# **Curriculum Vitae**

# A. Identifying data

Nishita Kothary, MD, FSIR Associate Professor of Radiology Interventional Radiology 300 Pasteur Drive, H-3630 Stanford, CA 94305-5642

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# **B.** Academic History

# 1. Colleges and Universities Attended

| 1988-90 | Chauhan College of Science, Bombay University, Mumbai (Bombay), India (11 <sup>th</sup> -12 <sup>th</sup> grade high school equivalent)  |
|---------|--|
| 1990-96 | Topiwala National Medical College and BYL Nair Hospitals,<br>Bombay University, Mumbai (Bombay), India<br>Degree: MBBS (Bachelor of Medicine, Bachelor of Surgery,<br>equivalent to the MD awarded in USA) |

# 2. Residency and Fellowship Training

| 1996-97 | Internship, Internal Medicine, Good Samaritan Hospital, Cincinnati, OH  |
|---------|---|
| 1997-98 | Residency, Diagnostic Radiology, Medical College of Ohio, Toledo, OH  |
| 1998-01 | Residency, Diagnostic Radiology, George Washington University, Washington DC  |
| 2001-02 | Fellowship, Neuroradiology, NYU School of Medicine, New York, NY  |
| 2002-03 | Fellowship, Interventional Radiology, Hospitals of the University of<br>Pennsylvania and Children's Hospital of Philadelphia, Philadelphia,<br>PA |

# 3. Specialty Board Certification

2001 Diagnostic Radiology, American Board of Radiology

Radiology, American Board of Radiology

# C. Employment

| 2003-06         | Assistant Professor of Radiology<br>Columbia University Medical Center, New York, NY            |
|-----------------|---|
| 2003-06         | Faculty, Lawrence Medical Center, Bronxville, NY  |
| 4/1/06-8/31/06  | Acting Assistant Professor of Radiology<br>Stanford University School of Medicine, Stanford, CA |
| 09/1/06-2/28/13 | Assistant Professor of Radiology<br>Stanford University School of Medicine, Stanford, CA        |
| 2/28/13-present | Associate Professor of Radiology  |

#### **D. Professional Service**

#### 1. Stanford University

- a. Fellowship and Education Director, Interventional Radiology (2006-09).
- b. Residency selection committee, Diagnostic Radiology (2006-08).
- c. Department Senator for Radiology, Stanford University Medical School Faculty Senate (2008-11).

Stanford University School of Medicine, Stanford, CA

- d. Director, Clinical Operations, Interventional Radiology (2008-13).
- e. Member, Scientific Review Committee (SRC), Cancer Center (2010-present).
- f. Interim Section Chief, Interventional Radiology (3/2012 10/2012).
- g. Faculty lead, Centralization of Radiology Clinical Trials Office (2012-present).

### 2. Societal

- a. Exam Writer for Interventional Radiology (VIR) module, board certification exam (EOF), American Board of Radiology (2010-13).
- b. Editorial Board, Journal of Vascular and Interventional Radiology (2013-present).
- c. Abstract Reviewer for the annual SIR scientific meeting (2013-present).
- d. Abstract Reviewer for the annual Global Embolization and Cancer Symposium and Technologies (2015-present).
- e. Governing Member, Women in IR, SIR sub-committee (2014-present).
- f. Grant Reviewer, Grant Study Section, Society of Interventional Radiology Foundation (SIRF) (2014-present).
- g. Member, SIRF Grants and Research Education Division, SIR (2015-present).
- h. Mentor, Medical Student Mentoring program, Society of Interventional Radiology (2005-present).
- i. Grant Reviewer, Biomedical research applications, The India Alliance in partnership with the Government of India (2016)

j. Editorial Board, Digestive Disease Interventions (2016-present)

#### 3. Manuscript Reviewer

- a. Journal of Vascular and Interventional Radiology
- b. Cardiovascular and Interventional Radiology
- c. European Radiology
- d. Digestive Diseases and Sciences
- e. World Journal of Surgical Oncology
- f. Clinical Lung Cancer
- g. Lung Cancer
- h. Advances in Medical Education and Practice
- **4.** Guest Editor, Navigation Tools for Image Guided Therapy, Techniques in Vascular and Interventional Radiology (2012).

#### 5. Other

- a. Clerkship Director for Interventional Radiology (RAD 305), Stanford University (2007-11).
- b. Invited member, American Association of Physicists in Medicine to establish recommendations on target surrogates for radiation therapy applications (2009-11).
- c. Member, Management Action Team for Cathlab/Renoir Group, Stanford Hospital and Clinics (2011-12).
- d. Medical advisory board, Women's Health @ Stanford and Women's Heart Health @ Stanford (2006-10).

#### 6. Services rendered at other institutions

- a. Clinical Director of Interventional Radiology, Lawrence Medical Center, Bronxville, NY (2003-2006).
- b. Resource utilization, Lawrence Medical Center, Bronxville, NY (2004-06).
- c. Residency selection committee for Diagnostic Radiology, Columbia University Medical Center, New York, NY (2004-06).
- d. Executive finance committee, Department of Radiology, Columbia University Medical Center, New York, NY (2005-06).
- e. Strategic research committee, Steering committee for translational and hypothesis-based research, Department of Radiology, Columbia University Medical Center, New York, NY (2005-06).

#### E. Post –degree Honors, Awards and Memberships

#### 1. Honors and Awards

- a. Chief Resident in Radiology, George Washington University, Washington DC (1999-00).
- b. JVIR Distinguished Reviewer Award (2006).
- c. Selected amongst peers to participate in 2009-10 Stanford Leadership Development Program (2009-10).
- d. Selected amongst peers to participate in the 2010 RSNA Clinical Trials Methodology Workshop, Scottsdale, AZ (2010).

- e. Elected to the Society of Interventional Radiology Fellowship (FSIR) for outstanding contribution to the field of Interventional Radiology (research, education and citizenship) (2011).
- f. Selected amongst peers to participate in 2012-13 Stanford Faculty Fellows Leadership Program (2012-13).
- g. Stanford Cancer Institute for Outstanding Performance in Clinical Research (2013).
- h. Nominated for the inaugural cohort of Clinical Effectiveness and Leadership Training, Stanford University (2014-15).

#### 2. Professional Memberships

Society of Interventional Radiology American Medical Association Association of Program Directors in Interventional Radiology (2006-09)

### F. Scholarly Publications

### 1. Peer Reviewed Articles

- 1. **Kothary N**, Soulen MC, Clark TWI, Wein AJ, Shlansky-Goldberg RD, Crino PB, Stavropoulos SW. Renal Angiomyolipoma: Long Term Results after Arterial Embolization. J Vasc Interv Radiol. 2005 Jan; 16(1): 45-50.
- 2. Weintraub JL, Mobley DG, Weiss ME, Swanson E, **Kothary N.** A Novel Endovascular Adjustable Polytetrafluoroethylene-covered Stent for the Management of Hepatic Encephalopathy after Transjugular Intrahepatic Portosystemic Shunt. J Vasc Interv Radiol. 2007 Apr; 18(4): 563-66.
- 3. **Kothary N**, Weintraub JL, Susman J, Rundback JH. Transarterial Chemoembolization for Primary Hepatocellular Carcinoma in Patients at High Risk. J Vasc Interv Radiol. 2007 Dec; 18(12): 1517-26 (**CME credit article**).
- 4. Padda S, **Kothary N\***, Donington J, Cannon W, Loo B, Kee S, Wakelee H. Complications of Ablative Therapies in Lung Cancer. Clin Lung Cancer. 2008 Mar; 9 (2): 122-26. \*Conception and design, acquisition of data and analysis of data, Dr Padda, mentee.
- 5. Kuo WT, Van den Bosch MA, Hofmann LV, Louie JD, **Kothary N**, Sze DY. Catheter-Directed Embolectomy, Fragmentation, and Thrombolysis for the Treatment of Massive Pulmonary Embolism after Failure of Systemic Thrombolysis. Chest. 2008 Aug; 134: 250-54.
- 6. Hunt S, Yu W, Weintraub JL, Prince M, **Kothary N**. Radiologic Monitoring of Hepatocellular Carcinoma Tumor Viability after Transhepatic Arterial Chemoembolization: Estimating the Accuracy of Contrast-enhanced Cross-sectional Imaging with Histopathologic Correlation. J Vasc Interv Radiol. 2009 Jan; 20(1): 30-38.
- 7. **Kothary N**, Heit JH, Louie JD, Kuo WT, Loo BW, Koong A, Chang DT, Hovsepian D, Sze DY, Hofmann LV. Safety and Efficacy of Percutaneous Fiducial Marker Implantation for Image-guided Radiotherapy. J Vasc Interv Radiol. 2009 Feb; 20(2): 235-39.

- 8. **Kothary N**, Dieterich S, Louie JD, Chang DT, Hofmann LV, Sze DY. Percutaneous Implantation of Fiducial Markers for Image Guided Radiotherapy. AJR Am J Roentgenol. 2009 Apr; 192(4): 1090-6.
- 9. Louie JD, **Kothary N**, Kuo WT, Hwang GL, Hofmann LV, Goris ML, Iagaru A, Sze DY. Incorporating Cone-Beam CT into the Treatment Planning for Yttrium Radioembolization. J Vasc Interv Radiol. 2009 May; 20(5): 606-13.
- 10. **Kothary N**, Dieterich S, Louie JD, Koong AC, Hofmann LV, Sze DY. A Primer on Image-Guided Radiation Therapy for the Interventional Radiologist. J Vasc Interv Radiol. 2009 Jul; 20(7): 859-62.
- 11. **Kothary N,** Lock L, Sze DY, Hofmann LV. CT Guided Percutaneous Needle Biopsy of Pulmonary Nodules: Impact of Size on Diagnostic Accuracy. Clin Lung Cancer. 2009 Sept; 10(5): 360-363.
- 12. **Kothary N**, Tognolini A, Louie JD, Hwang GL, Hofmann LV, Sze DY. Utility of Cone-Beam CT in Patients with Hepatocellular Carcinoma Undergoing Transarterial Hepatic Chemoembolization. J Vasc Interv Radiol. 2010 Mar; 21(3): 339-47.
- 13. Ghatan CE, Kuo WT, Hofmann LV, **Kothary N.** Making the Case for Early Medical Student Education in Interventional Radiology: A Survey of Second-Year Students in a Single US Institution. J Vasc Interv Radiol. 2010 Apr; 21(4): 549-53.
- 14. **Kothary N**, Bartos JB, Hwang GL, Dua R, Hofmann LV. Computed Tomography-guided Percutaneous Needle Biopsy of Indeterminate Pulmonary Pathology: Efficacy of Obtaining a Diagnostic Sample in Immunocompetent and Immunocompromised Patients. Clin Lung Cancer. 2010 Jul 1; 11(4): 251-6.
- 15. Abdelmaksoud MH, Hwang GL, Louie JD, **Kothary N**, Hofmann LV, Kuo WT, Hovsepian DM, Sze DY. Development of New Hepaticoenteric Collateral Pathways after Hepatic Arterial Skeletonization in Preparation for Yttrium-90 Radioembolization. J Vasc Interv Radiol. 2010 Sep; 21(9): 1385-95.
- 16. **Kothary N**, Ghatan CE, Hwang GL, Kuo WT, Sze DY, Hovsepian DM, Desser TS, Hofmann LV. Renewing Focus on Resident Education: Increased Responsibility and Ownership in Interventional Radiology Rotations Improves the Educational Experience. J Vasc Interv Radiol. 2010 Nov; 21(11): 1697-702.
- 17. Tognolini A, Louie JD, Hwang GL, Hofmann LV, Sze DY, **Kothary N**. C-arm CT for Hepatic Interventions: A Practical Guide. J Vasc Interv Radiol. 2010 Dec; 21(12): 1817-23.
- 18. Hong JC, Yao Y, Rao AK, Dieterich S, Maxim PG, Sze DY, **Kothary N** (**Co-corresponding Author/equal contribution**), Loo BW (Co-corresponding Author). High Retention and Safety of Vascular Embolization Coils as Fiducial Markers for Image-Guided Stereotactic Ablative Radiotherapy of Pulmonary Tumors. Int J Radiat Oncol Biol Phys. 2011 Sept; 81(1): 85-90.

- 19. Chan KT, Popat RA, Sze DY, Kuo WT, **Kothary N**, Louie JD, Hovsepian DM, Hwang GL, Hofmann LV. Common Iliac Vein Stenosis and Risk of Pulmonary Embolism: An Inverse Correlation. J Vasc Interv Radiol. 2011 Feb; 22(2): 133-41.
- 20. Meer AB, Louie JD, Abdelmaksoud MHK, **Kothary N**, Hovsepian DM, Hofmann LV, Kuo WT, Hwang GL, Sze DY. Intrahepatic Collateral Supply to The Previously Embolized Right Gastric Artery: A Potential Pitfall for Nontarget Radioembolization. J Vasc Interv Radiol. 2011 Apr; 22(4): 575-7.
- 21. Kuo WT, Odegaard JI, Louie JD, Unver K, Kothary N, Rosenberg JK, Sze DY, Hovsepian DM, Hofmann LV. Photothermal Ablation with the Excimer Laser Sheath Technique for Embedded IVC Filter Removal: Initial Results from a Prospective Study. J Vasc Interv Radiol. 2011 Jun; 22(6): 813-23.
- 22. Kuo WT, Cupp JS, Louie JD, **Kothary N**, Hofmann LV, Sze DY, Hovsepian DM. Complex Retrieval of Embedded and Permanent IVC Filters: Alternative Techniques and Histologic Tissue Analysis. Cardiovasc Intervent Radiol. 2012 Jun; 35(3):588-97.
- 23. Chan KT, Tye GA, Kuo WT, Popat RA, **Kothary N**, Sze DY, Unver K, Hofmann LV. Common Iliac Vein Stenosis: A Risk Factor for Oral Contraceptive-Induced Deep Venous Thrombosis. Am J Obstet Gynecol. 2011 Dec; 205(6): 537.e1-6.
- 24. Abdelmaksoud MH, Louie JD, **Kothary N**, Hwang GL, Kuo WT, Hofmann LV, Hovsepian DM, Sze DY. Embolization of Parasitized Extrahepatic Arteries to Reestablish Intrahepatic Arterial Supply to Tumors Prior to Yttrium-90 Radioembolization. J Vasc Interv Radiol. 2011 Oct; 22(10): 1355-62.
- 25. **Kothary N**, Abdelmaksoud MH, Tognolini A, Fahrig R, Louie JD, Hwang G, Hofmann LV, Sze DY. Imaging Guidance with C-arm CT: A Prospective Evaluation of its Impact on Patient Radiation Exposure During Chemoembolization. J Vasc Interv Radiol. 2011 Nov; 22(11): 1535-43. (**CME credit article**).
- 26. Higgins LJ, Hwang GL, Rosenberg J, Katzenberg RH, Kothary N, Sze DY, Hofmann LV. In Vitro Design and Characterization of the Nonviral Gene Delivery Vector Iopamidol, Protamine, Ethiodized oil Reagent (VIPER). J Vasc Interv Radiol. 2011 Oct; 22(10): 1457-63.
- 27. Abdelmaksoud MH, Louie JD, **Kothary N,** Hwang GL, Kuo WT, Hofmann LV, Hovsepian DM, Sze DY. Consolidation of Hepatic Arterial Inflow by Embolization of Variant Hepatic Arteries in Preparation for Ytrium-90 Radioembolization. J Vasc Interv Radiol. 2011 Oct 22(10): 1364-71. (**CME credit article**).
- 28. Joseph T, Unver K, Hwang GL, Rosenberg J, Sze DY, Hashimi S, **Kothary N**, Louie JD, Kuo WT, Hofmann, LV, Hovsepian DM. Percutaneous Cholecystostomy for Acute Cholecystitis: Ten-year Experience. J Vasc Interv Radiol. 2012 Jan; 23(1):83-8.

- 29. Abdelmaksoud MH, Louie JD, Hwang GL, Sze DY, Hofmann LV, **Kothary N**. Transarterial Chemoembolization for Hepatocellular Carcinomas in Watershed Segments: Utility of C-arm CT for Treatment Planning. J Vasc Interv Radiol. 2012 Feb; 23(2):281-3.
- 30. Abdelmaksoud MHK, Louie JD, Hwang GL, **Kothary N**, Minor DR, Sze DY. Yttrium-90 radioembolization of renal cell carcinoma metastatic to the liver. J Vasc Interv Radiol. 2012 Mar; 23(3):323-330.
- 31. Sista AK, Hwang GL, Hovsepian DH, Sze DY, Kuo WT, **Kothary N\***, Louie JL, Yamada K, Hong R, Dhanani R, Brinton, TJ, Krummel TM, Makower J, Yock, PG, Hofmann LV. Applying a Structured Innovation Process to Interventional Radiology: A Single Center's Experience. J Vasc Interv Radiol. 2012 Apr; 23(4):488-494. \*Contribution to conception and design, participated in drafting manuscript and final approval.
- 32. Hsu JL, Kuschner WG, Paik J, Bower N, **Kothary N**. The Diagnostic Yield of CT-Guided Percutaneous Lung Biopsy in Solid Organ Transplant Recipients. Clin Transplant. 2012 July-Aug; 26(4):615-621.
- 33. Carr S, Chan K, Rosenberg J, Kuo WT, **Kothary N\***, Hovsepian DM, Sze DY, Hofmann LV. Iliac Vein Compression Syndrome: A Risk Factor for Lower Extremity Deep Venous Thrombosis. J Vasc Interv Radiol. 2012 Nov; 23(11):1467-1472. \*Contribution to acquisition of data, participated in drafting manuscript and final approval.
- 34. Hong JC, Eclov NCW, Yu Y, Rao AK, Dieterich S, Le QT, Loo BW, Diehn M, Sze, DY, **Kothary N\*** (**co-corresponding author**), Maxim PG. Migration of Implanted Markers for Image-Guided Lung Tumor Stereotactic Ablative Radiotherapy. J Appl Clin Med Phys. 2013 Mar 4; 14(2): 4046.\*Conception and design, acquisition of data and analysis of data. Participated in drafting of manuscript and final approval.
- 35. Wang DS, Louie JD, **Kothary N\***, Shah RP, Sze DY. Prophylactic Topically Applied Ice to Prevent Cutaneous Complications of Non-Target Chemoembolization and Radioembolization. J Vasc Interv Radiol. 2013 April; 24(4):596-600. \*Contribution to acquisition of data, participated in drafting manuscript and final approval.
- 36. Boas FE, Do B, Louie JD, **Kothary N\***, Hwang GL, Kuo WT, Hovsepian DM, Kantrowitz M, Sze DY. Optimal Imaging surveillance schedules after liver-directed therapy for hepatocellular carcinoma. J Vasc Interv Radiol. 2015 Jan; 26(1):69-73. \*Contribution to acquisition of data, participated in drafting manuscript and final approval.
- 37. **Kothary N**, Takehana C, Mueller K, Sullivan P, Tahvildari A, Rosenberg J, Louie JD, Sze DY. Watershed Hepatocellular Carcinomas: The Risk of Incomplete Response following Transhepatic Arterial Chemoembolization. J Vasc Interv Radiol. 2015 Aug; 26(8):1122-9.
- 38. Echegaray S, Gevaert O, Shah R, Kamaya A, Louie JD, **Kothary N\***, Napel S. Core samples for radiomics features that are insensitive to tumor segmentation: method and pilot study using CT images of hepatocellular carcinoma. J Med Imaging (Bellingham). 2015 Oct; 2(4):041011. \*Contribution to concept and design, acquisition of data and analysis of

- data. Participated in drafting of manuscript and final approval. This manuscript is part of our radiogemomics project (PI Kothary).
- 39. Ahmed O, Patel M, Ward T, Sze DY, Telischak K, **Kothary N\***, Hofmann LV. Cost Accounting as a Tool for Increasing Cost Transparency in Selective Hepatic Transarterial Chemoembolization. J Vasc Interv Radiol. 2015 Dec; 26(12):1820-6. \*Contribution to concept and design, acquisition of data, participated in drafting manuscript and final approval.
- 40. Duan F, Wang EQ, Lam MG, Abdelmaksoud MH, Louie JD, Hwang GL, **Kothary N\***, Kuo WT, Hofmann LV, Sze DY. Superselective Chemoembolization of HCC: Comparison of Short-term Safety and Efficacy between Drug-eluting LC Beads, QuadraSpheres, and Conventional Ethiodized Oil Emulsion. Radiology. 2016 Feb; 278(2):612-21. \*Contribution to acquisition of data, participated in drafting manuscript and final approval.
- 41. Ahmed O, Ward TJ, Lungren MP, Abdelrazek Mohammed MA, Hofmann LV, Sze DY, **Kothary N**. Assessing the Risk of Hemorrhagic Complication following Transjugular Liver Biopsy in Bone Marrow Transplantation Recipients. J Vasc Interv Radiol. 2016 Apr; 27(4):551-7.
- 42. Trinh L, Miyake KK, Dirbas FM, **Kothary N\***, Horst KC, Lipson JA, Carpenter C, Thompson AC, Ikeda DM. CT-Guided Wire Localization for Involved Axillary Lymph Nodes After Neoadjuvant Chemotherapy in Patients With Initially Node-Positive Breast Cancer. Breast J. Jul; 22(4):390-6. \*Contribution to concept and design, acquisition of data, participated in drafting manuscript and final approval.
- 43. Ghatan C, Fassioto M, Jacobsen JP, Sze DY, **Kothary N**. Occupational Radiation Exposure During Pregnancy: A Survey of Attitudes and Practices among Interventional Radiologists. J Vasc Interv Radiol. 2016 Jul; 27(7):1013-20.
- 44. Chen JX, Rose S, White SB, El-Haddad G, Fidelman N, Yarmohammadi H, Hwang W, Sze DY, **Kothary N**\*, Stashek K, Wileyto EP, Salem R, Metz DC, Soulen MC. Embolotherapy for Neuroendocrine Tumor Liver Metastases: Prognostic Factors for Hepatic Progression-Free Survival and Overall Survival. Cardiovasc Intervent Radiol. 2017 Jan; 40(1):69-80. \*Contribution to data acquisition and analysis, participated in drafting manuscript and final approval.
- 45. **Kothary N**. The Angiomyolipoma Conundrum. J Vasc Interv Radiol. 2016 Oct; 27(10):1550-1. Invited Commentary.
- 46. Mueller K, Fahrig R, Manhart M, Deuerling-Zheng Y, Rosenberg J, Moore T, Ganguly A, **Kothary N**. Reproducibility of Parenchymal Blood Volume Measurements Using an Angiographic C-arm CT System. Acad Radiol. 2016 Nov; 23(11):1441-1445.
- 47. Lungren MP, Lindquester WS, Seidel FG, **Kothary N\***, Monroe EJ, Shivaram G, Gill AE, Hawkins MC. Ultrasound-Guided Liver Biopsy with Gelatin Sponge Pledget Tract Embolization in Infants Weighing Less than 10 kg. J Pediatr Gastroenterol Nutr. 2016 Dec; 63(6): e147-e151. \*Contribution to data acquisition and analysis, participated in drafting

- 48. Goldman RE, Arendt VA, **Kothary N\***, Kuo WT, Sze DY, Hofmann LV, Lungren MP. Endovascular Management of May-Thurner Syndrome in Adolescents: A Single-Center Experience. J Vasc Interv Radiol. 2017 Jan; 28(1):71-77. \*Contribution to acquisition of data, participated in drafting manuscript and final approval.
- 49. Pollom EL, Lee KY, Durkee BY, Grade M, Mokhtari DA, Wahl DR, Feng M, **Kothary N\***, Koong AC, Owens DK, Goldhaber-Fiebert J, Chang DT. Cost-effectiveness of stereotactic body radiotherapy versus radiofrequency ablation for hepatocellular carcinoma: a Markov modeling study. Radiology. 2017 Jan 3:161509. \*Contribution to concept and design, acquisition of data, participated in drafting manuscript and final approval.
- 50. Müller K, Datta S, Gehrisch S, Ahmad M, Mohammed MA, Rosenberg J, Hwang GL, Louie JD, Sze DY, **Kothary N**. The Role of Dual-Phase Cone-Beam CT in Predicting Short-Term Response after Transarterial Chemoembolization for Hepatocellular Carcinoma. J Vasc Interv Radiol. 2017 Feb; 28(2):238-245.
- 51. Pung L, Ahmad M, Mueller K, Rosenberg J, Stave C, Hwang GL, Shah R, **Kothary N**. The Role of Cone-Beam CT in Transcatheter Arterial Chemoembolization for Hepatocellular Carcinoma: A Systematic Review and Meta-analysis. J Vasc Interv Radiol. 2017 Mar 28(3): 334-341.
- 52. Datta S, Müller K, Moore T, Molvin L, Gehrisch S, Rosenberg J, Saenz Y, Manhart M, Deuerling-Zheng Y, **Kothary N**, Fahrig R. Dynamic Measurement of Arterial Liver Perfusion with an Interventional C-Arm System. Invest Radiol. 2017 Aug; 52(8): 456-461. \*Contribution to concept and design, acquisition of data and analysis of data. Participated in drafting of manuscript and final approval. This manuscript was part of a joint project with Dr. Fahrig on perfusion imaging using cone-beam CT.
- 53. Bakr S, Echegaray S, Shah RP, Kamaya A, Louie J, Napel S, **Kothary N**\* Gevaert O\*. Non-invasive radiomics signature based on quantitative analysis of computed tomography images as a surrogate for microvascular invasion in hepatocellular carcinoma: A Pilot Study. J Med Imaging (Bellingham) 2017 Oct; 4(4): 041303 (\*NK and OG equally contributing senior authors). Accepted: May 2017
- 54. Hoang N, **Kothary N**, Saharan S, Rosenberg J, Tran A, Brown S, Hovsepian D. Administering Blood Products Before Selected Interventional Radiology Procedures: Developing, Appying, and Monitoring a Standardized Protocol. Journal of the American College of Radiology. 2017 Sep 27; S1546-1440(17)30959-6.

#### In press

#### 2. Case Reports

1. **Kothary N**, Muskie J, Mathur S. Strongyloides stercoralis Hyperinfection. Radiographics. 1999 July-Aug; 19(4): 1077-81.

- 2. **Kothary N**, Bulas DI, Newman KD, Schonberg RL. MRI Imaging of Fetal Neck Masses with Airway Compromise: Utility in Delivery Planning. Pediatr Radiol. 2001; 31(10): 727-31.
- 3. **Kothary N**, Law M, Cha S, Zagzag D. Conventional and Perfusion MR Imaging of Parafalcine Chondrosarcoma. AJNR Am J Neuroradiol. 2003 Feb; 24: 245-48.

## 3. Non-Peer Reviewed Journal Articles

- 1. **Kothary N**, Bulas DI. Prenatal MR Imaging of fetal neck masses. Medical Imaging International. Vol. 12, No.1 (Jan-Feb 2003).
- 2. Das M, Abdelmaksoud MHK, Loo BW, **Kothary N** Alternatives to surgery for early stage non-small cell lung cancer ready for prime time? Curr Treat Options Oncol. 2010 Jun;11(1-2):24-35. Review. (Invited Manuscript, Invited Author- Kothary).
- 3. **Kothary N**. Reducing the Perils of ablation for thermally sensitive adjacent organs. Invited commentary, Interventional News (2014).

# 4. Book Chapters

- 1. **Kothary N**, Patel A, Shlansky-Goldberg R Biliary Interventions in liver Transplantation Semin Intervent Radiol 2004; 21: 297-308.
- 2. Resnick SB, Resnick SH, Weintraub JL, **Kothary N**. Heparin in Interventional Radiology: A Therapy in Evolution. Semin intervent Radiol 2005; 22: 95-107.
- 3. **Kothary N**, Kee, S. Radio-frequency Ablation. Anesthesiologists Manual of Surgical Procedures. Lippincott Williams & Wilkins, 5<sup>th</sup> edition, Published March 2009.
- 4. Mueller K, Datta S, Hwang GL, Wang DS, **Kothary N**. Digital Subtraction Imaging and Conebeam C-Arm CT imaging. Vascular Imaging and Endovascular Interventions. Japee Brothers Medical Publishers, expected date of publication Fall 2017.

# 5. Abstracts

- 1. Cura M, Rundback JH, Weintraub JL, Susman J, **Kothary N**. Renal Artery Angioplasty and Stenting using Distal Protection Devices. J Vasc Interv Radiol 15:651 (Annual meeting, Society of Interventional Radiology, 2004).
- 2. **Kothary N**, Weintraub JL, Rundback JH, Susman J, Haskal ZJ. Transarterial Chemoembolization in High-Risk Patients with HCC. J Vasc Interv Radiol 16:570 (Annual meeting, Society of Interventional Radiology, 2005).
- 3. **Kothary N**, Weintraub JL, Ugras S, Kinkhabawala M, Hanjan T, Susman J. Imaging and Histopathologic Correlation after Chemoembolization in Patients Undergoing Liver Transplantation. J Vasc Interv Radiol 17, Part 2:408-413 (Annual meeting, Society of Interventional Radiology, 2006).

- 4. **Kothary N**, Weintraub J, Urgas S, Kinkhabwala M. Histopathologic Correlation after Chemoembolization in Patients Undergoing Liver Transplantation. J Vasc Interv Radiol 17, Part 2:408-413 (Annual meeting, Society of Interventional Radiology, 2006).
- 5. Weintraub JL, Eubig J, Haskal ZH, Susman J, **Kothary N**, Hanjan T. Mid Term Results of Balloon Dilatation of Benign Esophageal Strictures in Children. J Vasc Interv Radiol 17, Part 2:408-413 (Annual meeting, Society of Interventional Radiology, 2006).
- 6. Kuo WT, Kee ST, **Kothary N**, Sze, D, Hofmann LV. Retrieval of the Difficult Günther Tulip IVC Filter: Snare over Guidewire Loop Technique. J Vasc Interv Radiol 18, Part 2:S124 (Annual meeting, Society of Interventional Radiology, 2007).
- 7. Kuo W, van den Bosch MA, Hofmann LV, Louie JD, **Kothary N**, Sze DY. Catheter-Directed Embolectomy, Fragmentation, and Thrombolysis for the Treatment of Massive Pulmonary Embolism after Failure of Systemic Thrombolysis. (Annual Meeting of Chest Physicians. Chicago, IL, 2007).
- 8. **Kothary N**, Kuo WT, Louie J, Hofmann LV, Sze DY. Safety and Efficacy of Ethanolamine for Embolization of Gastric Varices in Patients with Portal Hypertension. J Vasc Interv Radiol 19:S74 (Annual meeting, Society of Interventional Radiology, 2008).
- 9. Dhanani RS, **Kothary N**, Hunt S, Kuo WT, Hofmann LV, Sze DY. Comparison of Outcomes between TIPS Performed with 8mm and 10mm Diameter Stent-graft devices. J Vasc Interv Radiol 19:S78 (Annual meeting, Society of Interventional Radiology, 2008).
- 10. Higgins LJ, van den Bosch M, Hwang GL, Paulmurugan R, **Kothary N**, Kuo WT, Sze DY, Katzenberg R, Gambhir SS, Hofmann LV. In Vitro Transfection of Hepatoma Cells and Hepatocytes with a Nonviral Vector Using Protamine and Ethiodol. J Vasc Interv Radiol 19:S135 (Annual meeting, Society of Interventional Radiology, 2008).
- 11. Van den Bosch MA, Higgins L, Hwang G, Katzenberg RH, Willmann JK, Paulmurugan R, Kuo WT, **Kothary N**, Dan SY, Gambhir SS, Hofmann LV. Novel Rat Hepatocellular Carcinoma Model Designed for In Vivo Evaluation of Image-guided Therapies. J Vasc Interv Radiol 19:S136 (Annual meeting, Society of Interventional Radiology, 2008).
- 12. Kuo WT, van den Bosch MA, Sze DY, Gould MK, **Kothary N**, Hofmann LV. Catheter-Directed Therapy for Massive Pulmonary Embolism: Systematic Review & Meta-analysis of the Modern Technique. J Vasc Interv Radiol 19:S6 (Annual meeting, Society of Interventional Radiology, 2008).
- 13. Tye GA, Rosenberg J, Kuo WT, **Kothary N**, Sze DY, Hofmann LV. Oral Contraceptive Induced Deep Venous Thrombosis: A Correlation with May-Thurner Syndrome. J Vasc Interv Radiol 19:S26 (Annual meeting, Society of Interventional Radiology, 2008).
- 14. **Kothary N**, Dua, R, Louie JD, Hwang GL, Kuo WT, Hovsepian DM, Leung A, Hofmann LV, Sze DY. CT Guided Percutaneous Needle Biopsy of the Indeterminate Pulmonary

- Nodule: Efficacy of Obtaining a Diagnostic Sample. J Vasc Interv Radiol 20:S36 (Annual meeting, Society of Interventional Radiology, 2009).
- 15. **Kothary N**, Louie JD, Kuo WT, Hovsepian D, Sze DY, Hofmann LV. Safety and Efficacy of Percutaneous Fiducial Marker Implantation for Image-Guided Radiation Therapy. J Vasc Interv Radiol 20:S52 (Annual meeting, Society of Interventional Radiology, 2009).
- 16. **Kothary N**, Desser, T, Louie JD, Hofmann LV. Fly on the Wall? Improving Resident Education in Interventional Radiology. J Vasc Interv Radiol 20:S43 (Annual meeting, Society of Interventional Radiology, 2009).
- 17. **Kothary N**, Tognolini A, Louie JD, Hwang GL, Kuo WT, Hovsepian DM, Hofmann LV, Sze DY. Impact of C-Arm CT on Treatment Planning in Patients Undergoing Chemembolization for Tumors Located in Segments with Watershed Arterial Supply. J Vasc Interv Radiol 20:S72 (Annual meeting, Society of Interventional Radiology, 2009).
- 18. **Kothary N**, Tognolini A, Louie JD, Hwang GL, Kuo WT, Hovsepian DM, Hofmann LV, Sze DY. Impact of C-Arm CT in Patients with Hepatocellular Carcinoma Undergoing Transhepatic Arterial Chemoembolization. J Vasc Interv Radiol 20:S73 (Annual meeting, Society of Interventional Radiology, 2009).
- 19. Chan KT, Sze DY, Kuo WT, **Kothary N**, Louie JD, Hovsepian D, Hwang GL, Hofmann LV. Iliac Vein Stenosis and Thrombus Volume: A Positive Correlation in Lower Extremity Deep Venous Thrombosis. J Vasc Interv Radiol 20:S89 (Annual meeting, Society of Interventional Radiology, 2009).
- 20. Chan KT, Sze DY, Kuo WL, **Kothary N**, Hofmann LV. Common Iliac Vein Stenosis and Risk of Pulmonary Embolism: A Negative Correlation. J Vasc Interv Radiol 20:S13 (Annual meeting, Society of Interventional Radiology, 2009).
- 21. Singh A, Kim YI, Rosenberg J, Katzenberg R, van den Bosch M, Ramasamy R, Sze DY, **Kothary N**, Gambhir SS, Hofmann LV. Suicide Gene Therapy for Hepatocellular Carcinoma. Cardiovascular and Interventional Radiology; 32:S295 (CIRSE 2009).
- 22. Louie JD, **Kothary N**, Kuo WT, Hwang GL, Hofmann LV, Goris M, Iagaru A, Sze DY. Impact of Using C-Arm CT on Treatment Planning for Yttrium-90 Radioembolization. J Vasc Interv Radiol 21:S14 (Annual meeting, Society of Interventional Radiology, 2010).
- 23. Hwang GL, Callas TP, Louie JD, Kuo WT, **Kothary N**, Sze DY, Hovsepian DM, Hofmann LV. Safety of Irreversible Electroporation in the Pancreas: Preclinical Assessment in the Porcine Pancreas. J Vasc Interv Radiol 21:S40 (Annual meeting, Society of Interventional Radiology, 2010).
- 24. Abdelmaksoud MHK, Hwang GL, Louie JD, **Kothary N**, Hofmann LV, Kuo WT, Hovsepian DM, Sze DY. New Hepatico-Enteric Anastomoses that Appear After Endovascular Skeletonization of the Hepatic Artery in Preparation for Radioembolization. J Vasc Interv Radiol 21:S17 (Annual meeting, Society of Interventional Radiology, 2010).

- 25. Carr S, Hwang GL, Rosenberg J, Sze DY, Hovsepian DM, Kuo WT, **Kothary N**, Louie JD, Unver K, Hofmann LV. Common Iliac Vein Diameter and Risk of Deep Venous Thrombosis. J Vasc Interv Radiol 21:S6 (Annual meeting, Society of Interventional Radiology, 2010).
- 26. Abdelmaksoud MHK, Louie JD, Hwang GL, **Kothary N**, Hofmann LV, Kuo WT, Hovsepian DM, Sze DY. Consolidation of Hepatic Arterial Inflow by Embolization of Variant and Parasitized Arteries in Preparation for 90Y Radioembolization. J Vasc Interv Radiol 21:S13 (Annual meeting, Society of Interventional Radiology, 2010).
- 27. Tognolini A, **Kothary N**, Fahrig R, Abdelmaksoud MHK, Hwang GL, Louie JD, Hofmann LV, Sze DY. Imaging Guidance with C-Arm CT (CACT) for Transhepatic Arterial Chemoembolization: A Prospective, Randomized Study Evaluating the Impact of CACT on Patient Radiation Exposure. J Vasc Interv Radiol 21:S47 (Annual meeting, Society of Interventional Radiology, 2010).
- 28. Hong JC, Yao Y, Rao AK, Dieterich S, Maxim PG, Sze DY, **Kothary N**, Loo BW. High Retention and Safety of Vascular Embolization Coils as Fiducial Markers for Image-Guided Stereotactic Ablative Radiotherapy of Pulmonary Tumors. (ASTRO annual meeting 2010).
- 29. Joseph TM, Unver K, Rosenberg JK, Hashmi S, Hofmann LV, Sze DY, **Kothary N**, Hwang GL, Kuo WT, Louie JD, Hovsepian D. Cholecystostomy for High-Risk Surgical Patients with Acute Cholecystitis: A 10-Year Analysis. J Vasc Inter Radiol 22 issue 3: S30 (Annual meeting, Society of Interventional Radiology, 2011).
- 30. **Kothary N**, Kuschner WG, Paik J, Hsu, J. The Diagnostic Yield of CT-Guided Percutaneous Lung Biopsy in Solid Organ Transplant Recipients. J Vasc Inter Radiol 22 issue 3: S15 (Annual meeting, Society of Interventional Radiology, 2011).
- 31. Charalel RA, Louie JD, **Kothary N**, Hovsepian D, Kuo L, Hofmann LV, Sze DY. Feasibility and Utility of Carbon Dioxide-Enhanced CACT. J Vasc Inter Radiol 22 issue 3: S52 (Annual meeting, Society of Interventional Radiology, 2011).
- 32. Abdelmaksoud M, Louie JD, **Kothary N**, Hwang GL, Kuo WT, Hofmann LV, Hovsepian D Sze DY. Y90 radioembolization of Renal Cell Carcinoma Metastatic to the Liver: A Pilot Study. J Vasc Inter Radiol 22 issue 3: S87 (Annual meeting, Society of Interventional Radiology, 2011).
- 33. Kuo WT, Odegaard JI, Louie JD, Unver K, **Kothary N**, Rosenberg JK, Sze DY, Hovsepian DM, Hofmann LV. Photothermal Ablation with the Excimer Laser Sheath Technique for Embedded IVC Filter Removal: Initial Results from a Prospective Study. J Vasc Inter Radiol 22 issue 3: S46 (Annual meeting, Society of Interventional Radiology, 2011).
- 34. Chan KT, Tye GA, Popat RA, Kuo WT, Unver K, **Kothary N**, Sze DY, Hofmann LV. Common Iliac Vein Stenosis: A Risk Factor for Oral Contraceptive-Induced Deep Vein Thrombosis. J Vasc Inter Radiol 22 issue 3: S49 (Annual meeting, Society of Interventional Radiology, 2011).

- 35. **Kothary N**, Tognolini A, Abdelmaksoud MHK, Louie, JD, Hwang GL, Sze DY, Hofmann LV. C-Arm CT for Hepatic Interventions: TIPS and Tricks for Optimal Imaging. J Vasc Inter Radiol 22 issue 3: S123 (Annual meeting, Society of Interventional Radiology, 2011).
- 36. Ghatan CE, Kuo, WT, Hofmann LV, **Kothary N**. Making the Case for Early Medical Student Education in Interventional Radiology: A Survey of 2nd-Year Students in a Single U.S. Institution. J Vasc Inter Radiol 22 issue 3: S135 (Annual meeting, Society of Interventional Radiology, 2011).
- 37. Higgins LJ, Hwang GL, Katzenberg RH, **Kothary** N, Sze DY, Hofmann LV, In Vivo Gene Delivery Using an Arginine Peptide Delivery System (VIPER) in an Orthotopic Hepatocellular Carcinoma Rat Model. J Vasc Inter Radiol 22 issue 3: S114 (Annual meeting, Society of Interventional Radiology, 2011).
- 38. **Kothary N**, Hong JC, Yu Y, Dieterich S, Sze DY, Loo BW. Use of Percutaneously Implanted Endovascular Embolization Coils as Fiducial Markers for Stereotactic Ablative Radiotherapy for Lung Tumors. J Vasc Inter Radiol 22 issue 3: S123 (Annual meeting, Society of Interventional Radiology, 2011).
- 39. **Kothary N**, Dieterich S, Louie JD, Hwang JL, Kuo WT, Hovsepian D, Sze DY, Loo BW, Hofmann L. The Role of IR in Stereotactic Ablative Radiotherapy (SABR). J Vasc Inter Radiol 22 issue 3: S123 (Annual meeting, Society of Interventional Radiology, 2011).
- 40. Abdelmaksoud M, Hwang GL, Louie, JD, Hofmann LV, Sze DY, **Kothary N**. Detection of Small Hepatocellular Carcinoma During Transarterial Chemoembolization: Comparison Between C-Arm CT and Digital Subtraction Angiography. J Vasc Inter Radiol 22 issue 3: S118 (Annual meeting, Society of Interventional Radiology, 2011).
- 41. Abdelmaksoud M, Hwang GL, Louie, JD, Hofmann LV, Sze DY, **Kothary N**. Incidence and Detection of Dual Blood Supply to Hepatocellular Carcinoma Located in Watershed Regions of Segment IV and VIII During Transarterial Chemoembolization. J Vasc Inter Radiol 22 issue 3: S118 (Annual meeting, Society of Interventional Radiology, 2011).
- 42. Hong JC, Eclov NCW, Yu Y, Rao AK, Dieterich S, Maxim PG, Le Q, Diehn, M, **Kothary** N, Loo BW. Analysis of Migration of Implanted Markers for Image-Guided Lung Tumor Stereotactic Ablative Radiotherapy. ASTRO 53<sup>rd</sup> Annual Meeting 2011.
- 43. Abelson JA, **Kothary N**, Fleischmann D, Hofmann L, Kielar KN, Maxim PG, Le Q, Hara W, Diehn M, Loo BW. Feasibility of Pulmonary Interstitial Lymphography-guided Highrisk Primary Nodal Irradiation in Lung Tumor Stereotactic Ablative Radiotherapy. ASTRO 53<sup>rd</sup> Annual Meeting 2011.
- 44. **Kothary N**, Daugherty T, Sze DY, Hofmann LV, Concepcion W. Implication of Dual Blood Supply to Hepatocellular Carcinoma Located in Watershed Regions During TACE. The Liver Meeting 2011. 63<sup>rd</sup> Annual Meeting of the American Association for the Study of Liver Disease.

- 45. Unver K, **Kothary N**, Lam GJ, Hovsepian DH. Lean Sigma in the IR Suite. J Vasc Inter Radiol 23 issue 3: S102 (Annual meeting, Society of Interventional Radiology, 2012)
- 46. Samuelson SD, Jackson BA, Hubney CM, Wong AA, Loh S, Wang DS, Shah RP, Kothary N, Louie JD, Sze DY, Hofmann LV, Hovsepian DM, Kuo WT, Hwang GL. Cancer Chemotherapeutics and Anti-Cancer Drugs: a Primer for Interventional Radiologists. J Vasc Inter Radiol 23 issue 3: S150 (Annual meeting, Society of Interventional Radiology, 2012)
- 47. Kuo W, Robertson SW, Odegaard JI, **Kothary N**, Hovsepian DM, Unver K, Louie JD, Sze DY, Hwang GL, Hofmann LV. Complex Retrieval of Fractured, Embedded, and Penetrating iVC filters: a Prospective Study with Histologic and Electron Microscopic Analysis. J Vasc Inter Radiol 23 issue 3: S26-27 (Annual meeting, Society of Interventional Radiology, 2012)
- 48. Ganguly A, **Kothary N**, Blum K, Moore T, Deuerling-Zheng Y, Fiesselmann, Fahrig R. Measurement of Hepatic Perfusion Blood Volume using C-arm CT. J Vasc Inter Radiol 23 issue 3: S97 (Annual meeting, Society of Interventional Radiology, 2012)
- 49. Wang DS, Davalos EA, Hwang GL, Louie JD, Kuo WT, Shah RP, Hovsepian DM, Hofmann, LV, Sze DY, Kothary N. Superselective Transhepatic Arterial Chemoembolization for Hepatocellular Carcinoma in High Risk Patients as a Bridge towards Liver Transplantation. J Vasc Inter Radiol 23 issue 3: S16 (Annual meeting, Society of Interventional Radiology, 2012)
- 50. Samuelson SD, Hofmann LV, **Kothary N**, Loh S, Louie JD, Kuo WT, Hovsepian DM, Sze DY, Hwang GL. Design and Implementation of IR-specific Features in an Electronic Medical Records System. J Vasc Inter Radiol 23 issue 3: S128 (Annual meeting, Society of Interventional Radiology, 2012)
- 51. Wang DS, Louie JD, Shah RP, **Kothary N**, Sze DY. Prophylactic Topically Applied Ice to Prevent Cutaneous Complications of Nontarget Chemoembolization and Radioembolization of Liver Tumors. J Vasc Inter Radiol 23 issue 3: S84 (Annual meeting, Society of Interventional Radiology, 2012)
- 52. Hwang GL, Desai J, Louie JD, Kuo WT, Sze, DY, Hovsepian D, **Kothary N**, Hofmann LV. Discrepancy Between Expected and Actual Lengths of Viabil Stents Deployed with Standard Pin-Pull Technique. J Vasc Inter Radiol 24 issue 4: S53 (Annual meeting, Society of Interventional Radiology, 2013)
- 53. Sullivan P, Sidhar V, Popat R, Hovsepian D, Wang DS, **Kothary N**. Frequency and Significance of Dual Arterial Supply for Watershed HCCs Treated by TACE. J Vasc Inter Radiol 24 issue 4: S53 (Annual meeting, Society of Interventional Radiology, 2013)
- 54. Hwang, GL, Louie JD, Hofmann LV, **Kothary N**, Kuo WT, Desai, Hovsepian DM, Sze DY. Outcomes of Viabil Covered Stent Placement for Treatment of Hepaticojejunostomy Strictures. J Vasc Inter Radiol 24 issue 4: S54 (Annual meeting, Society of Interventional Radiology, 2013)

- 55. **Kothary N**, Ganguly A, Blum, Deuerling-Zheng Y, Rosenberg J, Moore T, Manhart M, Fahrig R. Measurement of Hepatic Blood Flow Using C-arm CT imaging. J Vasc Inter Radiol 24 issue 4: S11 (Annual meeting, Society of Interventional Radiology, 2013)
- 56. Takehana C, Tahvidari AM, Wang DS, Sze DY, **Kothary N**. Watershed HCCs: The risk and impact of incomplete response on transplant eligibility. J Vasc Interv Radiol 25 issue 3, S114 (Annual meeting, Society of Interventional Radiology, 2014)
- 57. Duan, F, Wang EQ, Lam MG, Abdelmaksoud M, **Kothary N**, Hwang G, Louie JD, Hovsepian D, Kuo, WT, Hofmann LV, Sze DY. Superselective chemoembolization: efficacy and toxicity comparison between drug-eluting bead and ethiodated oil delivery. J Vasc Interv Radiol 25 issue 3, S25 (Annual meeting, Society of Interventional Radiology, 2014)
- 58. Ahmed OA, Shah R, Hwang G, Louie J, Hofmann LV, **Kothary N**. The risk of hemorrhage following transjugular liver biopsy in bone marrow transplantation recipients. J Vasc Interv Radiol 26 issue 2, S83-84 (Annual meeting, Society of Interventional Radiology, 2015).
- 59. Ahmed OA, Ederhof M, Telischak K, **Kothary N**, Patel MV, Louie JD, Hofmann LV. Cost accounting as a tool for increasing cost transparency in super-selective hepatic transarterial chemoembolization. J Vasc Interv Radiol 26 issue 2, S209-10 (Annual meeting, Society of Interventional Radiology, 2015)
- 60. Ahmed OA, Kuo WT, Mitarai T, Schreiber D, Weinacker A, **Kothary N**, Hofmann LV. Multi-disciplinary protocol for the management of massive pulmonary embolism. J Vasc Interv Radiol 26 issue 2, S227 (Annual meeting, Society of Interventional Radiology, 2015)
- 61. Gevaert O, Echegaray S, Napel S, **Kothary N**. Predictive modeling of microvascular invasion using triphasic quantitative imaging of hepatocellular carcinoma. 101th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA) 2015. Chicago, IL.
- 62. Ang M, Sheu A, Fang A, **Kothary N**, Shah R, Wang D, Hwang G. Venous thrombosis following microwave ablation of hepatocellular carcinoma and liver metastases. J Vasc Interv Radiol 27 issue 3, S30-S31 (Annual meeting, Society of Interventional Radiology, 2016)
- 63. Chen J, Rose S, White S, El-Haddad G, Fidelman N, Yarmohammadi H, Sze D, Kothary N, Stashek K, Wileyto E, Salem R, Metz D, Soulen M. Embolotherapy for neuroendocrine tumor liver metastases: prognostic factors for hepatic progression-free survival and overall survival. J Vasc Interv Radiol 27 issue 3, S36 (Annual meeting, Society of Interventional Radiology, 2016)
- 64. Ghatan C, Hwang G, **Kothary N.** Occupational radiation exposure and pregnancy: a survey of female practicing interventional radiologists. **Featured Abstract.** J Vasc Interv Radiol 27 issue 3, S44 (Annual meeting, Society of Interventional Radiology, 2016) Featured Abstract
- 65. Mueller K, Datta S, Gehrisch S, Moore T, Ahmad M, Louie J, Wang D, Hwang G, Sze D, **Kothary N.** Utility of dual-phase cone-beam CT: Can it predict tumor response after super-

- selective TACE for HCC? J Vasc Interv Radiol, Volume 27 issue 3, S86 (Annual meeting, Society of Interventional Radiology, 2016)
- 66. Kishore S, **Kothary N**, Lungren M, Mohler D, Avedian R, Ghanouni P. Treatment of osteoid osteoma using MR guided high intensity focused ultrasound: preliminary results after four patients. J Vasc Interv Radiol, Volume 27 issue 3, S138 (Annual meeting, Society of Interventional Radiology, 2016)
- 67. Arendt V, Kuo W, Shah R, **Kothary N**, Wang D, Hovsepian D, Sze D, Louie J, Hwang G, Hofmann LV. Twenty years of lower extremity venous stenting experience. J Vasc Interv Radiol, Volume 27 issue 3, S142 (Annual meeting, Society of Interventional Radiology, 2016)
- 68. Goldman R, Arendt V, **Kothary N**, Kuo W, Sze D, Hofmann LV, Lungren M. Use of endovascular stents for management of pediatric May-Thurner syndrome: a single-center experience. J Vasc Interv Radiol, Volume 27 issue 3, S189 (Annual meeting, Society of Interventional Radiology, 2016)
- 69. Chen JX, Rose S, White SB, El-Haddad G, Fidelman N, Yarmohammadi H, Hwang W, Sze DY, **Kothary N**, Stashek K, Wileyto EP, Salem R, Metz DC, Soulen MC. Embolotherapy for Neuroendocrine Tumor Liver Metastases: Prognostic Factors for Hepatic Progression-Free Survival and Overall Survival. J Vasc Interv Radiol, Volume 27 issue 3, S36. (Annual meeting, Society of Interventional Radiology, 2016)
- 70. M AbdelRazek, M Lungren, G Hwang, D Wang, J Louie, **N Kothary**. Albumin / Bilirubin grade (ALBI): A robust predictor of decompensation and poor outcome in high-risk patients undergoing TACE for HCC. Journal of Vascular and Interventional Radiology, Vol. 28, Issue 2, S82 (Annual meeting, Society of Interventional Radiology, 2017)
- 71. M AbdelRazek, W Hwang, M Abdelmaksoud, J Louie, **N Kothary**, D Sze. Drug eluting bead chemoembolization for neuroendocrine tumor metastases: risk factors for biliary toxicity. Journal of Vascular and Interventional Radiology, Volume 28, Issue 2, S206. (Annual meeting, Society of Interventional Radiology, 2017)
- 72. S Tulin-Silver, C Obi, **N Kothary**, M Lungren. Comparison of transjugular liver biopsy and percutaneous liver biopsy with tract embolization in pediatric patients. Journal of Vascular and Interventional Radiology, Volume 28, Issue 2, S91 S92. (Annual meeting, Society of Interventional Radiology, 2017)
- 73. Leland Pung, Moiz Ahmad, Kerstin Mueller, Jarrett Rosenberg, Christopher Stave, Gloria L. Hwang, Rajesh Shah, **Nishita Kothary**. The Role of Cone-Beam CT in Transcatheter Arterial Chemoembolization for Hepatocellular Carcinoma: A Systematic Review and Meta-analysis. Journal of Vascular and Interventional Radiology, Volume 28, Issue 3, 334 341. (Annual meeting, Society of Interventional Radiology, 2017)
- 74. M AbdelRazek, **N Kothary**, J Louie, D Sze. Hepatic abscess after transarterial chemoembolization (TACE): a complication with possible therapeutic effect via serendipitous immunotherapy. Journal of Vascular and Interventional Radiology, Volume 28, Issue 2, S126. (Annual meeting, Society of Interventional Radiology, 2017)

75. M AbdelRazek, W Hwang, M Abdelmaksoud, J Louie, **N Kothary**, P Kunz, D Sze. Selection between locoregional embolotherapies for hepatic metastases from neuroendocrine tumor: Stratification by tumor burden. Journal of Vascular and Interventional Radiology, Volume 28, Issue 2, S19. (Annual meeting, Society of Interventional Radiology, 2017)

# 6. Speaking Invitations (Including conducting workshops)

#### **International**

**Invited Presentations: Total of 17** 

| 2004 | Renal Revascularization<br>6 <sup>th</sup> Asia-Pacific Interventional Radiology Conference, Delhi, India  |
|------|--|
| 2004 | Vascular Access<br>6 <sup>th</sup> Asia-Pacific Interventional Radiology Conference, Delhi, India  |
| 2005 | Management of Vertebral Compression Fractures 8 <sup>th</sup> Indian Society of Interventional Radiology Conference, Pune India                  |
| 2005 | Dialysis Access Management<br>8 <sup>th</sup> Indian Society of Interventional Radiology Conference, Pune India                                  |
| 2006 | Spine Interventions: Vertebroplasty and Kyphoplasty 9 <sup>th</sup> Indian Society of Interventional Radiology Conference, Chennai, India        |
| 2006 | Endovascular Treatment of Aortic Aneurysms and Dissections 9 <sup>th</sup> Indian Society of Interventional Radiology Conference, Chennai, India |
| 2011 | Fiducial Implantation for SABR<br>2011 World Conference in Interventional Oncology, New York, NY   |
| 2013 | Integration of Interventional Oncology with Radiation Oncology<br>European Conference of Interventional Oncology<br>Budapest, Hungary            |
| 2014 | Fusion Imaging and its role in IR<br>Global Embolization Symposium and Technologies (GEST)<br>San Francisco, CA                                  |
| 2014 | High Risk Ablation Zones: Modifying or Reducing Risks<br>Global Embolization Symposium and Technologies (GEST)<br>San Francisco, CA              |
| 2015 | Moderator, Veins and Fistulae  |

|      | Global Embolization Symposium and Technologies (GEST)<br>San Francisco, CA  |
|------|---|
| 2015 | Minimally Invasive Treatment of RCC<br>Chinese PLA General Hospital Interventional Radiology Forum<br>Beijing, People's Republic of China         |
| 2015 | The Use of CBCT in Liver Directed Therapies<br>Chinese PLA General Hospital Interventional Radiology Forum<br>Beijing, People's Republic of China |
| 2016 | Locoregional Therapies for HCC: an IVR's Perspective 3 <sup>rd</sup> GI-CoRE Medical Science and Engineering Symposium Sapporo, Japan             |
| 2016 | Coils and Plugs: Microcatheter compatibilities.<br>Global Embolization Symposium and Technologies (GEST)<br>New York, NY                          |
| 2016 | Y90 Therapy Planning: The Basics<br>World Conference on Interventional Oncology, Boston, MA   |
| 2016 | Moderator, Case-Based Review of Y90 Tumor Board<br>World Conference on Interventional Oncology, Boston, MA  |

# National Invited Presentations (Symposia): Total of 19

| 2008 | Interventional Radiology for Liver Cancers: Oncodiagnosis panel, plenary session, 95 <sup>th</sup> Annual Scientific Meeting, Radiological Society of North America, Chicago, IL |
|------|--|
| 2008 | Optimizing Targeted Treatment of Liver Cancers. Refresher Course, 95 <sup>th</sup> Annual Scientific Meeting, Radiological Society of North America, Chicago, IL                 |
| 2009 | High Risk Chemoembolization 39 <sup>th</sup> Annual Scientific Meeting, Western Angiographic and Interventional Society, San Diego, CA   |
| 2009 | C-arm CT and its Role in Hepatic Interventions<br>39 <sup>th</sup> Annual Scientific Meeting, Western Angiographic and<br>Interventional Society, San Diego, CA                  |
| 2009 | Management of Renal Tumors – Transarterial and Percutaneous: The Whole Gamut 17th Annual Advanced Interventional Management Symposium, New York, NY                              |

| 2009 | Image-Guided Radiotherapy vs. Percutaneous Ablation Techniques:<br>Results in Lung and Liver Tumors<br>17th Annual Advanced Interventional Management Symposium, New<br>York, NY             |
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| 2009 | Fiducial Implantation for Stereotactic Radiotherapy<br>17th Annual Advanced Interventional Management Symposium, New<br>York, NY   |
| 2010 | Strategies and Secrets in Interventional Oncology: Hepatic<br>Transarterial Therapies<br>35 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional<br>Radiology, Tampa, FL |
| 2010 | Uses and Abuses of Cone-beam CT in IR<br>18th Annual Advanced Interventional Management Symposium, New<br>York, NY   |
| 2011 | Implanted Target Surrogates (Fiducials) for Radiation Treatment<br>Verification<br>2011 meeting for American Association of Physicists in Medicine<br>Vancouver, BC                          |
| 2011 | When is Radiation Indicated and are Fiducials Necessary? 19th Annual Advanced Interventional Management Symposium, New York, NY  |
| 2012 | Interventional Oncology: Image-guided Minimally Invasive<br>Treatment of Cancer<br>Canary Foundation Early Detection Symposium, Stanford University,<br>CA                                   |
| 2013 | Work-Life Balance in IR 38 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, New Orleans, LA   |
| 2015 | The role of Radiogenomics in tumor prognosis.<br>44 <sup>th</sup> Western Angiographic and Interventional Society<br>Kona, HI  |
| 2015 | Liver Tumor Board: Plenary Session 40 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, Atlanta, GA.   |
| 2016 | Technical challenges and anatomic considerations in the management of HCC 3 <sup>rd</sup> Annual Digestive Disease Interventions Meeting, San Diego CA                                       |

2016 Management of HCC in watershed areas and with extrahepatic supply

3<sup>rd</sup> Annual Digestive Disease Interventions Meeting, San Diego CA

2017 Women and Under-Represented Minorities in Interventional

Radiology

UCSF Medical Student Lecture

San Francisco, CA

#### **National**

# Invited workshops/moderator for scientific sessions: Total of 27

2003 Basic CPT Coding (workshop)

28<sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology,

Salt Lake, UT

2003 Closure Device (hands-on workshop)

10<sup>th</sup> Advanced Interventional Management Symposium

New York, NY

2004 Biliary Interventions (workshop)

29<sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology,

Phoenix, AZ

2004 Advanced CPT Coding (workshop)

29th Annual Scientific Meeting, Society of Interventional Radiology,

Phoenix, AZ

2005 Advanced CPT Coding (workshop)

30<sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology,

New Orleans, LA

2006 AortoIliac Disease (workshop)

31st Annual Scientific Meeting, Society of Interventional Radiology,

Toronto, Canada

2006 Moderator, Spine (scientific session)

31st Annual Scientific Meeting, Society of Interventional Radiology,

Toronto, Canada

2007 Aortolliac Disease (workshop)

32<sup>nd</sup> Annual Scientific Meeting, Society of Interventional Radiology,

Seattle, WA

2007 Moderator, Spine (scientific session)

32<sup>nd</sup> Annual Scientific Meeting, Society of Interventional Radiology,

Seattle, WA

2008 AortoIliac Disease (workshop)

|      | 33 <sup>rd</sup> Annual Scientific Meeting, Society of Interventional Radiology, Washington DC   |
|------|--|
| 2009 | Alternative Contrast Agents and Prevention of Contrast Nephropathy (workshop) 34 <sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology, San Diego, CA |
| 2009 | Speaker, Turf Wars in IR. Residents-in-Training Scholarship Program 34 <sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology, San Diego, CA           |
| 2012 | Moderator, Chemoembolization III (scientific session)<br>37 <sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology,<br>San Francisco, CA               |
| 2012 | Panelist, Research in IR. (Resident-in-Training scholarship program) 37 <sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology, San Francisco, CA      |
| 2012 | Panelist, Women in IR (Resident-in-Training program) 37 <sup>th</sup> Annual Scientific Meeting, Society of Interventional Radiology, San Francisco, CA                      |
| 2013 | Workshop Coordinator, Visceral Aneurysms<br>38 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional<br>Radiology, New Orleans, LA                        |
| 2013 | Moderator, Chemoembolization (scientific session) 38 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, New Orleans, LA                     |
| 2013 | Film Panelist (Resident-in-Training program) 38 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, New Orleans, LA                          |
| 2014 | Embolization of Visceral aneurysms, Workshop coordinator and speaker 39 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, San Diego, CA    |
| 2014 | Ablation: a hands-on workshop<br>39 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional<br>Radiology, San Diego, CA                                     |
| 2014 | TACE, workshop coordinator 39 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, San Diego, CA  |

| 2014       | Moderator, TACE II scientific session 39 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, San Diego, CA       |
|------------|--|
| 2015       | Cone-beam CT in oncologic diagnosis and therapy $40^{th}$ Annual Scientific Meeting of the Society of Interventional Radiology, Atlanta, GA.     |
| 2015       | Complex TACE Workshop 40 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional Radiology, Atlanta, GA.                        |
| 2015       | Visceral Aneurysms Workshop<br>40 <sup>th</sup> Annual Scientific Meeting of the Society of Interventional<br>Radiology, Atlanta, GA             |
| 2016       | Visceral Aneurysms Workshop<br>41 <sup>st</sup> Annual Scientific Meeting of the Society of Interventional<br>Radiology, Vancouver, B.C.         |
| 2016       | Cone-Beam CT: Latest Bells and Whistles 41 <sup>st</sup> Annual Scientific Meeting of the Society of Interventional Radiology, Vancouver, B.C.   |
| 2017       | How to Use Cone Beam CT in Your Practice 43 <sup>rd</sup> Annual Scientific Meeting of the Society of Interventional Radiology, Washington, D.C. |
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# Regional and CME Invited Presentations: Total of 25

| Invited Presentations: Total of 25 |  |
|------------------------------------|--|
| 2003                               | Radiofrequency Ablation of Bone Tumors                           |
|                                    | Columbia University Medical Center, Radiofrequency Ablation      |
|                                    | Course, New York, NY   |
| 2004                               | Locoregional Therapy: New Horizons; Current Practices and Future |
|                                    | Trends   |
|                                    | Columbia University Medical Center, Interventional Oncology      |
|                                    | Course, New York, NY   |
| 2004                               | Uterine Fibroid Embolization: Current Trends                     |
|                                    | Women's Physicians Group of Westchester, NY                      |
| 2005                               | Treatment of Painful Compression Fractures: Oncology Grand       |
|                                    | Rounds, Columbia University Medical Center, New York, NY         |
| 2006                               | Treatment of Compression Fractures: Medical Grand Rounds         |
| 2000                               | Lawrence Hospital Center, Bronxville, NY                         |
|                                    |  |

| 2006 | Role of IR in liver Transplant Patients: Current Treatment Options<br>Stanford CME course, Stanford University School of Medicine,<br>Stanford, CA                           |
|------|--|
| 2006 | Truth, Lies and Fairytales: Cardiovascular and Peripheral Vascular<br>Disease in Women<br>Women's Health @ Stanford, Stanford University School of Medicine,<br>Stanford, CA |
| 2007 | Ablation of Liver Tumors<br>Stanford CME course, Latest Advances in Interventional Radiology,<br>Maui, HI  |
| 2007 | Ablation of Bone Tumors<br>Stanford CME course, Latest Advances in Interventional Radiology,<br>Maui, HI   |
| 2007 | Ablation of Lung Tumors<br>Stanford CME course, Latest Advances in Interventional Radiology,<br>Maui, HI   |
| 2007 | Management of Renal Tumors<br>Stanford CME course, Latest Advances in Interventional Radiology,<br>Maui, HI  |
| 2007 | Coding for Interventional Oncology<br>Invited speaker, Golden Gate Chapter of the American Academy of<br>Professional Coders, Palo Alto, CA                                  |
| 2008 | Advances in Interventional Radiology: How IR can Help Your Patient Invited Speaker, Grand Rounds, Palo Alto Medical Foundation, Palo Alto, CA                                |
| 2008 | RF Ablation: Tips and Tricks for Difficult Cases<br>Stanford CME course, 2 <sup>nd</sup> Latest Advances in Interventional<br>Radiology, Kauai, HI                           |
| 2008 | C-Arm CT: How We Use It at Stanford<br>Stanford CME course, 2 <sup>nd</sup> Latest Advances in Interventional<br>Radiology, Kauai, HI  |
| 2008 | Alternative Methods for Treating Variceal Bleeding: BRTO and Other Techniques Stanford CME course, 2 <sup>nd</sup> Latest Advances in Interventional Radiology, Kauai, HI    |
| 2008 | Marketing and Coding: Key Elements for a Successful Practice   |

|                            | Stanford CME course, 2 <sup>nd</sup> Latest Advances in Interventional Radiology, Kauai, HI   |
|----------------------------|---|
| 2009                       | Advances in Interventional Radiology: How IR can Help Your Patient with PVD Invited Speaker, AAPIO educational event, Freemont, CA  |
| 2009                       | The truth is in the Image: Understanding Radiological Examinations Stanford CME course, Stanford School of Medicine, Stanford, CA   |
| 2012                       | IR and the Lung Nodule<br>Pulmonary and Critical Care Grand Rounds, Stanford University School<br>of Medicine, Stanford, CA   |
| 2012                       | Locoregional Treatment for Renal Tumors<br>Urology Grand Rounds, Stanford University School of Medicine,<br>Stanford, CA  |
| 2012                       | Quantitative and Qualitative Perfusion Imaging of HCC: The Future of C-arm CT imaging Siemens Healthcare workshop, World Congress of Interventional Oncology, Chicago, IL |
| 2012                       | The Need for "Enomics" in Cancer Imaging and Treatment<br>Molecular Imaging Program at Stanford (MIPS), Stanford, CA  |
| 2013                       | Highlights of SIR 2013: The hepatologist's perspective<br>Northern California Society of Clinical Gastroenterology<br>San Francisco, CA                                   |
| 2017                       | Hepatocellular Carcinoma<br>Stanford University School of Medicine and the Division of Oncology<br>Cancer Education Seminar   |
| Other Speaking Invitations |   |
| 2006                       | Interventional Orthopedics Biodesign Surgical Innovation Program<br>Stanford University School of Medicine, Stanford, CA  |
| 2006                       | Spine Interventions: Vertebroplasty/Kyphoplasty Pathway to Clinical Excellence: Interventional Radiology, Fellows Conference, Chicago, IL                                 |
| 2006                       | Treating Varicose Veins and Venous Insufficiency<br>Pathway to Clinical Excellence: Interventional Radiology, Fellows<br>Conference, Chicago, IL                          |
| 2007                       | Percutaneous Ablation: Lung and Kidney  |

Pathway to Clinical Excellence: Interventional Radiology, Fellows

Conference, Chicago, IL

2007 Spine Interventions: Vertebroplasty/Kyphoplasty

Pathway to Clinical Excellence: Interventional Radiology, Fellows

Conference, Chicago, IL

2008 Percutaneous Ablation: Lung and Kidney

Pathway to Clinical Excellence: Interventional Radiology, Fellows

Conference, Chicago, IL

2008 From Fellow to Attending: Top Ten Adjustments

Pathway to Clinical Excellence: Interventional Radiology, Fellows

Conference, Chicago, IL

2016 Introduction to Interventional Radiology

Stanford Medical Youth Science Program, Palo Alto, CA

2017 Gender Stereotypes and Trainee Evaluations of Physician Faculty

Stanford University, Office of Faculty Development and Diversity

Women Faculty Networking Luncheon, Palo Alto, CA

# G. Grants and Sponsored Research

#### **Current:**

1. DIF Award Role: PI

Source: Stanford University, Office of Diversity

Total Award Amount: \$20,000 Date: 06/30/2017 – 07/01/2018

2. A phase 2 randomized multicenter trial to compare hepatic progression-free survival following bland embolization, lipiodol chemoembolization, and drug-eluting bead

chemoembolization of neuroendocrine liver metastases

Role: PI

Source: University of Pennsylvania Total Award Amount: \$71,001 Date: 05/01/2017 – 11/09/2019

3. 3D Virtual Reality for Endovascular Procedures

Role: PI

Source: EchoPixel, Inc.

Total Award Amount: \$66,753 Date: 04/01/2017 – 03/31/2018

4. TRAM training grant Role: Co-Investigator

Source: Translational Research and Applied Medicine program

Total Award Amount: \$20,000 Date: 8/30/2016 – 08/31/2017

5. A Phase 3 Randomized, Open-Label Study Comparing PexaVec (Vaccinia GM-CSF / Thymidine Kinase-Deactivated Virus) Followed by Sorafenib Versus Sorafenib in Patients with Advanced Hepatocellular Carcinoma (HCC) Without Prior Systemic

Therapy Role: PI

Source: SillaJen Biotherapeutics, Inc. Total Award Amount: \$342,273 Date: 07/15/2016 - 07/14/2019

6. International Randomized Study of Transarterial Chemoembolization (TACE) versus Stereotactic Body Radiotherapy (SBRT)/Stereotactic Ablative Radiotherapy (SABR) for Residual or Recurrent Hepatocellular Carcinoma after Initial TACE

Role: Co-PI

Source: Varian Medical Systems, Inc. Total Award Amount: \$750,000 Date: 06/15/2016 - 06/14/2021

7. Combined Investigations: Zeego Flexibility and Image Quality Improvement

Role: PI

Source: Siemens Corporate Research Total Award Amount: \$275,272 Date: 04/01/2014 – 04/01/2018

8. Developing a Genomic Approach for Cancer Screening

Role: Co-investigator

Source: National Institutes of Health Total Award Amount: \$2,407,500 Date: 09/30/2013 – 06/30/2018

#### **Past**

9. A Low-Dose Fluoroscope for Interventional Radiology Procedures

Role: PI

Source: National Institutes of Health / Triple Ring Technologies, Inc.

Total Award Amount: \$210,511 Date: 05/15/2013- 04/30/2016

10. A Phase 2b Randomized, Single-Blinded Trial of JX-594 (Vaccinia GM-CSF/TK deactivated virus) Plus Best Supportive Care Versus Placebo Plus Best Supportive Care in Patients with Advanced Hepatocellular Carcinoma Who Have Failed Sorafenib Treatment

Role: PI

Source: PRA International Total Award Amount: \$124,454 Date: 01/18/2012 – 01/17/2014 11. Advanced Applications in Interventions Radiology Addendum ID: SUMC -2102-AX-01

Role: PI

Source: Siemens Corporate Research Total Award Amount: \$51,236 Date: 06/01/2010 – 09/30/2012

12. Clinical Feasibility and Evaluation of RoRo (Rotational Mapping); Optimal imaging protocol of HCC undergoing TACE utilizing DynaCT; & Needle Guided Procedures Utilizing DynaCT, Laser Guidance and 2D3D Registration

Role: PI

Source: SMS USA

Total Award Amount: \$297,428 Date: 10/01/2007 - 04/30/2010

13. Perfusion Supplement

Role: Co-PI

Source: SMS USA

Total Award Amount: \$691,179 Date: 10/01/2007 - 09/30/2013