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Quillen College of Medicine Scholarly Activity Report

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6-30-2012

## 2011-2012 Department of Internal Medicine Scholarly Activity Report

Quillen College of Medicine, East Tennessee State University

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EAST TENNESSEE STATE UNIVERSITY  
JAMES H. QUILLEN COLLEGE OF MEDICINE

*SUMMARY OF SCHOLARLY ACTIVITIES*

**Department of Internal Medicine**  
**July 2011- June 2012**

**I. PUBLICATIONS**

**A. Journal Publications**

Amin P, Singh M, Singh K., “Beta Adrenergic Receptor stimulated Cardiac Myocyte Apoptosis: Role of Beta-1 integrins” *Journal Of Signal Transduction*. Volume 2011 (2011), Article ID 179057

Amin P, Panchal G, **Parks M**, “A Masquerade: Antifreeze Poisoning”, AMA-RFS Research Symposium: New Orleans, LA (October, 2011)

Al Shathir M, Bhavsar VJ, and **Roy, T**. Atroponin Spike in Diabetic Ketoacidosis. *Journal of Investigative Medicine* 59(2), 381. 2011

Atia,A, Murthy,R, Bailey,BA, Manning,T, Garrett,LL, Youssef,D, **Peiris,AN**: Vitamin D status in veterans with inflammatory bowel disease: relationship to health care costs and services. *Mil Med* 176:711-714, 2011

Bailey BA, Manning T, **Peiris AN**. Vitamin D testing patterns among six Veterans Medical Centers in the southeastern United States: links with medical costs. *Mil Med* 2012;177(1):70-76

Bandyopadhyay D, Induru RR. “Role of Palliative Tracheobrochial Stenting in Hospice Patients: Boon or Bane?” *Am J Hosp Palliat Care*. 2011 Sep;28(6):445-8

Bhavsar VJ, Raval, A., Al Shathir M, **Roy, T.**, and Brahmabhatt, H. Occupational Hemoptysis. *Journal of Investigative Medicine* 59(2), 385. 2011

Brudecki L, Ferguson DA, **Yin D**, McCall CE, and **El Gazzar M**. Hematopoietic stem-progenitor cells restore immunoreactivity and improve survival in late sepsis. *Infect Immun*, 2011

Brudecki L, Ferguson DA, McCall CE, and **El Gazzar M**. Myeloid-derived suppressor cells evolve during sepsis and can enhance or attenuate the systemic inflammatory response. *Infect Immun* 2012; 80:2026-34

Chakraborty Kanishka; Bossaer, John; Patel, Reema; **Krishnan, Koyamangalath**: Successful Treatment of Nilotinib-induced Pleural Effusion with Prednisone; *Journal of Oncology Pharmacy Practice*; in press, 2012

**Chi DS**, Lin TC, Hall K, Ha T, Chuanfu L, Wu Z, Soike T, **Krishnaswamy G**. Enhanced effects of cigarette smoke extract on inflammatory cytokine expression in IL-1beta-activated human mast cells were inhibited by Baicalein via regulation of the NF-kappaB pathway. *Clin Mol Allergy* 2012;10(1):3

**El Gazzar M**, Church, A, Liu, T, and McCall, CE. MiR-146a regulates both transcription silencing and translation disruption during TLR4-induced gene reprogramming. *J Leukoc Biol*, 2011; 90:509-19

**El Gazzar M**, and McCall, CE. MicroRNAs and transcription factor regulatory networks in hematopoietic lineage commitment and differentiation: regulators of the regulators. *Immunol Cell Biol (Review)*, 2011

**Enck RE**. Oxycodone and a useful book. *Am J Hosp Palliat Care* 28:217-218, 2011

**Enck RE**. Intensive care unit palliative medicine: some issues--part I. *Am J Hosp Palliat Care* 28:73-74, 2011

**Enck RE**. Intensive care unit palliative medicine: some issues-part II. *Am J Hosp Palliat Care* 28:145-146, 2011

**Enck RE**. Discharge from hospice: dead or alive? *Am J Hosp Palliat Care* 28:5-6, 2011

**Enck RE**. Respect for home care: A new direction. *Home Health Care Management & Practice* 2012;24(1):3-4

**Enck RE**. Dignity. *Am J Hosp Palliat Med* 2012; 29(1):5-6

**Enck RE**. The OODA loop. *Home Health Care Management & Practice* 2012; 24(3):123-124

**Enck RE**. Respect for Home Care: A new direction. *Home Health Care Management & Practice* 24, 3-4. 2012

**Enck RE**. The OODA Loop. *Home Health Care Management & Practice* 24, 123-124. 2012

Gao, M., Ha., T., Zhang, X., Wang, X, **Kelley, J.**, Singh, K., Kao, R., Gao, X., Kao, R., Gao, X., Williams, D., and Li, C. TLR3 plays a central role in cardiac dysfunction during polymicrobial sepsis. *Critical Care Medicine*, 2012 (in press).

Grant WB, **Peiris AN**. Differences in vitamin D status may account for unexplained disparities in cancer survival rates between African and White Americans. *Dermato-Endocrinology* 4[2], 1-10. 4-2-0012

Halawa, A, **Henry, PD, Sarubbi, FA**: Candida endocarditis associated with cardiac rhythm management devices: review with current treatment guidelines. *Mycoses* 54:e168-e174, 2011

Induru RR, Davis MP,:Buprenorphine for Neuropathic Pain-targeting Hyperalgesia”, *Am J Hosp Palliat Care*. 2009 Dec-2010 Jan:26(6):470-3

Induru RR, Lagman RL, “Managing Cancer Pain: frequently asked questions”, *Clevel Clin J Med*. 2011 Jul;78(7):449-64

Jiang YL, McGoldrick CA, **Yin D**, Zhao J, Patel V, Brannon MF, Lightner JW, Krishnan K, Stone WL\*. A specific molecular beacon probe for the detection of human prostate cancer cells. *Bioorg Med Chem Lett*. 2012 Jun 1;22 (11):3632-3638

Jithpratuck,W, Garrett,LH, **Peiris,AN**: Treating vitamin D insufficiency in primary hyperparathyroidism: a cautionary tale. *Tenn Med* 104:47-49, 2011

Jithpratuck,W, Elshenawy,Y, Saleh,H, Youngberg,G, **Chi,DS, Krishnaswamy,G**: The clinical implications of adult-onset henocho-schonelin purpura. *Clin Mol Allergy* 9:9, 2011

Kaur, Satvinder MD Palliative Dialysis in End-Stage Renal Disease, *American Journal of Hospice and Palliative Medicine*, Vol. 28, Issue 8 December 2011 pp. 539 - 542

Licup,NL, Zaza,AA, **Copeland,RJ, Peiris,AN**: Peri-adrenal hemangioma mimicking a pheochromocytoma on metaiodobenzylguanidine (MIBG) scan. *Tenn Med* 104:39-40, 42, 2011

Liu T, Brown C, **El Gazzar M**, McPhail L, Millet P, Rao A, Vachharajani V, Yoza B, and McCall CE. Fueling the flame: bioenergy couples metabolism and inflammation. *J Leukoc Biol*, 2012 May 9 (in press)

McCall, CE, **El Gazzar, M**, Liu, T, Vaccharajani, V, and Yoza, BK. Epigenetics, microRNAs, and bioenergy shifts coordinate gene-specific reprogramming during acute systemic inflammation. *J Leukoc Biol*, 2011; 90: 439-46

McKinney, J., Raiyani P., Goenka, P., **Young, M. F.**, and Patel, P. Primary Amyloidosis: A Rare Cause of Cholestatic Liver Disease. 8-14-2011

Menter DG, Ramsauer VP, Harirforoosh S, Chakraborty K, Yang P, Shi L, Newman R, **Krishnan, K**. Differential effects of pravastatin and simvastatin on

the growth of tumor cells from different organ sites. PLoS One 2011;6 (12):e28813

Patel, P., Raiyani P., Brahmabhatt, H., Atia, A., Patton, R., and **Young, M. F.** Clostridium Perfringens Bacteremia Caused by Choledocholithiasis. 8-14-2011.

**Peiris,AN**, Bailey,BA, **Guha,BN**, **Copeland,R**, Manning,T: Can a model predictive of vitamin d status be developed from common laboratory tests and demographic parameters? South Med J 104:636-639, 2011

**Peiris,AN**, Bailey,B: Reply to the letter to the editor by faulhaber, schulz, and furlanetto. *J Am Med Dir Assoc* 12:e2-e3, 2011

**Peiris,AN**, **Youssef,D**: The computerized patient and the art of bedside diagnosis. *South Med J* 104:623, 2011

**Peiris,AN**, **Youssef,D**: The traditional medical history: a casualty of the checklist? *South Med J* 104:717, 2011

**Peiris AN**, Atia A. On Being a Doctor: Rounding Up the Usual Suspects. *Tennessee Medicine* , 39-40. 4-1-2012

**Peiris AN**, Youssef D, **Copeland R**. Revitalizing Internal Medicine Residents: The Long and Winding Road Ahead. *Internal Medicine: Open Access* 2[1]. 2012

Raiyani P., Patel, P., Brahmabhatt, H., **Khanna, A.**, McKinney, J., and **Young, M. F.** A Hit or an easy Miss: Cholangiocarcinoma Presenting as a Liver Abscess. 8-14-2011

Raiyani P., Patel, H, Brahmabhatt, H., **Khanna, A.**, and **Young, M. F.** Colon Adenocarcinoma Presenting a Psoas Abscess. 8-14-2011

Shin-Kang S, Ramsauer VP, Lightner J, Chakraborty K, Stone W, Campbell S, Reddy SA, **Krishnan K**, Tocotrienols inhibit AKT and ERK activation and suppress pancreatic cancer cell proliferation by suppressing the ErbB2 pathway.

Shoemaker LK, Estfan B, Induru R, Walsh TD, “Symptom Mangement: An Important Part of Cancer Care”, *Cleveland Clinic Journal of Medicine*. 2011 Jan; 78(1):25-34

Song,E, **Jaishankar,GB**, Saleh,H, Jithpratuck,W, Sahni,R, **Krishnaswamy,G**: Chronic granulomatous disease: a review of the infectious and inflammatory complications. *Clin Mol Allergy* 9:10, 2011

Thomas C., Wood R, Wyatt, J, Pendleton J, Rodriguez O, Torrenegra R, Harirforoosh S, Ballester M, Lightner J, **Krishnan K**, Ramsauer V., “Anti-neoplastic activity of two flavone isomers derived from *Gnaphalium elegans* and *Achyrocline bogotensis*” *PLoS One*. 2012;7(6):e39806. Epub 2012 Jun 29

Trivedi DD. Palliative dialysis in end-stage renal disease. *Am J Hosp Palliat Care* 2011;28(8):539-542

Vikas, P., Al Shathir M, Chakraborty, K., Rogers, M., Hamati, A., and Al-Abbadi, M. A. A Rare Lung Cancer-With Good Outcome. *Journal of Investigative Medicine* 59(2), 432. 2011

Walsh D, Aktas A, Hullihen B, Induru RR, “What is Palliative Medicine? Motivations and Skills”, *Am J Hosp Palliative Care*, 2011 Feb; 28(1):52-8

Watkins CE, Litchfield J, Song E, Jaishankar G, Misra N, Holla N, Duffourc M, **Krishnaswamy G**. Chronic granulomatous disease, the McLeod phenotype and the contiguous gene deletion syndrome-a review. *Clin Mol Allergy* 2011;9:13

Watkins C, Saleh H, Song E et al. Concomitant Gene Mutations of MBL and CYBB in Chronic Granulomatous Disease: Implications for Host Defense. *Inflamm Allergy Drug Targets* 2012

Watkins C, Sahni R, Holla N, Litchfield J, Youngberg G, Krishnaswamy G. Malignancy in Common Variable Immune Deficiency: Report of Two Rare Cases of Gastrointestinal Malignancy and a Review of the Literature. *Cardiovasc Hematol Disord Drug Targets* 2012

Youssef D, Bailey B, Atia A, El-Abbassi A, Manning T, **Peiris AN**. Differences in outcomes between cholecalciferol and ergocalciferol supplementation in veterans with inflammatory bowel disease. *Geriatr Gerontol Int* 2012

Youssef D, Bailey B, El-Abbassi A et al. Healthcare costs of methicillin resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa* infections in veterans: role of vitamin D deficiency. *Eur J Clin Microbiol Infect Dis* 2012;31(3):281-286

Zhang, Y, Ma, CJ, Wang, JM, Ji, XJ, Wu, XY, **Moorman, JP, Yao, ZQ**: Tim-3 regulates pro- and anti-inflammatory cytokine expression in human CD14+ monocytes. *J Leukoc Biol* 2011

Zhu, Y, Li, T, Song, J, Liu, C, Hu, Y, Que, L, Ha, T, Kelley, J, Chen, Q, Li, C, Li, Y: The TIR/BB-loop mimetic AS-1 prevents cardiac hypertrophy by inhibiting IL-1R-mediated MyD88-dependent signaling. *Basic Res Cardiol* 106:787-799, 2011

## **B. Books or Chapters**

Shin-Kang, S, Ramsauer, V, Lightner J, Chakraborty, K., Stone, W., Campbell, S., Reddy, T. S., and **Krishnan, K**. Tocotrienols inhibit AKT and ERK activation and suppress pancreatic cancer cell proliferation by suppressing the ErbB2 pathway. 6-8-2011

**Krishnan K**, Campbell SE, Stone WL. The role of vitamin E in prostate cancer. Chapter 16. In: D.R. Spitz et. al (eds). Oxidative Stress in Cancer Biology and Therapy, Oxidative Stress in Applied Basic Research and Clinical Practice. Springer Science + Business Media, LLC, 2012  
Editors: Kenneth Dornfield, David Gius, Koyamangalath Krishnan, Douglas R. Spitz, November 2011

Stone WL, Ramsauer VP, Campbell SE, **Krishnan K**. A targeted prostate cancer chemoprevention trial with tocotrienols. In: Tocotrienols: Vitamin E Beyond Tocopherols [Hardcover] Barrie Tan (Editor), Ronald Ross Watson (Editor), Victor R. Preedy (Editor), second edition, 2011

### C. Proceedings

None Reported

## II. PAPERS, ABSTRACTS AND/OR PRESENTATIONS

Alazzeh, Ahmad, Gangadharan, Venkat , Forrest, Terry, Spannuth, Clarence Jr. "Not Quite an Acute ST-Segment Elevation MI" Poster, American College of Physicians, regional meeting, Nashville, TN, October 2011

Amin P, Panchal G, Haddadin T, Guha B. "It's here It's there It's Everywhere", Appalachian Student Research Forum-2012; Johnson City, TN April, 2012

Amin P, Meschlab W, Sharma R, Downs C, "Every Cardiac Ischemis is not Atherosclerosis", Southern Regional Meeting, February 2012, New Orleans, LA

**Enck, RE**, M.D. "Update on the authors' submission toolkit" – Council of Science Edition Annual Meeting, Baltimore, MD, May 2011

**Enck, RE, M.D.** "Debate in cancer screening: For or against" – TN ACP Scientific Meeting, Nashville, TN, October 15, 2011

Ilyas S, Vikas P, **Krishnan K**, King JC, Parveen T. "Unusual Cytoplasmic Crystalline Inclusions in a Patient With Acute Myeloid Leukemia With Myelodysplasia-Related Changes: A Rare Finding ". Poster, College of American Pathologists, Grapevine, Texas, September 11-14, 2011. Abstract in *Archives of Pathology & Laboratory Medicine*, September 2011.  
Litchfield, John MD will be presenting "Glatiramer Acetate-Induced Panniculitis and Skin Necrosis" has been accepted for a Poster Session at ACAAI's 2011 Annual Meeting, November 3-8, in Boston, MA

Joshi H, Amin P, **Haddadin T.**, “Electrocardiogram says Yes, Echocardiography says No: Yamaguchi Disease”, Appalachian Student Research Forum-2012; Johnson City, TN, April, 2012

Li Hui, Zhao Jing, Feng Yimin, Caudle Yi, and **Yin Deling.** “Toll-like receptor 9 mediated Akt/GSK3beta pathway is required for stress-induced immune suppression” Oral Presentation in the 99<sup>th</sup> Annual Meeting of The American Association of Immunologists (AAI) May 4-8, 2012, Boston, MA

Litchfield, John MD will be “6 Cases of Rare Neurologic Complications of Humoral Deficiency” ACAAI’s 2011 Annual Meeting, November 3-8, Boston, MA

Litchfield, John MD “Rare Gastrointestinal Neoplasia Complicating CVID: Implications for Surveillance.” ACAAI’s 2011 Annual Meeting, November 3-8, Boston, MA

Litchfield, John MD “Blatiramer Acetate-Induced Panniculitis and Skin Necrosis” ACAAI’s 2011 Annual Meeting, November 3-8, Boston, MA

Panchal G., Amin P, **Guha B.**, “Hit or Hitt” Southern Regional Meeting, February 2012, New Orleans, LA

Panchal G, Amin P, Guha B, Smith JK, “An Interesting Case of Sterno-clavicular Joint Septic Arthritis” Appalachian Student Research Forum-2012; Johnson City, TN April, 2012

Panchal G, Amin P, **Guha B.** “An Intriguing Case of Paraparesis: Epidural Lymphoma” AMA-RFS Research Symposium: New Orleans, LA (October, 2011)

**Panchal HB,** Patel P, Raiyani T, Brahmbhatt HK, Ramu V. Unilateral absence of pulmonary artery: A case report with review of literature. Poster presentation, Tennessee Chapter Scientific Meeting, American College of Physician, Nashville, TN, October 2011

**Panchal HB,** Patel P, Desai P, Desai S, Brahmbhatt HK, Patel R. Poorly controlled diabetes mellitus despite medical management in the United States: Do we really control diabetes? Poster presentation, 9<sup>th</sup> Annual American Medical Association Resident and Fellow Section Research Symposium, New Orleans, LA, November 2011

**Panchal HB,** Desai S, Shah T, Patel R, Ramu V. Relationship of vitamin D level with cardiovascular fitness: Does demography matter? Poster presentation, Annual Scientific Session, American Heart Association Quality of Care and Outcomes Research, Atlanta, GA, May 2012



**Panchal HB**, Shah T, Singh M, Khosla S, Ramu V, Arora R. Dual antiplatelet therapy versus triple therapy with anticoagulant following percutaneous coronary intervention in high risk patients requiring long-term anticoagulation: A meta-analysis. Poster presentation, Annual Scientific Session, American Heart Association Quality of Care and Outcomes Research, Atlanta, GA, May 2012

Patel P, Sajnani K, Raiyani T, **Panchal HB**, Summers J. Multicentric hyaline vascular type Castleman's disease: A challenge for early diagnosis. Poster presentation, Tennessee Chapter Scientific Meeting, American College of Physician, Nashville, TN, October 2011

Stone WL, Campbell SE, **Krishnan K**, Ramsauer V. The Design of a Targeted Prostate Cancer Chemoprevention Trial with Tocotrienols". International Tocotrienol Symposium, 103rd Annual Meeting of the American Oil Chemists' Society, Long Beach CA, April 29, 2012

Starr D, Amin P, McKinney J, **Lesage G.**, "A case of Colovesical Fistula secondary to Bladder Carcinoma", AMA-RFS Research Symposium: New Orleans, LA, October, 2011

Suresh, Kalpana, M.D. "When History and Physical Is More Transparent Than Imaging Studies" Southern Regional Meeting, February 2012, New Orleans, LA

## **B. International**

### **III. INVITED PRESENTATIONS**

Internal Medicine Grand Rounds, October 4, 2011, "Making Babies Bluish: Mechanisms of Respiratory Syncytial Virus Pathogenesis" Martin Moore, PhD Assistant Professor, Division of Pediatric Infectious Diseases, Emory University School of Medicine

Internal Medicine Grand Rounds, April 10, 2012, "Elephant-to-human Transmission of Mycobacterium Tuberculosis", Rendree Murphy, PhD, National Public Health Service

Internal Medicine Grand Rounds, May 8, 2012, "Heuristic Errors in Medicine: The Patient with the Red Eye", Richard Reed, M.D.

### **IV. OTHER**

**Dr. K. Krishnan** and **Dr. Devapiran Jaishankar** have been appointed as Editorial Consultants for the Physicians Information and Education Resource (PIER) of the American College of Physicians for the module on Polycythemia Vera.

**Chakraborty Kanishka MD**, NEJM Gold Scholars, “Better health owes it to social networking”, 200th Anniversary Dialogues in Medicine, June 22 2012, Boston, MA

**Olive, Ken, M.D.**, Professor/Associate Dean was appointed to the American College of Physicians Health and Public Policy Committee.

**Krishnan K**, Smith S, Vardhana H, “Chester Porphyria”  
<http://emedicine.medscape.com/article/205314-overview>

Liu D, Bennett DD, Burg G, Chisholm C, **Krishnan K**, Urbanski C, Vinson RP, “Anaplastic Large Cell Lymphoma” <http://emedicine.medscape.com/article/208050-overview>

**Krishnan K, Jaishankar D.**, “Tumor Lysis Syndrome”  
<http://emedicine.medscape.com/article/282171-overview>

**Krishnan K, Jaishankar D.**, “Secondary Thombocytosis”  
<http://emedicine.medscape.com/article/206811-overview>

**Krishnan K, Jaishankar D.**, “Systemic Mastocytosis”  
<http://emedicine.medscape.com/article/203948-overview>

Popular Writing Award Committee of the Solar Physics Division of the American Astronomical Society has chosen the article "Solar Radio Astronomy" in the February 2011 issue of Sky and Telescope (pp 66-71) with co-authors **J. Kelly Smith, M.D.**, David L. Smith & William L. Joyner in the Scientist category.

## V. VISITING PROFESSORS

## VI. EXTRAMUAL FUNDING

### A. Peer Review

None reported

### B. Other Sponsored Activities

| Faculty  | Agent                       | Project Period | Current      | Total Award  |
|----------|-----------------------------|----------------|--------------|--------------|
| Krishnan | Dishner Chair of Excellence | 7/1/11-6/30/12 | -0-          | \$237,500.00 |
| Yin      | Role of Opioids             | 2/1/11-        | \$172,837.00 | 415, 850.00  |

|                     |  |                        |                      |                       |
|---------------------|--|------------------------|----------------------|-----------------------|
|                     | <b>Signal in Imm Supp</b>                        | <b>1/31/14</b>         |                      |                       |
| <b>Stuart</b>       | <b>Mechanisms by which Exercise</b>              | <b>5/1/11-4/30/13</b>  | <b>\$144,884.00</b>  | <b>\$384,000.00</b>   |
| <b>Yin</b>          | <b>Role of Toll-like Receptor 4 Signal</b>       | <b>9/1/11-8/31/14</b>  | <b>\$281,921.00</b>  | <b>\$321,200.00</b>   |
| <b>Elgazzar</b>     | <b>TLR4-dependent reprogramming of</b>           | <b>3/1/12-2/28/15</b>  | <b>\$300,255.00</b>  | <b>\$317,550.00</b>   |
| <b>Yao</b>          | <b>Tim-3 mediated IL-12 dysregulation</b>        | <b>4/10/12-3/31/13</b> | <b>\$317,550</b>     | <b>\$1,400,000.00</b> |
| <b>Sarubbi</b>      | <b>State of TN HIV/AIDS Center of Excellence</b> | <b>4/1/11-3/31/12</b>  | <b>-0-</b>           | <b>\$145,805.00</b>   |
| <b>Mehta</b>        | <b>Physician Services for Tuberculosis</b>       | <b>7/1/11-6/30/12</b>  | <b>\$17,037.00</b>   | <b>\$63,800.00</b>    |
| <b>Moorman</b>      | <b>HIV/AIDS Center of Excellence</b>             | <b>4/1/12-3/31/13</b>  | <b>\$210, 529.00</b> | <b>\$258,000.00</b>   |
| <b>Moorman</b>      | <b>Ryan White Contract 13</b>                    | <b>4/1/12-3/31/13</b>  | <b>\$14,500.00</b>   | <b>\$14,500.00</b>    |
| <b>Moorman</b>      | <b>GSK Study 111679 (TH HIV-008)</b>             | <b>1/29/11-6/30/12</b> | <b>\$12,800.00</b>   | <b>\$12,800.00</b>    |
| <b>Krishnan</b>     | <b>Selenium Vitamin E</b>                        | <b>7/1/04-5/31/13</b>  | <b>\$1,852.00</b>    | <b>\$1,852.00</b>     |
| <b>Kaplon</b>       | <b>Eastern Cooperative Oncology Group</b>        | <b>9/1/97-present</b>  | <b>\$17,800.00</b>   | <b>\$17,800.00</b>    |
| <b>Sarubbi</b>      | <b>Phase II Trial Pneumonia</b>                  | <b>10/1/05-present</b> | <b>\$25,000.00</b>   | <b>\$25,000.00</b>    |
| <b>Krishnaswamy</b> | <b>Selective Immunoglobulin Deficiencies</b>     | <b>6/21/11-6/18/13</b> | <b>\$4,276.00</b>    | <b>\$10,000.00</b>    |
| <b>Krishnaswamy</b> | <b>Malignancies Complicating Huromal</b>         | <b>2/9/11-2/8/13</b>   | <b>\$6,350.00</b>    | <b>\$10,000.00</b>    |
| <b>Krishnaswamy</b> | <b>Neurological Complications Humoral</b>        | <b>2/9/11-2/8/13</b>   | <b>\$6,350.00</b>    | <b>\$10,000.00</b>    |
| <b>Krishnaswamy</b> | <b>Severe Steroid Dependent</b>                  | <b>2/9/11-2/8/13</b>   | <b>\$5,002.00</b>    | <b>\$10,000.00</b>    |
| <b>Krishnaswamy</b> | <b>Type III Hormone – Sen Angieodemas</b>        | <b>2/9/11-2/8/13</b>   | <b>\$10,000.00</b>   | <b>\$10,000.00</b>    |

|   |                                    |               |                       |                    |
|---|------------------------------------|---------------|-----------------------|--------------------|
| <b>Smith, JK</b>                            | <b>Cardiovascular<br/>Research</b> | <b>1/1/96</b> | <b>\$61,500.00</b>    | <b>\$61,500.00</b> |
| <b>Total Funding Received: 1,610,449.00</b> |                                    |               |                       |                    |
| <b>Total from Multi-Year Commitments:</b>   |                                    |               | <b>\$3,727,157.00</b> |                    |