

Study Name	Principal Investigators	Abstract
The Life Course Microbiome Study - LCMB	Kenneth Krauter, Kathleen Mullan Harris, Jason Boardman, Allison Aiello	We will study the oral microbiomes obtained from ~6000 respondents of the The National Longitudinal Study of Adolescent Health (Add Health) Wave IV. This request is in response to an NIH grant review requesting that pilot/preliminary data be conducted on Add Health saliva samples (Wave IV).
Identifying Place-based Factors that Shape AD\ADRD Risks	Michael Esposito, Jessica Finlay	The proposed study will use a sequential mixed-method approach to identify the neighborhood risk and protective factors influencing cognitive decline across the adult life course. First, qualitative seated and mobile interviews in four socio-geographically diverse metropolitan areas (led by expert teams in San Francisco, Denver, Atlanta, and New York) will investigate how individuals of different ages navigate their local environments to engage in lifestyle behaviors that reduce dementia risk (e.g., social engagement, physical activity). Second, we will use these insights as the basis for quantitative model construction (e.g., age-specific feature selection; grounded coding of “access” and “exposure” variables) in an integrative data analysis of four national longitudinal cohort studies spanning adolescence to late-age (AddHealth; American Changing Lives; Reasons for Geographic And Racial Differences in Stroke; Health and Retirement Study). This study will assess whether exposure to specific neighborhood amenities and hazards across the life course systematically predict cognitive function and decline. Results will inform community interventions to support healthy aging and reduce dementia risk, address structural barriers and broader socio-geographic health disparities, and advance exposome and life course knowledge and theories.
Racially and Ethnically Diverse-Air Pollution EXposure (RED-APEX) consortium	Mercedes Bravo, Kathleen Mullan Harris, Fang Fang, Eric Johnson, Dana Hancock	The central objective of the proposed research is to identify mechanistic pathways through which air pollution affects CMD in different racial/ethnic groups and across the lifecourse. We have created the Racially and Ethnically Diverse-Air Pollution EXposure (RED-APEX) consortium to bring together multiple cohort studies, harmonize and expand upon their existing data, and address three aims: Aim 1: Leveraging RED-APEX, harmonize CMD outcome data, attach multi-year estimates of air pollution exposure, and describe characteristics across the lifecourse. We will (1a) harmonize data across RED-APEX cohorts (total N=to be determined); and (1b) attach multiple years of high-resolution air pollution data (PM2.5, O3, and NO2). We will describe characteristics by exposure heterogeneity and geography, racial/ethnic, age, and socioeconomic diversity, as a foundation for examining exposure to and health effects of air pollution across the lifecourse. Aim 2. Estimate associations between air pollution exposures and multiple CMD outcomes in RED-APEX. We will estimate associations between air pollution exposures and multiple CMD measures (e.g., blood pressure, cholesterol, glucose). Specifically, we will: (i) evaluate differences in air pollution-CMD associations by race/ethnicity and age group; and (ii) estimate associations between air pollutant mixtures and CMD. Aim 3. For pollutants associated with CMD, develop DNAm biomarkers of air pollution exposure and evaluate whether DNAm is a biological mechanism by which air pollution exposure affects CMD. Specifically, in Aim 3(a), we examine individual CpG sites in an epigenome-wide association study (EWAS), develop multi-CpG predictors, and evaluate whether biomarkers of exposure are consistent across racial/ethnic and age groups. In Aim 3(b), for pollutants associated with DNAm in 3(a), we test whether air pollution exposure causally affects CMD through DNAm using Bayesian-informed mediation modeling.
Add Health and CJARS linkages	Lauren Gaydosh, Carmen Gutierrez	This is an ancillary study proposal that outlines the work we will propose to the Arnold Foundation for a planning grant to support the work necessary to establish linked data between Add Health and the Criminal Justice Administrative Records System (CJARS). CJARS is an unparalleled national data linkage effort that harmonizes and links criminal legal records obtained from state and local agencies across the United States. CJARS contains information on 40 million individuals with event-level data on arrest, conviction, incarceration, parole, and probation covering ~80% of the US population, with continuing efforts to expand coverage. We propose to link Add Health respondents to the criminal legal records available in CJARS using name, date of birth, state and county of residence, and sex, race, and ethnicity. We will determine what proportion of Add Health respondents have a linkable criminal legal record, and compare these administrative data to self-reported criminal legal contact as reported in the AH surveys. Finally, we will determine how we can disseminate these data in a manner that agrees with both Add Health and CJARS data sharing and data use agreements. The successful completion of this project will provide researchers with an unprecedented data resource for the investigation of the precursors and consequences of criminal legal system involvement.

Study Name	Principal Investigators	Abstract
Unravelling the role of mitochondria health in the psychosocial stress-accelerated aging cascade	Caroline Trumpff	Individuals vary widely in their health and aging trajectories, yet the underlying mechanisms driving these differences remain poorly understood. Growing evidence suggests that alterations in cellular energetics, particularly mitochondrial biology, contribute to accelerated aging. Modifiable factors, such as chronic psychosocial stress, may lead to accelerated aging by disrupting mitochondrial biology. However, large-scale population-based studies directly testing this hypothesis are lacking. Recent work by our group and others has identified a novel approach to investigate the Stress Mitochondria Aging cascade. Bio-banked plasma samples can be assayed for growth differentiation factor 15 (GDF15), a well-established biomarker of biological aging and mitochondrial energy transformation capacity, which is elevated in depression and acutely induced by psychological stress. We propose to leverage archived plasma from a representative subsample of 5,000 respondents in Wave V of Add Health to quantify plasma GDF15 concentrations. Findings will inform the role of mitochondrial dysregulation in stress-related accelerated aging and help identify potential intervention targets.
Assessing Residual Population Stratification in PGI Research Using Geographic Residualization	Callie Burt, Robbe Wedow	The inclusion of polygenic indices (PGIs)—composite genetic scores based on genome-wide association studies (GWAS)—in social science research has accelerated in recent years, offering new insights into the interplay between genes and environments in shaping human behavior and health. However, concerns about the confounding effects of population stratification (PS) persist, particularly when PGIs are applied in population-based samples. Evidence indicates that even after standard corrections (e.g., principal components analysis), PGIs often exhibit geographic clustering, suggesting the persistence of residual PS-confounding, especially for socially patterned traits like educational attainment or body mass index (BMI). The goal of this ancillary study is to examine the extent and implications of residual PS-confounding in PGI analyses in the U.S. context, using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). We propose a novel and scalable solution: leveraging high-resolution geographic information to detect and correct residual PS-confounding in PGIs. Specifically, we will assess whether PGIs residualized on Wave I geocoordinates—termed R-geo PGIs—show reduced predictive power compared to standard PGIs, indicating correction of PS-related bias.
Medicaid and Labor Market Shocks: Impacts on Health Outcomes and Economic Well-Being	Yannick Reichlin	This ancillary study combines methods from genetics and economics to study how the interaction between individuals’ genetic endowments and their environment affects labor market and health outcomes throughout the life span. The goal is to study the impact of automation, the technological production proves in which industrial robots replace workers’ task. We are interested in how automation shocks shape individuals’ labor market, education, and health outcomes, and whether their impact is ameliorated or reinforced by an individual’s genetic predispositions, measured by polygenic indices. We will estimate linear regressions of an extensive set of primary and secondary outcomes on measurements for genetic predispositions, changes in automation, and their interaction.
Impact of Immigrants' Access to Food Assistance on Children's Long-term Economic and Social Outcomes	Rita Hamad, Daniel Collin	The Supplemental Nutrition Assistance Program (i.e., Food Stamps) is the largest food assistance program and among the largest poverty alleviation programs in the nation. However, due to changing federal and state eligibility criteria, access to Food Stamps has fluctuated for different groups. For example, federal welfare reform in 1996 (as part of the Personal Responsibility and Work Opportunity Reconciliation Act, PRWORA), led to the exclusion of most immigrant families from eligibility for Food Stamps. In response to PRWORA, nine states restored Food Stamp benefits to immigrant families using their own funds: California, Connecticut, Maine, Massachusetts, Minnesota, Nebraska, Rhode Island, Washington and Wisconsin. Federal criteria loosened again with the passage of the Farm Security and Rural Investment Act (Farm Bill) in 2002, and pre-PRWORA documented immigrants were once again eligible in April 2003. No studies to our knowledge have examined the long-term impacts on later-life outcomes for children of immigrants exposed to these policy variations in Food Stamps. Our study will fill this critical knowledge gap, providing new evidence on how changes in state and federal eligibility criteria for the Food Stamp Program influenced health and social outcomes during two decades of follow-up.

Study Name	Principal Investigators	Abstract
Smoking Bans on School Campuses	Mathiue Lambotte	This study develops a theoretical model and empirical test to examine the intergenerational transmission of smoking behavior in a society with overlapping generations. Individuals are socialized during childhood through parental influence (vertical transmission) and non-parental factors (horizontal transmission). We explore key mechanisms for vertical transmission (cultural substitution and complementarity) and horizontal transmission (cultural conformity and distinction). To test and inform the model, we adapt Chetty and Hendren's (2018) mover-design framework, exploiting variations in student transitions between colleges to assess the causal impact of exposure to tobacco-free campuses on smoking behavior. Empirical results are used to calibrate and estimate the model, providing insights into health policy effects on adolescent and young adult behaviors.
The Add Health Epigenomic Resource: A Longitudinal Cohort for Advancing Research on Cognitive Function and Alzheimer’s Disease Risk	Allison Aiello	Neurodegenerative diseases, including Alzheimer’s disease and related dementias (AD/ADRD), pose a substantial and growing public health burden. Identifying molecular processes that precede clinical symptoms is essential for improving early detection and intervention. DNA methylation (DNAm) is a promising biomarker of these early processes, reflecting biological aging, inflammation, immune dysregulation, and cognitive function across the life course. Although DNAm-based aging measures, inflammatory and immune-aging profiles, and emerging DNAm predictors of cognition show potential for detecting AD/ADRD risk well before onset, these biomarkers have rarely been examined longitudinally in large, diverse midlife populations. This project will generate DNAm data for Wave VI of the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative U.S. cohort followed from adolescence into midlife. By harmonizing new Wave VI DNAm assays (ages ~45) with existing Wave V data (ages ~38), we will create a unique longitudinal epigenetic resource. We will derive DNAm-based measures of biological aging, inflammation, immune aging, and cognitive function, including a novel DNAm-based predictor of midlife cognition. We will also test cross-sectional and longitudinal associations between these biomarkers and cognitive performance from the Add CAPS battery.
Local Labor Market Shocks and Long-Run Health: Evidence from the Great Recession and the National Longitudinal Study of Adolescent to Adult Health	David Cutler Ralph Lawton	This contextual ancillary study proposes merging county-level economic indicators from the Great Recession period onto Add Health respondent records to examine the long-run health consequences of local labor market shocks. Using publicly available data from the Bureau of Labor Statistics Local Area Unemployment Statistics (LAUS) and Quarterly Census of Employment and Wages (QCEW), I will construct measures of local economic conditions — including unemployment rates, employment levels, and wage data — aggregated to the commuting zone level using a county-to-commuting zone crosswalk. These underlying data yield two data series that will be merged into each AddHealth wave at the commuting zone level (linked to counties via a FIPS crosswalk). 1) a series of recession-specific indicators reflecting critical years around the Great Recession and de-trended “recession shock” variables, and 2) at the suggestion of the AddHealth data team, contemporaneous versions of the same labor market indicators will be merged into AddHealth waves I-VI. Add Health is uniquely suited for this analysis. The cohort's age during Wave IV (approximately 24–32) places respondents at a critical early-career period of exposure to the recession's effects. Many of Add Health's most informative health measures — including its biomarker battery — are available only in the post-recession waves, providing objective health data on a younger adult population at exactly the window of greatest interest.
Integrating Hormonal Biomarkers to Understand Life Course Drivers of Aging-Related Risk in Women	Brianna McCoy Alison Gemmill Lauren Gaydosh	This ancillary study will generate the first nationally representative benchmarks of reproductive aging in US women, capturing both levels and changes over time—two complementary dimensions essential for characterizing aging and its health consequences. ¹⁹ By linking these biomarkers with Add Health’s rich longitudinal data, we will lay the groundwork for an NIA R01 proposal that investigates how biological and social factors measured across the life course shape reproductive aging and associated chronic disease risk. This work will also support groundbreaking research that integrates hormone profiles with molecular and clinical data to develop scalable, multi-omic models of aging in women.