ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #090

1. Title (length 26):
Lp[a] & Atherosclerosis
Full title: Lp[a] as a correlate of prevalent atherosclerosis and of atherosclerotic changes between Visit 1 and Visit 2.

2. Writing group:
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3. Timeline:
Ongoing analyses (1 year) as part of a doctoral dissertation research project, under the direction of Gerardo Heiss. Due to academic time constraints, only Year 1 of Visit 2 (and consequently, Year 1 of Visit 1) will be included in the incident atherosclerosis analyses.

4. Rationale:
Traditional cardiovascular risk factors have proven insufficient to explain the development of atherosclerosis that begins in young adulthood and becomes symptomatic at middle-age or older. Many of these risk factors increase with age or lifestyles and affect the progression of disease. A risk factor that may contribute to our understanding of cardiovascular disease is lipoprotein Lp[a], which remains constant in adults regardless of age, diet, exercise, and lifestyle. Lp[a] has previously been associated with incidence of myocardial infarction, vein graft restenosis, coronary artery disease and cerebrovascular disease, as well as having been isolated from existing plaque. Family history of MI is also associated with elevated Lp[a] levels in asymptomatic individuals.

The ARIC Study allows the association of Lp[a] with prevalent preclinical atherosclerosis and with incident, progressive carotid wall thickness changes over a 3-year period to be examined. In addition, race and gender effects can be investigated for a risk factor previously studied primarily in white males.

5. Main Hypothesis:
1) Lp[a] levels are positively correlated with carotid atherosclerosis, measured as wall thickness by B-mode ultrasound.
2) We expect wall thickness changes in the 3-year interval between Visit 1 and Visit 2 to be positively associated with the magnitude of Lp[a] (measured as apolipoprotein[a]).

6. Data
Visit 1 (extant) data set plus Visit 2 data as they are collected up to the end of Year 1 (for hypothesis #2). Data analysis is to be performed by the lead author. Independent variables: lipoproteins and apolipoproteins, home interview data, hemostatic factors, medical history, antihypercholesterolemic medication, diabetes, waist-to-hip ratio, blood pressure, smoking status, alcohol consumption, physical activity, gender, race, and

center. Dependent variables: average and maximum far wall thickness at the common and internal carotid artery and its bifurcation.