



ACCOMPLISHMENTS FOR 2012 AND GOALS FOR 2013

Department of Research

This report includes following information:

A. Departmental Accomplishments

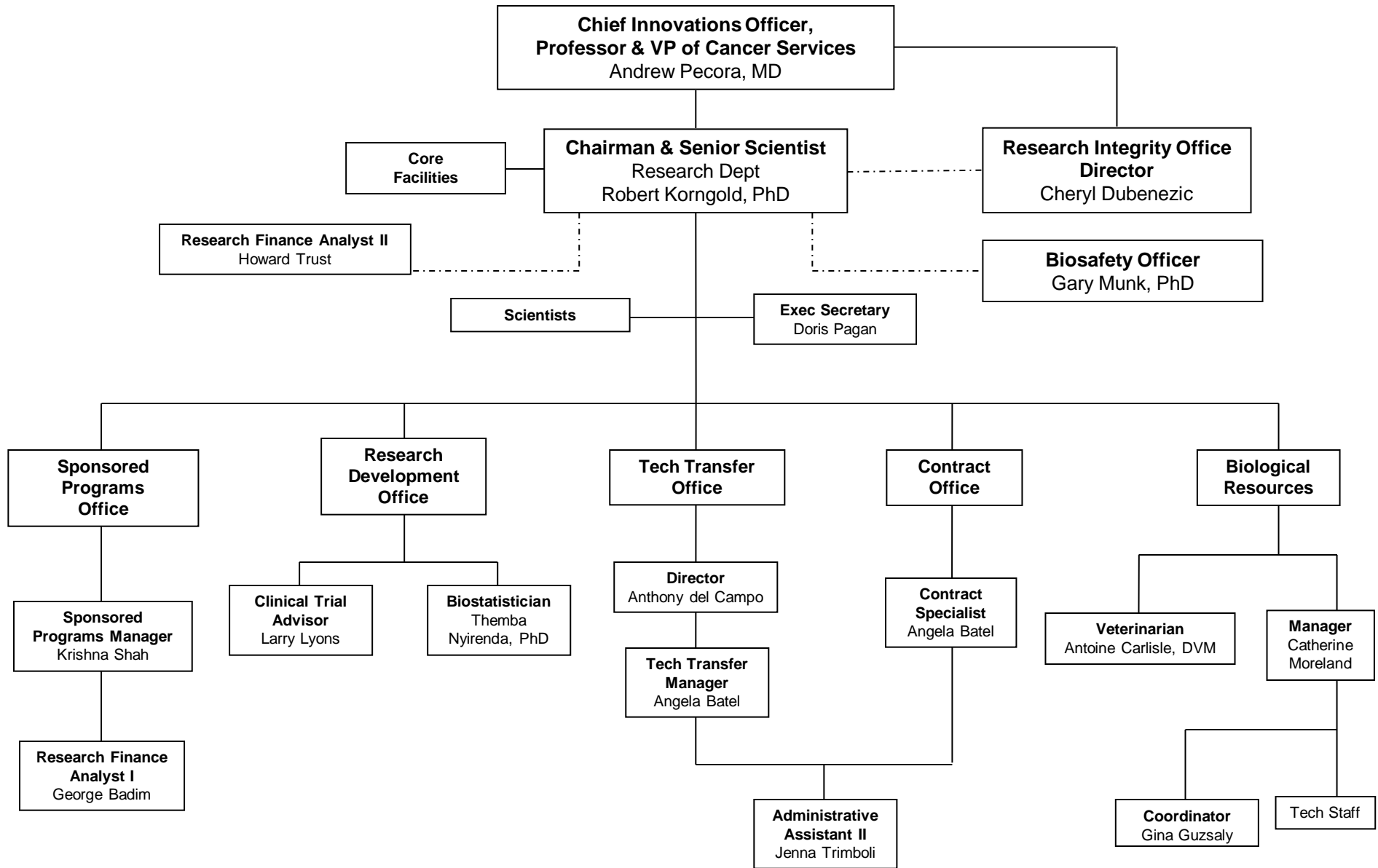
1. Table of Organization
2. 2012 HackensackUMC Research Grants Portfolio
3. 2011 – 2012 Grant Submissions Trend (comparison by departments)
4. NIH Rankings of Independent Hospitals
5. Programs developed and expanded

B. Research Accomplishments

1. Publications and Abstracts of department members (research scientists)

C. 2013 Action Plan

Hackensack University Medical Center Department of Research



2. 2012 HackensackUMC Research Grants Portfolio

- Researchers at Hackensack University Medical Center have 12 federally funded research grants (NIH, DOD, CDC) as well as several foundation grants.
- Our Research grants portfolio below outlines grant activity by department, investigator's name, grant title, funding agency, and total amount awarded for fiscal year 2012.

PI Name	Department	Grant Title	Funding Agency	Total Awarded Amount (current budget period)
FEDERAL GRANTS				
Robert Korngold	Cancer Center	T cell repertoire of GVHD and GVTE	NIH/NCI	\$388,635.00
Jenny Zilberberg	Cancer Center	Stable shRNA-mediated gene silencing (NCE)	NIH/NHLBI	\$220,125.00
Mu Liancai	Research	Anatomical specializations of pharynx	NIH/NIDCD	\$319,454.00
Daniel Sepkovic	Research	Efficacy of preventive vaccines in an HPV	NIH/NCI	\$350,823.00
Sujatha Iyengar	Research	Does HIV Enter Doomed Cell (NCE)	NIH/NIAID	\$220,125.00
Sujatha Iyengar	Research	Rock Inhibitor suppression of GVHD	NIH/NIAID	\$220,125.00
Stacy Zamudio	OB/GYN	Evolved Placental Response to Hypoxa	NIH/NICHHD	\$243,275.00
Nick Illsley	OB/GYN	A murine model for placental metabolic	NIH/NICHHD	\$92,745.00
FEDERAL PASS-THROUGH GRANTS				
Herman Morchel	ETD	Development & Evaluation telephonography	DOD/Cipher	\$171,549.00
Joseph Feldman	ETD	Traumatic Brain Injury	DOD/Cipher	\$188,670.00
Joseph Feldman	ETD	Full Thickness Wound Protocol	DOD/Cipher	\$106,176.00
Joseph Feldman	ETD	Hyperspectral Imaging Technology	DOD/Cipher	\$121,124.00
FOUNDATIONS GRANTS				
David Siegel	Cancer Center	Ancillary Tissue Study	MMRC	\$80,000.00
Yukiko Kimura	Pediatrics	CARRA - standardized treatment plans JIA	Arthritis Found	\$100,000.00
Suzanne Li	Pediatrics	Developing tools for Localized scleroderma	Arthritis Found	\$100,000.00
Yukiko Kimura	Pediatrics	Standardized consensus treatment	ACR Foundation	\$75,000.00
Caroline Hu	Pediatrics	Integrative epigenomic approach to gene	Hyundai HOW	\$125,000.00
Danny Marain	Pediatrics	Music therapy study	Planetree	\$4,000.00
STATE GRANTS				
Helio Pedro	Pediatrics	Genetic Inborn errors of metabolism	NYMAC	\$4,725.00
TOTAL AMOUNT				<u>\$3,131,551.00</u>

3. 2011 - 2012 Grant Submissions Trend (comparison by departments)

- The Department of Research submitted 27 grants in 2012 with over \$11 million dollars in submissions.
- Below is a two year comparison of total grants submitted based on the department, quarterly submissions, and the total dollar amount.

2011 Submissions (\$)*		2012 Submissions (\$)*	
QTR 1	\$ 1,994,951	QTR 1	\$ 1,037,225
QTR 2	\$ 842,200	QTR 2	\$ 7,657,883
QTR 3	\$ 2,007,662	QTR 3	\$ 655,789
QTR 4	\$ 1,390,437	QTR 4	\$ 1,660,833
YTD TOTAL	\$ 6,235,250	YTD TOTAL	\$ 11,011,730
YTD 2011 Submission by Department		YTD 2012 Submission by Department	
DEPARTMENT	TOTAL	DEPARTMENT	TOTAL
Research (8 grants)	\$ 2,027,976	Nursing (1 grant)	\$ 6,993,896
Surgery (1 grant)	\$ 1,500,396	Research (8 grants)	\$ 1,965,197
Pediatrics (12 grants)	\$ 741,383	Pediatrics (7 grants)	\$ 1,031,210
Cancer Center (6 grants)	\$ 832,200	Cancer Center (8 grants)	\$ 819,835
ETD (2 grant)	\$ 774,160	OB/GYN (1 grant)	\$ 88,050
OB/GYN (3 grants)	\$ 299,135	Cardiology (1 grant)	\$ 69,202
Medicine (2 grant)	\$ 30,000	Surgery (1 grant)	\$ 44,340
Deirdre Imus (1 grant)	\$ 30,000		
TOTAL SUBMISSIONS (34)	\$ 3,709,404	TOTAL SUBMISSIONS (27)	\$ 11,011,730

4. NIH Rankings of Independent Hospital

- The National Institute of Health (NIH) is the largest funder of biomedical research in the United States and each year the NIH compiles a list of grants awards and rankings data according to Institution type (research institutes, independent hospital, domestic for-profits, etc).
- HackensackUMC is New Jersey’s top independent hospital recipient of NIH research funds. We ranked 46 out of 91 independent hospitals that received NIH funding for research during fiscal year 2012.
- Our NIH Rankings trend below outlines New Jersey hospitals rankings for fiscal year 2012 and HackensackUMC’s NIH rankings for the last 3 years.

FY2012 NEW JERSEY HOSPITALS RANKINGS		
<u>Organization Name</u>	<u>Total</u>	<u>National Rank</u>
HACKENSACK UNIVERSITY MEDICAL CENTER	\$1,615,057	46
ST. BARNABAS MEDICAL CENTER	\$216,000	82
NEWARK BETH ISRAEL MEDICAL CENTER	\$97,881	88
Total Amount Awarded to <u>NJ</u> Independent Hospitals	\$1,928,938	

HUMC NIH RANKINGS AND AWARD TRENDS 2010-2012			
<u>Fiscal Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
Awarded Amount	\$2,166,351	\$2,285,395	\$1,615,057
Total Number of Independent Hospitals	89	91	91
HUMC’s NIH Ranking	41	39	46

- Our goal is to have more NIH funded research grants and rank within the top 25 Independent Hospitals that receive NIH funding.

5. Programs Developed and Expanded in 2012

Technology Transfer Office:

The purpose of our newly created Technology Transfer Office (TTO) is to provide comprehensive approach to intellectual property (IP) support and management from “conception to market place”.

The goal of TTO is to promote collaborative research relationships between HackensackUMC investigators and external Corporate Sponsors by providing assistance with:

- Negotiation and development of licensing agreements, collaborative research agreements, grant application submission, corporate and FDA compliance, intellectual property protection, biostatistician and protocol support.

As of 2012, HackensackUMC’s TTO has created, negotiated, and is in the process of finalizing six (6) agreements with outside commercial partners assuring a return of revenue to HackensackUMC on any future developed intellectual property.

Anthony A. del Campo, MBA, Executive Director of Commercial/Technology Ventures will be joining HackensackUMC’s Technology Transfer Office in February 2013.

B. Publications and Abstracts for Research Department Members

Robert Korngold, Ph.D.
Chairman – Department of Research
Senior Scientist – John Theurer Cancer Center
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Publications of manuscripts in peer reviewed journals

Toubai T, Tawara I, Sun Y, Liu C, Nieves E, Evers R, Friedman TM, **Korngold R**, Reddy P: Induction of acute graft-versus-host disease by sex-mismatched H-Y antigens in the absence of functional radio-sensitive host hematopoietic-derived antigen presenting cells. *Blood*, 2012, Apr 19;119(16):3844-53.

Zhan Q, **Korngold R**, Lezcano C, McKeon F, Murphy GF: GVHD-Related, Cytokine-Driven Apoptosis Depends on p73 in Cytokeratin 15-Positive Target Cells. *Biol Blood Marrow Transplant*. 2012, June;18(6):841-51.

Abstracts: (poster or presentation)

J. Matos, M. Appel, T. M. Friedman, **R. Korngold**. TCR transduction approach to expand severe graft-versus-host disease inducing CD4 specific T cells. Tandem ASBMT/CIBMTR Annual Meeting, San Diego, CA, 02/2012.

D. Halverson, M.E. Mossoba, S.M. Steinberg, B. Blacklock-Schuver, F.T. Hakim, R. Kurlander, J. Gea-Banacloche, C. Sportes, N.M. Hardy, D.D. Hickstein, S.Z. Pavletic, H. Khuu, M. Sabatino, D. Stroncek, S.F. Leitman, S.D Rowley, M.L Donato, A. Goy, **R. Korngold**, A.L Pecora, B.L. Levine, C.H. June, M.R. Bishop, C. Carini, T. Feldman, A.R Mato, R.E. Gress, and D.H. Fowler. Pre-emptive T-Rapa cell DLI for therapy of high-risk lymphoma after low-intensity allogeneic HCT. (Oral) American Society of Hematology 53rd Annual Meeting and Exposition, Atlanta, GA, 12/2012.

R.B. Salit, F.T. Hakim, M.R. Bishop, T.M. Friedman, **R. Korngold**, K. Goldgirsh, S. Memon, S.M. Steinberg, D. Liewehr, D. Peaceman, J. Wilder, K. Bryant, D.H. Fowler, J. Gea-Banacloche, R.E. Gress, and S.Z. Pavletic. Influence of graft versus-host disease prophylaxis regimen on T-cell repertoire diversity following reduced-intensity HLA-matched unrelated donor allogeneic hematopoietic stem cell transplantation. American Society of Hematology 53rd Annual Meeting and Exposition, Atlanta, GA, 12/2012.

J. Zilberberg, E. Dziopa, C.J Kirk, and **R. Korngold**. Use of the immunoproteasome subunit LMP7 inhibitor to ameliorate GVHD in an MHC-matched miHA-disparate murine model. American Society of Hematology 53rd Annual Meeting and Exposition, Atlanta, GA, 12/2012.

Thea Friedman, Ph.D.
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Publications of manuscripts in peer reviewed journals

Toubai T, Tawara I, Sun Y, Liu C, Nieves E, Evers R, **Friedman TM**, Korngold R, Reddy P: Induction of acute graft-versus-host disease by sex-mismatched H-Y antigens in the absence of functional radio-sensitive host hematopoietic-derived antigen presenting cells. Blood, 2012, Apr 19;119(16):3844-53.

Abstracts: (poster or presentation)

J. Matos, M. Appel, **T. M. Friedman**, R. Korngold. TCR transduction approach to expand severe graft-versus-host disease inducing CD4 specific T cells. Tandem ASBMT/CIBMTR Annual Meeting, San Diego, CA, 02/2012.

R.B. Salit, F.T. Hakim, M.R. Bishop, **T.M. Friedman**, R. Korngold, K. Goldgirsh, S. Memon, S.M. Steinberg, D. Liewehr, D. Peaceman, J. Wilder, K. Bryant, D.H. Fowler, J. Gea-Banacloche, R.E. Gress, and S.Z. Pavletic. Influence of graft versus-host disease prophylaxis regimen on T-cell repertoire diversity following reduced-intensity HLA-matched unrelated donor allogeneic hematopoietic stem cell transplantation. American Society of Hematology 53rd Annual Meeting and Exposition, Atlanta, GA, 12/2012.

David Schwartz, MD, Ph.D.

**Senior Scientist – Department of Research
AND**

Sujatha Iyengar, Ph.D

Assistant Scientist – Department of Research

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Publications of manuscripts in peer reviewed journals

Iyengar S, Schwartz DH. Acquisition of CD4-Dependence by CD4-Independent SIV Passaged in Human Peripheral Blood Mononuclear Cells. Retrovirology. 2012 Jul 25;9:61.

Liancai Mu, MD, Ph.D.

**Senior Scientist – Department of Research
AND**

Stanislaw Sobotka, Ph.D

Associate Scientist – Department of Research

Hackensack University Medical Center

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email: ssobotka@hackensackUMC.org

Publications of manuscripts in peer reviewed journals

Sobotka S and Mu L. Comparison of muscle force after immediate and delayed reinnervation using nerve-muscle-endplate band grafting. *Journal of Surgical Research* (accepted 24 February 2012, published online 15 March 2012).

Mu L, Sobotka S, Chen J, Su H, Sanders I, Adler CH, Shill HA, Caviness JN, Samanta JE, Beach TG and the Arizona Parkinson's Disease Consortium. Altered pharyngeal muscles in Parkinson's disease. *Journal of Neuropathology and Experimental Neurology.* (accepted 30 March 2012).

F.A. Dilmanian, A.L. Jenkins III, J. Olschowka, Z. Zhong, J.Y. Park, N.R. Desnoyers, **S. Sobotka**, G.R. Fois, C.R. Messina, M. Morales, S.D. Hurley, L.A. Trojanczyk, S. Ahmad, N. Shahrabi, P.K. Coyle, A.G. Meek and M.K. O'Banion. X-ray microbeam irradiation of the contusion-injured rat spinal cord temporarily improves hind-limb function. *Radiation Research* (in press, accepted July 26, 2012).

Sobotka S, Mu L. Force recovery and axonal regeneration of the sternomastoid muscle reinnervated with the end-to-end nerve anastomosis *Journal of Surgical Research* (accepted November 2, published online November 28, 2012).

Daniel Sepkovic, Ph.D.

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Publications of manuscripts in peer reviewed journals

Sepkovic DW, Raucci L, Stein J, Carlisle AD, Auburn K, Ksieski HB, Nyirenda T, Bradlow HL. 3,3'-Diindolylmethane increases serum interferon- γ levels in the K14HPV16 transgenic mouse model for cervical cancer. *In Vivo.* 2012 Mar-Apr;26(2):207-11.

Telang NT, Li G, **Sepkovic DW,** Bradlow HL, Wong GY Anti-proliferative effects of Chinese herb *Cornus officinalis* in a cell culture model for estrogen receptor-positive clinical breast cancer. *Mol Med Report.* 2012 Jan;5(1):22-8.

Persky V, Piorkowski J, Turyk M, Freels S, Chatterton R Jr, Dimos J, Bradlow HL, Chary LK, Burse V, Unterman T, **Sepkovic DW,** McCann K. Polychlorinated biphenyl exposure, diabetes and endogenous hormones: a cross-sectional study in men previously employed at a capacitor manufacturing plant. *Environ Health.* 2012 Aug 29;11:57

Abstracts (published or presented)

The 2012 CTRC-AACR San Antonio Breast Cancer Symposium, San Antonio TX

Telang NT, Li G, Katdare M, Sepkovic DW, Bradlow HL, Wong GYC. Palindrome Liaisons, Montvale, NJ; American Foundation for Chinese Medicine, New York, NY; Skin of Color Research Institute, Leroy T. Canoles Jr. Cancer Research Center, Hampton University, Eastern Virginia Medical School, Hampton, VA; David & Alice Jurist Institute for Research, Hackensack University Medical Center, Hackensack,

NJ; American Foundation for Chinese Medicine, Beth Israel Medical Center, New York, NY
.Comparative Preventive Efficacy of Select Chinese Herbs in Breast Carcinoma Derived Isogenic Cells with Modulated Estrogen Receptor Functions. P1-10-02. December 4-8, 2012.

Stephen K. Suh, Ph.D.

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Publications of manuscripts in peer reviewed journals

Suh K.S., Malik M., Shukla A., Ryscavage A., Wright L., Jividen K., Crutchley J.M., Dumont R.A., Fernandez-Salas E., Webster J., Simpson M., Yuspa S.H., CLIC4 is a tumor suppressor for cutaneous squamous cell cancer, *Carcinogenesis*, 2012 Mar 20. [Epub ahead of print]

Caicedo-Carvajal C., Liu Q. A. Goy, A. Pecora and **Suh K.S.**, 3-Dimensional tissue culture as biomaterials for novel biomarker discoveries, *Journal of Translational Medicine*, S:1, 2012

Sarojini S., Goy A., Pecora A. and **Suh K.S.**, Proactive biobanking to improve healthcare, *Journal of Tissue Science and Engineering*, 3:2, 2012.

Suh K. S., Discovering novel biomarkers for personalized medicine, *Journal of Translational Medicine*: S:1, 2012

Suh K. S., Early Detection Biomarkers for Ovarian Cancer," *Journal of Oncology*, vol. 2012 Dec. 2012

Abstracts (published or presented)

May 2012: Biomarkers World Congress; Hodgkin's lymphoma biomarkers to to predict clinical outcome

Dec. 2012: for American Society for Hematology; High resolution ChIP sequencing reveals novel bindings targets and prognostic role for SOX11 in Mantle cell lymphoma

Dec. 2012: for American Society for Hematology; Baseline Fibroblast Growth Factor-2 (FGF2) and Syndecan-1 (SDC1) Expression in Circulating CD15+/CD30+ Cells Correlate with Very Poor Outcome in Hodgkin Lymphoma

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Publications of manuscripts in peer reviewed journals

Williams SF, Fik-Rymarkiewicz E, **Zamudio S**, Illsley NP. (2012) Protein synthesis in human syncytiotrophoblast is resistant to inhibition by hypoxia. *Placenta*, 33, 31-38

Zamudio S, Al-Khan A, Alvarez M, Illsley NP. Fetal blood flow, oxygen delivery and consumption in sub-categories of preeclampsia. *Placenta* 33(9) A84, 2012.

Illsley NP, **Zamudio S**. Hypoxia inducible factor 1 (HIF-1)-directed diversion of carbon flux in murine trophoblast cells. *Placenta* 33(9) A92, 2012

Yurteri-Kaplan L. Saber S. **Zamudio S**. Srinivasan D. Nyirenda T. Alvarez M. Al-Khan A. Brain natriuretic peptide in term pregnancy. *Reproductive Sciences*. 19(5):520-5, 2012 May.

Abstracts (published or presented)

Presented at the Society for Gynecologic Investigations 59th annual meeting March 19-21, 2012 and published as follows:

Illsley NP, Leung CCK, **Zamudio S** (2102) Circulating IGF-I and placental type 1 IGF receptor in normal and gestational diabetic pregnancies. *Repro. Sci.* 19, 202A

Zamudio S, Illsley NP, Alvarez M, Al-Khan A (2012) Maternal blood flow and oxygen delivery in sub-groups of preeclampsia. *Repro. Sci.* 19, 331A

Gupta, V, Singavi A, **Zamudio S**, Pawlik M, Levat R, Alvarez M, Al-Khan A (2012) Outcome across a 10 year period in placenta accreta related pathologies. *Repro. Sci.* 19, 133A.

Nasseri S, Bogomol A, Alvarez M, Nyirenda T, **Zamudio S**, Al-Khan A. A Scoring System for Severity of Placenta Accreta. At the 18th meeting of the International Federation of Placenta Associations, Hiroshima, Japan, Sept 18-21 2012.

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Publications of manuscripts in peer reviewed journals

Williams SF, Fik-Rymarkiewicz E, Zamudio S, **Illsley NP**. (2012) Protein synthesis in human syncytiotrophoblast is resistant to inhibition by hypoxia. *Placenta*, 33, 31-38

Zamudio S, Al-Khan A, Alvarez M, **Illsley NP**. Fetal blood flow, oxygen delivery and consumption in sub-categories of preeclampsia. *Placenta* 33(9) A84, 2012.

Illsley NP, Zamudio S. Hypoxia inducible factor 1 (HIF-1)-directed diversion of carbon flux in murine trophoblast cells. *Placenta* 33(9) A92, 2012

Abstracts (published or presented)

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Illsley NP, Leung CCK, Zamudio S (2102) Circulating IGF-I and placental type 1 IGF receptor in normal and gestational diabetic pregnancies. *Repro. Sci.* 19, 202A

Zamudio S, **Illsley NP**, Alvarez M, Al-Khan A (2012) Maternal blood flow and oxygen delivery in subgroups of preeclampsia. *Repro. Sci.* 19, 331A

Jenny Zilberberg, Ph.D.
Instructor – John Theurer Cancer Center
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e-mail: jjilberberg@hackensackUMC.org

Abstracts (published or presented)

J. Zilberberg, E. Dziopa, C.J Kirk, and R. Korngold. Use of the immunoproteasome subunit LMP7 inhibitor to ameliorate GVHD in an MHC-matched miHA-disparate murine model. American Society of Hematology 53rd Annual Meeting and Exposition, Atlanta, GA, 12/2012.

Themba Nyirenda, Ph.D.
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e-mail: tnyirenda@hackensackUMC.org

Publications of manuscripts in peer reviewed journals

Sepkovic DW, Raucci L, Stein J, Carlisle AD, Auburn K, Ksieski HB, **Nyirenda T**, Bradlow HL. 3,3'-Diindolylmethane increases serum interferon- γ levels in the K14HPV16 transgenic mouse model for cervical cancer. *In Vivo.* 2012 Mar-Apr;26(2):207-212.

Ladin Yurteri-Kaplan, Shelley Saber, Stacy Zamudio, Deepak Srinivasan, **Themba Nyirenda**, Manuel Alvarez, and Abdulla Al-Khan: Brain Natriuretic Peptide in Term Pregnancy *Reproductive Sciences*, May 2012 19: 520-525, doi:10.1177/1933719111426598

Chinwe Ogedegbe, **Themba Nyirenda**, Gary DelMoro, Edward Yamin and Joseph Feldman: Health care workers and disaster preparedness: barriers to and facilitators of willingness to respond, *International Journal of Emergency Medicine* 2012, 5:29 doi:10.1186/1865-1380-5-29 Published: 20 June 2012

Dyme JL, Thampan A, Han EJ, **Nyirenda, TL**, Kotb ME, Shin HT: Propranolol for Infantile Hemangiomas: Initiating Treatment on an Outpatient Basis, *Cardiology in the Young*; (22) 424-429, 2012.

Jain S, **Nyirenda T**, Yates J, Munver R: Incidence of Renal Artery Pseudoaneurysm Following Open and Minimally Invasive Partial Nephrectomy: A Systematic Review and Comparative Analysis. *Journal of Urology* 2012 Dec 3. pii: S0022-5347(12)05802-8. doi: 10.1016/j.juro.2012.11.170.

Abstracts (published or presented)

Abstract was presented as a moderated poster at the 30th World Congress of Endourology (4-8 September 2012) in Istanbul

“Cross Sectional Imaging Does Not Accurately Predict Tumor Size in Patients Undergoing Robot-Assisted Laparoscopic Partial Nephrectomy” Samay Jain MD, **Themba Nyirenda PhD**, Ihor Sawczuk MD, Mitchell Miller MD, Jennifer Yates MD, Ravi Munver MD.

D. 2013 Action Plan

The Research Department will continue to support development of research projects at the basic, translational and clinical levels.

The Clinical Research Development Office with Larry Lyons and Dr. Themba Nyirenda are always seeking new opportunities to help HackensackUMC investigators to initiate investigator driven studies and protocols by providing regulatory guidance and statistical input into the research design.

In addition, Krishna Shah, our Sponsored Program Manager, is always searching the government and foundation databases for potential research funding in all areas of clinical research that may be available to those physicians interested in developing their research programs.

The Research Department is also engaged in developing new High Impact Programs in connection with the Innovations Committee and in fulfillment of Strategic Plans for HackensackUMC to become an academic medical center.