

## MDHC RESEARCH

Dr. J. F. Granada and his associates' abstract (published below) was selected for early publication by the editors of the Journal of the American College of Cardiology. The abstract was presented at the recent American College of Cardiology's annual meeting in Atlanta, Georgia.



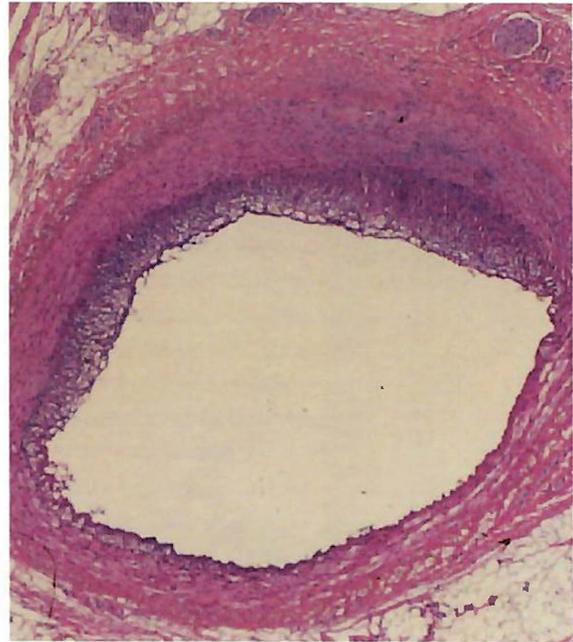
Dr. Granada graduated from the Baylor College of Medicine cardiology training program a year ago with an interest in translational investigative medicine in the field of coronary atherosclerosis. Working under the auspices of the Methodist DeBakey Heart Center, he and his colleagues developed a unique, experimental model for producing coronary atherosclerosis with the hope that it will enable them to better study vulnerable plaque, the culprit lesion responsible for most heart attacks.

#### INTRAVASCULAR ULTRASOUND-VIRTUAL HISTOLOGY DETECTS VASCULAR STRUCTURAL CHANGES OBSERVED IN ATHEROSCLEROSIS PROGRESSION AND REGRESSION IN HYPERCHOLESTEROLEMIC RABBITS: CLINICAL IMPLICATIONS FOR LONGITUDINAL EVALUATION OF ATHEROSCLEROSIS.

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**Background:** Virtual Histology (VH), the spectral analysis of the radio-frequency signals backscattered from the atherosclerotic plaque during Intravascular Ultrasound (IVUS) imaging is hoped to provide detailed analysis of the plaque composition in vivo. However, its ability and accuracy to monitor the landmark vascular features of progression and regression of atherosclerosis has not been evaluated.

**Methods:** 20 rabbits were fed a high cholesterol



diet for 4 months, then the rabbits were randomized into 2 groups; a progression group (PG, 10 rabbits, 1% cholesterol feed) and a regression group (RG, 10 rabbits, normal feed). In both groups, all animals were sacrificed at 4 (n=3+3), 6 (n=3+3) and 8 months (n=4+4). IVUS imaging with VH reconstruction was performed ex-vivo in the proximal 4.6 centimeters of each aorta using a 20MHz Volcano Eagle Eye™ IVUS catheter (Volcano Therapeutics Inc.). Tissue was harvested for histological evaluation and correlation with IVUS findings.

**Results:** A total of 920 aortic IVUS frames were analyzed in the PG and 644 aortic frames in the RG. At 8 months of follow up the mean lumen area (PG=  $7.6 \pm 0.69 \text{ mm}^2$  versus RG=  $5.6 \pm 1 \text{ mm}^2$ ,  $p < 0.001$ ), mean EEL area (PG=  $16.4 \pm 1.35 \text{ mm}^2$  versus RG=  $13.7 \pm 2.36 \text{ mm}^2$ ,  $p < 0.001$ ) and mean plaque area (PG=  $8.8 \pm 1.19 \text{ mm}^2$  versus RG=  $8.1 \pm 1.59 \text{ mm}^2$ ,  $p < 0.05$ ) were significantly larger in the PG compared to the RG. VH analysis showed that the plaques formed in the PG contained more fibro-fatty tissue (PG=45% versus RG=31%,  $p < 0.001$ ) and less dense calcium (PG=29% versus RG=42%,  $p < 0.001$ ), when compared to the RG. The percentage of fibro-fatty tissue increased over time in the PG (4 months= 25% versus 8 months= 45.5%,  $p < 0.001$ ) and decreased in the RG (4 months= 43.7% versus 8 months= 32%,  $p < 0.001$ ). Conversely, the percentage of dense calcium

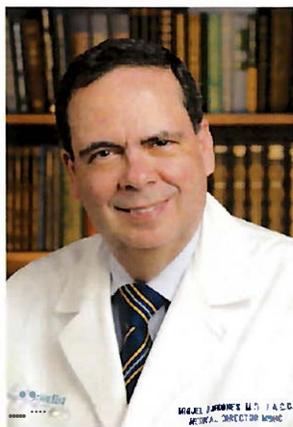
## ACHIEVEMENTS AND NEW POSITIONS

increased in the AG (4 months= 29.6% versus 8 months= 39.3%,  $p<0.001$ ) compared to the FG (4 months= 45% versus 8 months= 29%,  $p<0.001$ ). Histological verification demonstrated agreement with VH in the proportion of fibro-fatty tissue but not of the presence of dense calcification.

Conclusions: IVUS-VH accurately detected the proportion of the fibre-fatty component of atherosclerotic plaques at different time points of development in the rabbit model. However, it also overestimated the presence of dense calcium in these lesions. These findings need to be evaluated in more detail in a longitudinal in vivo study.

### METHODIST CARDIOLOGIST NAMED VICE PRESIDENT OF INTER-AMERICAN SOCIETY OF CARDIOLOGY

Dr. Miguel Quinones, chairman of the department of cardiology at The Methodist Hospital in Houston and medical director of the Methodist DeBakey Heart Center, has been appointed vice president of the Inter-American Society of Cardiology.



He will represent the American Heart Association and the American College of Cardiology in this new role to promote dialogue among cardiologists, cardiovascular surgeons and scientists and to maintain cooperation and promote the interchange of information with the international, regional and national societies of cardiology in the Americas.

"The exchange of ideas and collaboration among researchers is what drives discovery in medicine today, just as it did over 60 years ago when this great Society was inaugurated," said Dr. Quinones. "In my new role with the Inter-American Society of Cardiology, I will gladly help further this important

mission, for the benefit of our patients here, and across the Americas."

The Inter-American Society of Cardiology was established in 1944 in Mexico City, when its founder, Dr. Ignacio Chavez invited distinguished cardiologists from North, Central and South America and the Caribbean to the inaugural ceremony. At the time, World War I prevented the attendance of European cardiologists.

### HEART CENTER RECEIVES AMERICAN HEART ASSOCIATION ACHIEVEMENT AWARD

The Methodist DeBakey Heart Center received a performance achievement award from the American Heart Association (AHA) for excellence in treating coronary artery disease. Methodist is the only hospital in Houston to receive this honor.

"Adherence to simple preventative guidelines established by the American Heart Association can save a significant number of lives per year," said Christie Ballantyne, M.D., director of the Center for Cardiovascular Disease Prevention at the Methodist DeBakey Heart Center. "The Methodist DeBakey Heart Center is well above the national average in implementing the life-saving treatments outlined by the AHA. We hope to be a model that others will follow."

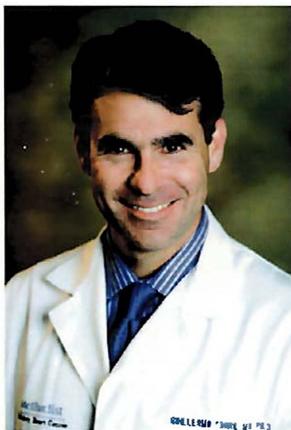
Under the American Heart Association's Get with the Guidelines - Coronary Artery Disease (GWTG-CAD) program, patients are started on aggressive risk reduction therapies such as cholesterol-lowering drugs, aspirin, ACE inhibitors and beta-blockers, and receive smoking cessation and weight management counseling and referrals for cardiac rehabilitation before they are discharged from the hospital.

Hospitals that receive the award have demonstrated that during 12 consecutive months at least 85 percent of eligible coronary patients are discharged following the American Heart Association's recommended treatments.

## ACHIEVEMENTS AND NEW POSITIONS

### NEW HEART FAILURE WORKING GROUP PULLS EXPERTISE FROM ACROSS GLOBE

Methodist DeBakey Heart Center cardiologist Guillermo Torre-Amione and cardiologist Gadi Cotter, from the Duke Clinical Research Institute in Durham, N.C., have pulled together more than 30 international heart failure experts to try to solve this serious cardiac problem.



"Our purpose is to be a 'working' group to encourage intellectual and interactive collaboration and to continually improve upon the planning and performance of clinical trials," Torre said. "Heart failure affects 4.8 million people in the U.S. alone, with 400,000 new cases reported annually. We want to get the best minds together to solve this problem, reduce the burden of this illness, and provide better treatments for patients with heart failure."

The Heart Failure Working Group (HFWG) from the U.S., Europe, Africa and South America will work to develop new therapies for heart failure; support new research with an established group of investigators; and establish a research consortium to help standardize and facilitate new research.

After several meetings in 2005, the need to collaborate and align top expertise across the world became very apparent, Torre said. The HFWG met in Helsinki, Finland, in June 2006 to discuss new ideas for European/US collaboration and potential pilot projects in the areas of myocardial contrast echocardiography for acute heart failure and dyssynchrony in diastolic heart failure, among others.

"By pulling together the top minds in an intimate and long-term working group, we hope to speed discovery of new approaches, new treatments and new cures for heart failure," Torre said.

### DR. WILLIAM ZOGHBI ELECTED VICE PRESIDENT OF THE AMERICAN SOCIETY OF ECHOCARDIOGRAPHY

William Zoghbi, M.D., director of the Cardiovascular Imaging Center at the Methodist DeBakey Heart Center and William Winters Chair in Cardiovascular Imaging at Methodist, was elected vice president of the American Society of Echocardiography (ASE) at the society's annual sessions in June.



In 2007, Dr. Zoghbi will be named president-elect, and he will be inducted as ASE president in 2008. The ASE is the largest sub-specialty society in cardiology, with more than 10,000 national and international members. Dr. Zoghbi currently also serves as treasurer of the American College of Cardiology.