

## Resident and Fellow Research

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**Description:** This web site provides a more comprehensive look at the diverse and exciting research being conducted in the dynamic environment of MetroHealth's Rammelkamp Center. MetroHealth's Department of Medicine Residents and Fellows are encouraged to participate in research activities. The flexibility of our training program provides ample opportunities for close interaction with faculty mentors who are leaders in their respective fields.

### Resident and Fellow Research Highlights:

#### Abstract and Symposia Presentations, Research Projects

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| S. Ganesan | Insulin induced collagen synthesis by hepatic stellate cells is independent of PI3 kinase pathway and is likely to be mediated by $\alpha 5\beta 1$ integrin signaling   |
| D. Jeyaraj | Segmental versus transmural remodeling as electrophysiological basis for T-wave memory   |
| W. Mills   | Transplantation of genetically-modified skeletal myoblasts as treatment for myocardial infarction is associated with improved cardiac function and inducible ventricular tachycardia                                     |
| K. Soudan  | Determinants of metabolic acidosis among hemodialysis patients   |
| M. Hassan  | Prevalence of T-wave alternans in the long QT syndrome<br>Population: a study involving 25 long QT syndrome families.<br>Presented at the Heart Rhythm Society Meeting, New Orleans, 2005                                |
| R. Raina   | Clinical utility of NMP22 assay in the initial diagnosis of patients with unresolved hematuria or other risk factors for urinary tract cancer. Does it reduce the number of urological referral at primary care setting? |
| A. Lenhard | Ongoing surveys and the creation of a procedure team to determine if increasing the focus on procedures increases the residents' perceived comfort and knowledge about invasive bedside procedures.                      |
| N. Shah    | Afternoon colonoscopies have higher failure rates compared to morning colonoscopies  |

- N. Nader Newly identified obstructive sleep apnea in hospitalized patients: Is there a role for autoadjusting CPAP?
- J. Edmison Non-alcoholic fatty liver disease (NAFLD) is a spectrum of disease ranging from fatty liver to non-alcoholic steatohepatitis (NASH). The pathogenesis for the progression of normal liver to hepatic steatosis to NASH is unknown, although insulin resistance and unopposed oxidative stress has been implicated. The purpose of our pilot study is to investigate for alterations in methionine metabolism in patients with hepatic steatosis and NASH, which may affect the antioxidant status in hepatocytes.
- Z. Shaman Intensivists work stress and workload at four academic centers
- R. Sandhu Regional intracardiac alternans underlies T wave alternans in humans
- S. Ganesan Hyperinsulinemia and not hyperglycemia upregulates collagen synthesis in hepatic stellate cells
- B. Abu Jawdeh The role of NHE 1 (sodium hydrogen exchanger 1) in renal tubular cell survival: mechanism and interaction with other intracellular proteins (ERM).
- M. Hassan Predicting effective versus ineffective chronic anticoagulation therapy
- M. Hassan Effect of exercise on B-type natriuretic peptide levels in patients with congestive heart failure: Implication for its use in ambulatory settings. Presented at the American College of Cardiology Meetings in Orlando, 2005
- D. Jeyaraj Reversal of transmural ionic gradient as a novel mechanism of cardiac electrical remodeling
- T. Mohyuddin Contribution of tissue Doppler imaging and myocardial performance index to the assessment of left ventricular function in Duchenne Muscular Dystrophy patients
- M. Buhari Correlation between immunosuppressive medical conditions and extrapulmonary tuberculosis
- M. Moallem Self-reported sleep problems in a community hospital patient population- asthma clinic versus primary care
- A. Pande Evaluation of the effect of pulmonary rehabilitation on non-COPD female patients

D. Kaelber                      Training experiences of combined internal medicine and pediatric residents

**Mills WR**, Mal N, Forudi F, Zhang M, Deglukar I, Penn MS, Laurita KR. Does transplantation of skeletal myoblasts genetically modified to overexpress stromal-derived factor 1 restore normal conduction in chronic ischemic heart disease? Heart Rhythm May Supplement 2005: S141. Presented at the Heart Rhythm Society, New Orleans, LA, May, 2005.

Deglurkar I, **Mills WR**, Popovic Z, Kiedrowski M, McCarthy P, Laurita KR, Penn MS. Cell Based Gene Therapy to Reestablish Stem Cell Homing Improves Cardiac Function In Ischemic Cardiomyopathy. Presented at the American Association for Thoracic Surgery, San Francisco, CA, April, 2005.

**Mills WR**, Einstadter D, Finkelhor RS. Calcium-Phosphorus product is associated with severity of aortic stenosis in patients with normal renal function. Journal of the American College of Cardiology 2004; 43(suppl. A):434A. Presented at the American College of Cardiology, New Orleans, LA, March, 2004, and the Ohio Chapter of the American College of Cardiology, Cleveland, OH, October 2004.

**Mills WR**, Barber JE, Ratliff NB, Cosgrove DM, Vesely I, Griffin BP. Altered mechanics as a mechanism for flail mitral valve. Circulation 2002; 106:Suppl II:II-527. Presented at the American Heart Association, Chicago, IL, November, 2002. 5. Grande-Allen KJ, Griffin BP, **Mills WR**, Ratliff NB, Cosgrove DM III, Vesely I. Elevated glycosaminoglycan content of myxomatous mitral valves is more severe in unileaflet prolapse than in bileaflet prolapse. Presented at the Proceedings of the First Biennial Meeting of the Society of Heart Valve Disease, London, June 2001.

Grande-Allen KJ, Griffin BP, **Mills WR**, Ratliff NB, Cosgrove DM III, Vesely I. Elevated glycosaminoglycan content of myxomatous mitral valves is more severe in unileaflet prolapse than in bileaflet prolapse. Journal of the American College of Cardiology 2001, 37(2 suppl. A):487A. Presented at the American College of Cardiology, Orlando, FL, March, 2001. 7. Skiles, JA, **Mills WR**, Griffin BP. Qualitative Assessment of Myxomatous Mitral Valve Prolapse. Journal of the American Society of Echocardiography, 2000 (supplement). Presented at the American Society of Echocardiography, 2000.

**Mills WR**, Skiles JA, Barber JE, Ratliff NB, Kasper FK, Cosgrove DM, Griffin BP. Echocardiographic and Mechanical Assessment of Myxomatous Mitral Valves. Presented at Case Western Reserve University Student Research Day, Cleveland, OH, May, 2000.

**Mills WR**, Skiles J, Barber JE, Ratliff NB, Kasper FK, Cosgrove DM, Griffin BP. Is bileaflet prolapse a more severe form of myxomatous disease than unileaflet prolapse?

An echo and biomechanical study. *Circulation* 1999; 100:Suppl I:I-653. Presented at the American Heart Association, Atlanta, GA, November, 1999.

### **Publications**

Michael T. Johnstone, MD; Alexandra S. Perez, BS; Imad Nasser, MD; Robert Stewart, MD; Anand Vaidya, BS; **Fawaz Al Ammary, MD**; Ben Schmidt, AB; Gary Horowitz, MD; Jennifer Dolgoff, BS; James Hamilton, PhD; William C. Quist, MD, PhD. Angiotensin receptor blockade with candesartan attenuates atherosclerosis, plaque disruption, and macrophage accumulation within the plaque in a rabbit model. *Circulation*, 2004; 110: 2060-2065.

**Auron-Gomez M**, Reyes-Rodriguez EA, Aguilar-Salinas CA, Herrera-Hernandez MF, Arellano-Torres ME, Gomez-Perez FJ, Rull-Rodrigo JA. Ileal bypass for the treatment of Heterozygous Familial hypercholesterolemia. XXII National Meeting of Internal Medicine of Mexico and Annual Meeting of the American College of Physicians. November, 1999. PUBLISHED IN: *Med Int Mex.* 1999;15: 2.

Huertas-Vazquez A, del Rincon JP, Canizales-Quinteros S, Riba L, Vega-Hernandez G, Ramirez-Jimenez S, **Auron-Gomez M**, Gomez-Perez FJ, Aguilar-Salinas CA, Tusie-Luna MT. Contribution of chromosome 1q21-q23 to familial combined hyperlipidemia in Mexican families. *Ann Hum Genet.* 2004 Sep;68(Pt 5):419-27.

del Bosque-Plata L, Aguilar-Salinas CA, Tusie-Luna MT, Ramirez-Jimenez S, Rodriguez-Torres M, **Auron-Gomez M**, Ramirez E, Velasco-Perez ML, Ramirez-Silva A, Gomez-Perez F, Hanis CL, Tsuchiya T, Yoshiuchi I, Cox NJ, Bell GI. Association of the calpain-10 gene with type 2 diabetes mellitus in a Mexican population. *Mol Genet Metab.* 2004 Feb;81(2):122-6.

Canizales-Quinteros S, Aguilar-Salinas CA, Reyes-Rodriguez E, Riba L, Rodriguez-Torres M, Ramirez-Jimenez S, Huertas-Vazquez A, Fragoso-Ontiveros V, Zentella-Dehesa A, Ventura-Gallegos JL, Vega-Hernandez G, Lopez-Estrada A, **Auron-Gomez M**, Gomez-Perez F, Rull J, Cox NJ, Bell GI, Tusie-Luna MT. Locus on chromosome 6p linked to elevated HDL cholesterol serum levels and to protection against premature atherosclerosis in a kindred with familial hypercholesterolemia. *Circ Res.* 2003 Mar 21;92(5):569-76. Epub 2003 Feb 27.

Robles-Osorio L, Ordonez ML, Aguilar-Salinas CA, **Auron-Gomez M**, Tusie-Luna MT, Gomez-Perez FJ, Rull-Rodrigo JA. Familial hypercholesterolemia due to ligand-defective apolipoprotein B100: first case report in a Mexican family. *Arch Med Res.* 2003 Jan-Feb;34(1):70-5.

**Mills WR**, Becker JM, Youssefi ME, McFadden ER. Idiopathic Cardiomyopathy in a Patient with Yellow Nail Syndrome. In Review. *Cardiol in Rev.*

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Deglurkar I, **Mills WR**, Popovic Z, Kiedrowski M, McCarthy P, Laurita KR, Penn MS. Cell Based Gene Therapy to Reestablish Stem Cell Homing Improves Cardiac Function In Ischemic Cardiomyopathy. In Review. *J Thorac Cardiovasc Surg*.

**Mills WR**, Einstadter D, Finkelhor RS. Relation of Calcium-Phosphorus product to the severity of aortic stenosis in patients with normal renal function. *Am J Cardiol* 2004;94: 1196-1198.

**Mills WR**, Barber JE, Ratliff NB, Cosgrove DM, Vesely I, Griffin BP. A Biomechanical and Echocardiographic Characterization of Flail Mitral Leaflet due to Myxomatous Disease: Further Evidence for Early Surgical Intervention. *AmHeart J* 2004;148: 144-150.

**Mills WR**, Barber JE, Skiles JA, Ratliff NB, Cosgrove DM, Vesely I, Griffin BP. Clinical, echocardiographic and biomechanical differences in mitral valve prolapse affecting one or both leaflets. *Am J Cardiol* 2002;89: 1394-1399.

Saadi H, Litaker D, **Mills W**, Kippes C, Richmond B, Licata A. Practice variation in the diagnosis and treatment of osteoporosis: a case for more effective physician education in primary care. *Journal of Women's Health & Gender-Based Medicine* 1999;8: 767-771.

### **Book Chapters and Editorials**

“Survival Guide for the USMLE Step 2 CS” by **Vivek Subbiah, MD** and Rishi Sharma, MD. Published 2005, Elsevier-Mosby Publications