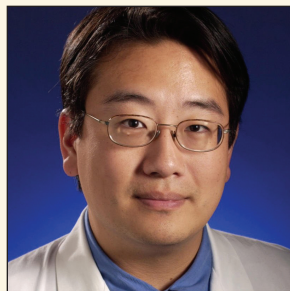# Society of Geriatric Cardiology-ASP-American Heart Association Career Development Award in Geriatric Cardiology

AWARD RECIPIENT

David M. Seo, MD

Duke University School of Medicine

PROJECT

"Identifying Novel Blood Biomarkers for Coronary Heart Disease in the Elderly"

MENTORSHIP TEAM

Harvey J. Cohen, MD	Neil Freedman, MD
Pascal Goldschmidt, MD	William Kraus, MD

Coronary heart disease (CHD) is the leading cause of death and disability in the elderly. While the prevalence of significant anatomic CHD is high in older Americans, in clinical practice, the fraction of elderly patients with an active diagnosis of CHD is quite low. Factors such as inactivity and atypical symptoms may contribute to this discrepancy between high disease prevalence and low rates of CHD diagnoses. One consequence of this discrepancy is that health providers are less likely to strongly pursue prevention strategies in a group of patients who may derive the most benefit. Studies have shown that antihypertensives, statins, and aspirin are underutilized in elderly patients and consequently contribute to the substantially higher mortality and complication rates from heart attacks. However, treating all people over the age of 70 for presumptive CHD or mass screening of this population with currently available tests would be costly and expose a substantial number of individuals to unnecessary risk. An alternate screening strategy would be to develop a blood test to identify elderly patients at high risk for significant CHD.

Our preliminary data reveal that gene expression profiles of blood may serve as new biomarkers for accurately predicting the presence of CHD in patients less than 65 years of age. Based on these findings, we propose to study the utility of blood gene expression profiling as a potential tool for diagnosing CHD in patients over the age of 70. The specific objectives of the study are to:

1. Identify gene expression patterns from the blood of elderly patients that can accurately predict the presence of significant CHD.

2. Compare gene expression patterns in the blood of younger and elderly patients with CHD to evaluate for age-related and age-independent biomarkers of CHD.

The Society of Geriatric Cardiology-ASP-American Heart Association Career Development Award will allow me to pursue independent research and support my long-term goal of developing better methods of diagnosing and treating cardiovascular disease in the elderly. With the accelerated aging of the American population, the health burden of cardiovascular disease will reach epidemic proportions. It is my sincere belief that genomic technologies will spur the development of new diagnostic and therapeutic modalities that are safer, more efficacious, and more cost-effective because they are individually tailored to each patient.