

# CRIC Funded Ancillary Studies

**Study Title**

**Principal Investigator**

**University Affiliation**

**Year funded**

**Keywords**

*Nutrition Assessment in Chronic Renal Insufficiency Cohort (CRIC) Study Population*

Cheryl Anderson, PhD, MPH

The Johns Hopkins University

2002

nutrition, cerebrovascular disease, protein-energy malnutrition, metabolism

*A Structural Approach to Renal Bone Disease in CRIC*

Mary Leonard, MD, MSCE

Children's Hospital of Philadelphia

2003

renal bone disease, renal osteodystrophy, bone mineral density

*Hypertension and Hypercholesterolemia Control in Patients with CKD*

Paul Muntner, PhD

University of Alabama at Birmingham

2003

hypertension, hypercholesterolemia, cardiovascular disease, hemodynamics, nutrition

*CRIC Heart Failure Detection Cohort and the CRIC Heart Failure Progression Cohort*

Michael Shlipak,

University of California, San Francisco

2003

*Development and Validation of GFR Estimating Equations*

Andrew Levey, MD

Tufts University

2004

estimated glomerular filtration rate, meta analysis, equation

*Carotid Intima-Media Thickness in Chronic Kidney Disease*

Sylvia Rosas, MD, MSCE

University of Pennsylvania

2004

carotid intima-media thickness, carotid plaque, progression, cardiac outcomes

*Hispanic Recruitment in CRIC*

Julio Vijil, Jr., MD

University of Illinois, Chicago

2004

recruitment, Hispanic

**\*Please note that this list is limited to approved CRIC ancillary studies that have received funding. The CRIC Steering Committee reviews and approves new proposals on a rolling basis and maintains a separate list of approved but not yet funded proposals which are also considered when vetting new submissions.**

# CRIC Funded Ancillary Studies

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**Keywords**

*Cognitive Function in Chronic Renal Insufficiency*

Kristine Yaffe, MD

University of California, San Francisco

2005

cognitive function, gfr, depression

*Pulse Wave Velocity and Chronic Kidney Disease*

Raymond Townsend, MD

University of Pennsylvania

2005

pulse wave velocity, hypertension, cardiovascular disease

*Sleep Disturbances as a Non-traditional Risk Factor in CKD*

Eve Van Cauter, PhD

University of Chicago

2005

sleep, risk factor, c-reactive protein

*Diabetic and Hypertensive Retinopathy and CRI*

Juan E. Grunwald, MD

University of Pennsylvania

2005

retinopathy, hypertension, diabetes, ophthalmology

*Hispanic Chronic Renal Insufficiency Cohort*

James Lash, MD

University of Illinois, Chicago

2005

hispanic, cardiovascular disease, progression

*Cytokine Gene Polymorphism in the CRIC Cohort*

Dominic Raj, MD

George Washington University

2006

cytokine, polymorphism, inflammation

*Genetics of Atherosclerosis in Renal Disease*

Muredach P. Reilly, MBBCH, MSCE

University of Pennsylvania

2006

genetics, atherosclerosis, metabolic syndrome, inflammation

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**Year funded**

**Keywords**

*Vitamin D Deficiency, Physical Performance and Cardiovascular Disease*

Mary Leonard, MD, MSCE

Children's Hospital of Philadelphia

2006

vitamin D, calcidiol, frailty, PTH

*Sodium and Cardiovascular Disease in Patients with CKD*

Jiang He, MD, PhD

Tulane University

2006

Sodium, electrolyte excretion, potassium, cardiovascular disease, cardiac outcomes

*Study of Advanced Chronic Renal Insufficiency*

Chi-yuan Hsu, MD, MSc

University of California, San Francisco

2006

progression, transition to ESRD, GFR

*KDQOL and the Spanish-Speaking CKD Population*

Julio Vijil, Jr., MD

University of Illinois, Chicago

2007

KDQOL, hispanic, HCRIC

*Health Literacy and Acculturation in Hispanic Patients with Chronic Kidney Disease*

Claudia Lora, MD

University of Illinois, Chicago

2007

HCRIC, health literacy, Hispanic, acculturation, risk factor, cardiovascular disease

*Genomics of myocardial transcription factors in cardiac remodeling*

Thomas P. Cappola, MD, ScM

University of Pennsylvania

2007

genetics, cardiac remodeling, transcription factors

*Pulse Wave Velocity and Chronic Kidney Disease*

Stephanie DeLoach, MD

Thomas Jefferson University

2007

pulse wave velocity, cardiovascular disease

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Corin Allele and Heart Disease*

Daniel L. Dries, MD

Yale University

2007

genetics, cardiovascular disease, natriuretic peptide system, cardiac hypertrophy, corin

*CRIC Plus – Race Group Analysis*

Vanessa Grubbs, MD, MPH

University of California, San Francisco

2007

racial disparities, progression, CRIC-plus, ESRD

*Carotid Intima-Media Thickness in Chronic Kidney Disease (Renewal)*

Sylvia Rosas, MD, MSCE

University of Pennsylvania

2007

carotid intima-media thickness, carotid plaque, progression, cardiac outcomes

*Using 2-D Gel to Identify Patterns of Urine Protein Excretion that Predict Loss of GFR*

Chi-yuan Hsu, MD, MSc

University of California, San Francisco

2008

two-dimension differential gel electrophoresis, GFR, proteinuria

*Molecular Predictors of Progressive Renal Failure in the Chronic Renal Insufficiency Cohort*

Matthias Kretzler, MD

University of Michigan

2008

progression, molecular predictors, biomarkers

*Clinical Outcomes of Pre-ESRD CKD Patients with Hepatitis C Infection*

Akinlolu O. Ojo, MD, PhD, MPH

University of Michigan

2008

HCV, pre-ESRD

*Genetic of Lipoprotein Metabolism and CVD in CKD*

Daniel J. Rader, MD

University of Pennsylvania

2008

lipoproteins, metabolism, genetics

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Role of FGF-23 in Mineral Metabolism and CVD in Pre-dialysis CKD*

Myles S. Wolf, MD, MMSc

University of Miami

2008

FGF-23, phosphate therapy, hyperphosphatemia, left ventricular mass

*The Renin-Angiotensin-Aldosterone System and Cardiac Arrhythmias*

Rajat Deo, MD

University of Pennsylvania

2009

atrial fibrillation, renin, aldosterone, angiotensin, cardiovascular disease

*CKD, Metabolic Syndrome and Cardiovascular Disease*

Harold I. Feldman, MD, MSCE

University of Pennsylvania

2009

metabolic syndrome, insulin resistance, cardiovascular disease, progression

*GWAS in CKD: The CRIC Study*

Harold I. Feldman, MD, MSCE

University of Pennsylvania

2009

GWAS, genetics, GFR, progression

*Chronic Kidney Disease Biomarker Validation*

Chi-yuan Hsu, MD, MSc and Kathleen D. Liu, MD, PhD, MAS

University of California, San Francisco

2009

biomarkers, kidney injury

*The Role of Neuregulin in Human Cardiac Remodeling and Heart Failure*

Bonnie Ky, MD, MSCE

University of Pennsylvania

2009

NRG-1, cardiac remodeling

*Hypertension in Advanced Chronic Kidney Disease*

Nisha Bansal, MD, MAS

University of California, San Francisco

2010

hypertension, progression, ESRD, blood pressure, cardiovascular disease

# CRIC Funded Ancillary Studies

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**Year funded**

**Keywords**

*The Effect of Sickle Cell Trait upon Progression of Chronic Kidney Disease*

Vimal Derebail, MD, MPH

University of North Carolina

2010

risk factors, sickle cell trait, hemoglobinopathy

*Elevated Nighttime BP – Clinical and Demographic Features, Correlates, and Changes Over Time*

Paul E. Drawz, MD, MHS

Case Western Reserve University

2010

hypertension, blood pressure, nighttime ABP

*Joint Analysis of Longitudinal Outcomes and Clinical Events in Chronic Kidney Disease Cohorts*

Tom Greene, PhD

University of Utah

2010

longitudinal analysis, statistical methods, multi-state models, causal models

*Health Literacy, Acculturation and Social Support in Hispanics with Chronic Kidney Disease*

Claudia Lora, MD

University of Illinois, Chicago

2010

HCRIC, health literacy, Hispanic, acculturation, risk factors, cardiovascular disease

*Validation of the Beck Depression Inventory in Hispanics with Chronic Kidney Disease*

Ana C. Ricardo, MD, MPH, MS

University of Illinois, Chicago

2010

Beck depression inventory, Hispanic, depression,

*Carbamylated LDL and Cardiovascular Events*

Sudhir V. Shah, MD

University of Arkansas

2010

carbamylated LDL, cardiovascular disease, risk factors, atherosclerosis

*Pulse Wave Velocity (Renewal)*

Raymond Townsend, MD

University of Pennsylvania

2010

pulse wave velocity, hemodynamics, blood pressure

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Modifiable and Novel Risk Factors for and Consequences of Acute Kidney Injury in the Setting of Chronic Kidney Disease: a CRIC Ancillary Study*

Amanda Hyre Anderson, PhD, MPH

University of Pennsylvania

2011

acute kidney injury, progression, mortality

*Do patient safety events account for adverse outcomes in CKD?*

Jeffrey Fink, MD

University of Maryland

2011

safety incidents, outcomes, metabolic disturbance

*Abrupt Transition to ESRD from CKD*

Chi-yuan Hsu, MD, MSc

University of California, San Francisco

2011

ESRD, transition

*CKD Blood Biomarker Discovery (sub-protocol of the CKD Biomarkers Consortium)*

Lesley Inker, MD, MS

Tufts University

2011

biomarkers, progression, proteomics

*Hispanic Chronic Renal Insufficiency Cohort (Renewal)*

James Lash, MD

University of Illinois, Chicago

2011

Hispanic, cardiovascular disease, progression

*Novel Paradigm to Understand Diabetic Complications*

Kumar Sharma, MD

University of California, San Diego

2011

mitochondria, urine metabolomics, nephropathy, retinopathy

*Cognitive Decline in Chronic Renal Insufficiency (Renewal)*

Manjula Tamura, MD, MPH and Kristine Yaffe, MD

Stanford University

2011

cognitive function, gfr, decline, oxidative stress markers

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords***Health Disparities in Chronic Kidney Disease*

James Lash, MD

University of Illinois, Chicago

2012

socioeconomic status, health literacy, health disparities

*Acidosis, Net Acid Excretion and Morbidity in CKD*

Julia Scialla, MD, MHS

Duke University

2012

metabolic acidosis, nutrition, bone and mineral metabolism, urinary electrolytes, progression, cardiovascular disease, mortality

*Genetics of Race and Disordered Mineral Metabolism in CKD*

Myles S. Wolf, MD, MMSc

Northwestern University

2012

phosphate, FGF23, klotho, CKD, CVD, genetics, ancestry, racial disparities

*Mexico Chronic Renal Insufficiency Cohort (MCRIC)*

James Lash, M.D.

University of Illinois, Chicago

2012

Chronic kidney disease progression, Hispanics, Mexico

*Metabolomic Studies in Chronic Kidney Disease*

Harold I. Feldman, MD, MSCE

University of Pennsylvania

2012

metabolomics

*Gender Disparities and Endogenous Estrogen in Chronic Kidney Disease Outcomes*

Ana Ricardo, MD, MPH, MS

University of Illinois, Chicago

2013

Sex hormones, gender disparities



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## **Study Title**

**Principal Investigator**

**University Affiliation**

**Year funded**

**Keywords**

*Mediators & Prognostic Value of Muscle Mass & Function in Chronic Kidney Disease*

Perry Wilson, M.D.

Yale University

2013

Sarcopenia, creatinine generation rate, chronic kidney disease, myostatin, caspase-3, activin A, inflammation, tnf-alpha, tgf-beta, frailty

*FGF-23 and Clinical Outcomes in ADPKD Patients*

Myles S. Wolf, MD, MMSc

Northwestern University

2013

FGF23, CKD, ADPKD, phosphate

*Validation of the Kidney Knowledge Survey (KiKS) in Hispanics with Chronic Kidney Disease.*

Claudia Lora

University of Illinois at Chicago

2013

Hispanics, Chronic Kidney Disease Knowledge, Spanish language

*Estimating GFR from a Panel of Endogenous Filtration Markers (Panel eGFR)*

Lesley Inker

Tufts Medical Center

2013

GFR, beta trace protein, beta 2 microglobulin, cystatin C, creatinine

*Serum Bicarbonate and Cardiovascular Risk in Patients with Chronic Kidney Disease*

Mirela Dobre, M.D.

Case Western Reserve University

2013

metabolic acidosis, metabolic alkalosis, cardiovascular disease, mortality

*Role of Sclerostin in Disordered Mineral Metabolism in CKD*

Tamara Isakova, MD, MMSc

Northwestern University

2013

CKD, sclerostin, FGF23, PTH, phosphate

*Pathophysiological Role of Prorenin*

Alfred Cheung, M.D.

University of Utah

2013

Prorenin, chronic kidney disease, retinopathy, cardiovascular disease, diabetes

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Enhancing appreciation of the clinical significance of acute kidney injury*

Raymond Hsu

University of California, San Francisco

2013

Acute kidney injury (AKI), chronic kidney disease (CKD)

*Vitamin D catabolism in chronic kidney disease*

Ian de Boer

University of Washington

2013

Vitamin D, mineral metabolism, CKD

*Plasma KIM-1 and Chronic Kidney Disease*

Sushrut Waikar

Brigham and Women's Hospital

2014

Tubular injury; biomarkers of progression

*Novel metabolites associated with renal outcomes*

Tammy Sirich

Stanford University

2014

mass spectrometry, metabolomic, CKD

*Is there a digital divide in chronic kidney disease?*

Clarissa Diamantidis

Duke University

2014

CKD, health information technology, e-literacy, patient safety

*Performance of Vitamin D-Binding Protein (DBP) ELISA by Genotype: Validation using Mass Spectrometry*

Mary Leonard, Michelle Denburg

Stanford University/Children's Hospital of Philadelphia

2014

Vitamin D, vitamin D-binding protein, genotype

*Visceral adiposity and fitness among CRIC participants (phase 3)*

Sankar Navaneethan

Cleveland Clinic

2014

Obesity, fitness, and kidney disease

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**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Measures of fibrosis and clinical outcomes in chronic kidney disease*

Amanda Hyre Anderson, PhD, MPH

University of Pennsylvania

2015

fibrosis, CKD progression, cardiovascular disease, galectin-3, CTGF or CCN2, collagen type III, MMP-2

*Heart failure and arrhythmias in CKD*

Nisha Bansal, MD, MAS

University of California, San Francisco

2015

heart failure, prediction, cardiac arrhythmias, biomarkers

*Whole-exome sequencing study of diabetic nephropathy*

Tanika Kelly

Tulane University

2015

diabetic nephropathy; next-generation sequencing; whole-exome sequencing; rare variants; low frequency variants

*Longitudinal Changes in Metabolomic Biomarkers and CKD Progression*

Eugene Rhee

Massachusetts General Hospital/Broad Institute

2015

metabolomics, CKD, CKD progression

*Oxalate in CKD Pathogenesis and Progression*

Sushrut Waikar

Brigham and Women's Hospital

2015

oxalate; chronic kidney disease; cardiovascular disease; decline in GFR

*Epigenetic dysregulation in diabetic kidney disease*

Katalin Susztak

University of Pennsylvania

2015

cytosine methylation, epigenetics

*Prognostic biomarkers in chronic kidney disease*

Farsad Afshinnia

University of Michigan

2015

chronic kidney disease, progression, end stage renal disease, biomarker, metabolomics, Mass spectrometry

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Pilot Study on Proteomics of Kidney Disease Progression in the CRIC Study*

Rajat Deo

University of Pennsylvania

2015

proteomics, progressive kidney disease, SOMAscan

*Targeted Biomarkers of Chronic Kidney Disease (CKD) and its Complications*

Jeffrey Schelling

Case Western Reserve University

2015

Chronic kidney disease, diabetic nephropathy, biomarker, case-cohort study

*Identifying Modifiable Biomarkers/Mediators for Cardiovascular Disease in Chronic Kidney Disease*

Peter Ganz

University of California, San Francisco

2016

cardiovascular risk prediction model; chronic kidney disease; proteomics

*Tubular Secretion and Chronic Kidney Disease Complications*

Bryan Kestenbaum

University of Washington

2016

tubular secretion, biomarkers, kidney, hippurate

*Assessing the accuracy of information in the CMS Medical Evidence Report (form CMS-2728)*

Chi-yuan Hsu

University of California, San Francisco

2016

incident ESRD, co-morbidity, information bias

*Novel Diagnostics and Therapeutic Targets for Calcification in CKD*

Tamara Isakova

Northwestern University

2016

vascular calcification; calcification propensity; calciprotein particles

*Assessment of nicotine exposure from toenail clippings of CRIC participants*

Edgar Jaimes

MSKCC

2016

nicotine, smoking, chronic kidney disease (CKD)

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**Year funded**

**Keywords**

*Metabolomics for Identifying Biomarkers of Dietary Intake & Kidney Disease Progression*

Casey Rebholz

Johns Hopkins University

2016

diet; metabolomics; kidney disease progression

*The Gut Microbiome and the metabolome in CKD*

Amanda Anderson

University of Pennsylvania

2016

gut microbiota, metabolomics, metabolic profiling, CKD

*Weight trajectory in chronic kidney disease and risk of adverse outcomes*

Elaine Ku

University of California, San Francisco

2016

Weight loss, BMI, CKD, ESRD

*Vitamin K status, CVD and arterial stiffness in chronic kidney disease: The Chronic Renal Insufficiency Cohort*

Kyla Shea

Tufts University

2017

Vitamin K, matrix gla protein, kidney function, CVD, arterial stiffness

*MicroRNAs in progressive renal disease – a pilot study in CRIC (MIRROR-TRIC)*

Christos Argyropoulos

University of New Mexico

2017

microRNAs, Chronic Kidney Disease, Proteinuria, RNA-seq, biomarkers, measures of renal function

*Developing and validating prognostic metabolomic signatures of diabetic kidney disease*

Loki Natarajan

University of California, San Diego

2017

Diabetic kidney disease; metabolomics; prognostic models; variable selection

*Health literacy and Self-Management in Chronic Kidney Disease: a CRIC Ancillary Study*

Sarah Schrauben

University of Pennsylvania

2017

Self-management; CKD progression; Health literacy

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Hispanic CRIC Study renewal*

James Lash

University of Chicago Illinois

2017

Hispanic/Latino; chronic kidney disease

*Soluble Fms-Like Tyrosine Kinase-1 (sFlt-1), Placental growth factor (PlGF) and CVD in Participants with CKD*

Saif Anwaruddin and Rajat Deo

University of Pennsylvania

2018

Cardiovascular disease, soluble Fms-Like Tyrosine Kinase-1, Placental growth factor (PlGF)

*The effects of protein carbamylation in chronic kidney disease (CKD)*

Sahir Kalim

Massachusetts General Hospital

2018

Protein carbamylation; CKD; kidney function; mortality; chronic renal insufficiency cohort (CRIC), CKD progression

*Statistical Methods for Genomics of CKD*

Andrea Foulkes

Mount Holyoke

2018

*Acute kidney injury among patients with chronic kidney disease*

Chi Hsu

University of California, San Francisco

2018

Acute kidney injury (AKI)

*The role of functional iron deficiency in systemic complications of CKD*

Monique Cho

University of Utah

2018

Iron, chronic kidney disease, hepcidin, cardiovascular disease

*Sleep disordered breathing as a predictor of outcomes in chronic kidney disease*

Ana Ricardo

University of Illinois at Chicago

2019

Sleep apnea, chronic kidney disease progression, cardiovascular disease

# CRIC Funded Ancillary Studies

**Study Title****Principal Investigator****University Affiliation****Year funded****Keywords**

*Population-Based Limits of 24-Hour Urinary Creatinine Excretion*

Bryan Kestenbaum

2019

Urine creatinine, excretion, height, weight

*A Mixed Methods Study of Chronic Kidney Disease Self-Management*

Sarah Schrauben

University of Pennsylvania

2019

Self-management; CKD progression

*Dynamic Prediction of Renal Failure Using Longitudinal Prognostic Information among Patients with Chronic Kidney Disease and Kidney Transplant*

Liang Li

University of Texas MD Anderson Cancer Center

2019

Dynamic prediction; Prediction model; CKD; Kidney transplant; ESRD; Graft failure

*American Indian Chronic Renal Insufficiency Cohort Study (AI-CRIC Study)*

Vallabh Shah

University of New Mexico HSC

2019

Native American, Disparity, CKD, CVD

*Access to Health Care and Health Outcomes in Chronic Kidney Disease*

Stephanie Toth-Manikowski

University of Illinois

2019

Access to care, Healthcare Access, Chronic kidney disease, Health disparities

*Characterization of Illness Representation Groups in Chronic Kidney Disease*

Eleanor Rivera

University of Pennsylvania

2019

Chronic kidney disease, illness representation, treatment adherence, health literacy, health care utilization

*sAREG in urine and serum as a biomarker of CKD severity and progression*

Andreas Herrlich

Washington University School of Medicine in St. Louis

2019

Amphiregulin (AREG), epidermal growth factor (EGF), epidermal growth factor receptor (EGFR)

## CRIC Funded Ancillary Studies

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**Principal Investigator**

**University Affiliation**

**Year funded**

**Keywords**

*Health Disparities in Chronic Kidney Disease Mentoring Program*

Jim Lash

University of Illinois, Chicago

2019

Health disparities, chronic kidney disease, physical activity, sleep disorders