Manuscript #183

1. Title:
Plasma CETP: Relationship to postprandial lipemia, HDL and carotid atherosclerosis

2. Writing Group:

3. Timeline:
The University of Innsbruck has a new, more sensitive assay for CETP and can provide analyses at the present time without charge to ARIC, completing the work within 2 months. A randomly selected 150 carotid atherosclerosis cases and 150 controls are needed to detect a 10% case-control difference in mean plasma CETP mass (90% power and 5% significance level). Known differences between blacks and whites in plasma lipoprotein levels that may be related to differences in CETP mass suggest that the current analysis be restricted to white subjects. Positive results would make the study worth repeating in adequate numbers of black subjects. As soon as subjects are identified, samples will be shipped or carried (by myself or one of my associates) to the University of Innsbruck for analyses which should be completed within 2 months. The costs of analyses are funded through local sources at the University of Innsbruck. Analyses will require use of 1 plasma aliquot stored at the Lipid Lab (of visit 2, i.e. from the PPL study), but the remainder of once-thawed aliquots will be returned to ARIC.

4. Rationale:
CETP (cholesteryl ester transfer protein) circulates in the blood in association with HDL₃ and very high density lipoproteins. It has a molecular weight of 74 kD and its primary structure has been deduced from its cDNA sequence. One of the functions of CETP is to transport neutral lipids among the cores of plasma lipoproteins. Since CETP transports both cholesteryl ester and triglycerides, the cores of lipoproteins approach equilibrium as a result of CETP action.

Current concepts suggest that the CETP-mediated transfer of cholesteryl ester from HDL to apoB-containing lipoproteins may be atherogenic. Animal species such as the pig, rat, and mouse, which are resistant to atherosclerosis, have little, if any CETP activity in their circulation. In contrast, animal species such as monkeys and rabbits, susceptible to dietary