** 2018-2023
Role: Co-investigator (10%); USC Evaluation and Planning Core Director; J. Carpten (PI)
Total Core Costs: $1,237,500.00
Title: Florida-California Cancer Research, Education & Engagement (CaRE$^2$) Health Equity Center
Goal: To support under-represented minorities in cancer research.

**NIH NIDDK R25** 2017-2022
Role: Principal Investigator (10%)
Direct Costs: $ 100,000
Indirect Cost Rate: 8%
Title: "**S**ummer **P**rogram **I**n **D**iabetes and **O**besity **R**esearch (SPIDOR)"
Goals: Summer research experience in diabetes and obesity for underrepresented students in science and medicine.

**Diabetes Donor Support** Open
Role: Principal Investigator (%N/A)
Direct Costs: $ 500,000
*No Indirect Cost*
Goals: Start-up funds to conduct diabetes and obesity research

**USC Good Neighbors #** 2019-2020
Role: Principal Investigator
Direct Costs: $51,300
*No Indirect Cost*
Goal: To support disadvantaged high school students in Los Angeles County actively participating in Medical Counseling, Organizing and Recruiting (MedCOR) Program.

**Aetna Mainline Health HCAFY18** 2017-2020
Role: Principal Investigator
Direct Cost: $2,700
*No Indirect Cost*
Title: Health Career Academy at USC Keck School of Medicine
Goal: To support disadvantaged high school students in Los Angeles County school district.