Our goal is to offer a forum where we can share important research information with faculty, residents, fellows, medical students, and staff and to encourage department-wide interest and activity in radiology research.

Hossein Jadvar, MD, PhD, MPH, MBA
Pasadena Magazine’s Top Doctors issue (June 2009), honored 7 radiologists from USC’s Department of Radiology. The list is lead by the Dr. Edward Grant, Chair of the department, and also includes Drs. Linda Hovanessian, Sravanthi Reddy, Miriam Romero, Jack Seto, M. Victoria Marx, and Eric White.

To develop its list, Pasadena Magazine sent sample ballots to the medical community announcing the Top Docs voting process and its secure voting website. Doctors from all over the San Gabriel Valley and Los Angeles area voted online for the most esteemed physician in his or her chosen field. The online votes were tabulated and physician’s credentials were verified by outside attorneys at law firm, Yee and Belilove LLP, Pasadena.
Meetings

SNM Annual Meeting (2009)

Members of the nuclear medicine and molecular imaging community met in Toronto, Canada for the 56th Annual Meeting of the Society of Nuclear Medicine. From June 13-17, the Metro Toronto Convention Centre hosted more than 5,800 physicians, technologists, and researchers.

Over 1,600 scientific papers were presented with research representing institutions worldwide. In addition to the members who discussed and presented their scientific work, some of this year’s focal points were multi-site clinical trials, molecular imaging and the Technecium-99m shortage. Educational seminars started the meeting with topics created by the SNM Molecular Imaging and PET Centers of Excellence such as Molecular Imaging Participation in Clinical Trials, Best Practices in PET/CT, and Molecular Imaging in Translational Medicine. Participation from USC staff and faculty also contributed to SNM through committee and business meetings. Along with other institutions, USC’s own Molecular Imaging Center was highlighted in the SNM Molecular Imaging Gateway to represent molecular imaging sites for translational medicine across the country.

The USC Keck School of Medicine and the Department of Radiology were well represented in attendance, awards, and participation in this year’s SNM Annual Meeting.
PET/MRI dual-modality tumor imaging using arginine-glycine-aspartic (RGD)-conjugated radiolabeled iron oxide nanoparticles

Ha-Young Lee*, Zibo Li*, Kai Chen, Andrew R. Hsu, Chenjie Xu, Jin Xie, Shouheng Sun, Xiaoyuan Chen *equal contribution

Abstract: The purpose of this study was to develop a bifunctional iron oxide (IO) nanoparticle probe for PET and MRI scans of tumor integrin alphavbeta3 expression.

METHODS: Polyaspartic acid (PASP)-coated IO (PASP-IO) nanoparticles were synthesized using a coprecipitation method, and particle size and magnetic properties were measured. A phantom study was used to assess the efficacy of PASP-IO as a T2-weighted MRI contrast agent. PASP-IO nanoparticles with surface amino groups were coupled to cyclic arginine-glycine-aspartic (RGD) peptides for integrin alphavbeta3 targeting and macrocyclic 1,4,7,10-tetraazacyclododecane-N,N',N'',N''',-tetraacetic acid (DOTA) chelators for PET after labeling with 64Cu. IO nanoparticle saturation magnetization of PASP-IO nanoparticles is about 117 emu/g of iron, and the measured r2 and r2* are 105.5 and 165.5 (s.mM)(-1), respectively. A displacement competitive binding assay indicates that DOTA-IO-RGD conjugates bound specifically to integrin alphavbeta3 in vitro. Both small-animal PET and T2-weighted MRI show integrin-specific delivery of conjugated RGD-PASP-IO nanoparticles and prominent reticuloendothelial system uptake. CONCLUSION: We have successfully developed an IO-based nanoprobe for simultaneous dual PET and MRI of tumor integrin expression. The success of this bifunctional imaging approach may allow for earlier tumor detection with a high degree of accuracy and provide further insight into the molecular mechanisms of cancer.

Preparation of a Novel Bifunctional Chelator AmBaSar Based on Sarcophagine for Cu-64 Radiopharmaceuticals

Presented by Hancheng Cai, PhD

The abstract was also accepted for oral presentation at the upcoming 18th International Symposium on Radiopharmaceutical Sciences meeting (ISRS) in Canada, July 12-17, 2009. Dr. Hancheng Cai has received an SRS Travel Award sponsored by the U.S. Department of Energy to attend the meeting.

Novel A2B1 Integrin Targeting Peptide Probes for Prostate Cancer Imaging

Presented by Chiun-Wei Huang, PhD Student

- The a2b1 integrin expression profiles may have the potential in identifying a specific aggressive phenotype and/or stage in prostate cancer.
- Characterization of the tumor phenotype will lead to better customized treatment options for patients.
- The long term plan is to develop a series of multimodality tracers (PET/MRI,PET/Optical….) for a spectrum of integrins and other receptor systems in clinical trial.

Huang was also awarded with an SNM Student Fellowship. The award is meant to support students' clinical and basic research in molecular imaging and nuclear medicine.
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<tr>
<th>Title of Project</th>
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<td>Magnesiast Risk Assessment Study in CNS Patients</td>
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<td>Carotid Plaque Characteristics by MRI in the Atherothrombosis Intervention in Metabolic Syndrome with Low HDL/High Triglyceride and Impact on Global Health Outcomes (AIM-HIGH Main Study)</td>
<td>Patrick Colletti, MD</td>
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<td>Sonography Compared with MRI in Pre-operative Evaluation of Patients with Breast Cancer to Determine Extent of Breast Disease (Investigator-initiated)</td>
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<td>Screening Breast Ultrasound in High-Risk Women (A6666)</td>
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<td>Prospective Multicenter Study of the Role of Positron Emission Mammography in Pre-Surgical Planning for Breast Cancer</td>
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<td>Assessment of the Clinical Value of SuperSonic Imagine ShearWave Elastography in the Ultrasound Evaluation of Breast Lesions</td>
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<td>Remote Computer-aided Diagnosis of Acute Intracranial Hemorrhage in the Timely Evaluation of Traumatic Brain Injury (TBI)</td>
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<td>Development of Unique Advanced Medical Research and Initiatives in the Western US and Pacific Rim: Proton Beam Therapy Innovations: Phase II</td>
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<td>Evaluation of Dotaremâ-Enhanced MRA Compared to Time-of-Flight MRA in the Diagnosis of Renal Arterial Disease</td>
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<td>Diffusion Tensor Tractography in AD and SVD / ADRC [3T Research]</td>
<td>Manbir Singh, PhD</td>
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<td>Percutaneous Catheter Drainage versus Standard Tube Thoracostomy</td>
<td>Alison Wilcox, MD</td>
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**Important Links and References for Researchers**

**Important Links for Researchers**

NIH grant and funding opportunities: www.grants1.nih.gov/grants/
NIH receipt dates: www.grants.nih.gov/grants/funding/submissionschedule.htm
Dept. of Defense grant opportunities: www.cdmrp.army.mil/funding/default.htm
RSNA Foundation: www.rsna.org/research/foundation/programs.html
ARRS: www.arrs.org
GE Healthcare: http://www.gehealthcare.com/usen/education/
USC Health Sciences Research website: www.usc.edu/hsc/research.html
USC IRB Health Sciences Campus: www.usc.edu/admin/provost/opsr/hsirb/
USC Dept. of Contracts and Grants: www.usc.edu/dept/contracts/
USC Funding: www.usc.edu/academe/faculty/research/funding/index.html
USC Research Website: www.usc.edu/research/

**Future Newsletter Items of Interest**

Please, send research news items to Dr. Hossein Jadvar (jadvar@usc.edu) or Madlen Aladadyan (maladady@usc.edu) for future newsletter issues.

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**Newsworthy**

**Journal of Nuclear Medicine Named Top Imaging Journal**

The SNM publication ranks first among all imaging journals worldwide, according to Thomson Reuters’ Journal Citation Report

*Announced June 20, 2009
*Subject category: Radiology, nuclear medicine, and medical imaging

Journal of Nuclear Medicine – impact factor of 6.662
Radiology – impact factor 5.996
Molecular Imaging and Biology – impact factor 3.372
Molecular Imaging – impact factor 3.329

The Thomson Reuters Institute measures a journal’s impact—or significance—based on the number of article citations compared to the total number of articles published. The impact factor—a quantitative measure of the frequency with which an article in a journal is cited—is used to gauge the overall influence of a journal within scientific, professional, and academic communities.


**DOR Research Links**

Molecular Imaging Center
http://mic.usc.edu

3T MR Imaging
3tmri.usc.edu

The Image Processing and Informatics Laboratory (IPI)
www.ipilab.org