Stanford



Andreas Loening

Associate Professor of Radiology (Body MRI)

CLINICAL OFFICE (PRIMARY)

- **Stanford Radiology**

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ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Dr. Loening is both a clinical radiologist and an active researcher focused on expanding the capability of magnetic resonance (MR) for imaging the lymphatic system and other organs within the body. His clinical research focuses on: 1) refining MR lymphangiography techniques to improve the evaluation of lymphatic disease, 2) applying novel or improved MR sequences and reconstruction mechanisms to increase the speed, robustness, and diagnostic capability of body MR protocols, and 3) application of advanced diffusion weighted imaging (DWI) techniques in prostate imaging. His translational research focuses on exploring new MR contrast mechanisms and contrast agents, such as for targeted lymphatic imaging and the stratification of cancer within the prostate.

CLINICAL FOCUS

- Diagnostic Radiology
- Body MRI
- Whole Body Imaging
- Genitourinary Radiology
- MR lymphangiography
- Prostate MRI

ACADEMIC APPOINTMENTS

- Associate Prof-Univ Med Line, Radiology
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Body MRI Fellowship Director, Department of Radiology, Stanford University, (2020- present)

HONORS AND AWARDS

- Medical Scientist Training (MSTP) Grant Award, Stanford University School of Medicine (2004-2008)

- Stanford Bio-X Graduate Student Fellowship, Stanford University (2004-2006)
- National Defense Science and Engineering Graduate (NDSEG) Fellowship, American Society for Engineering Education (ASEE) (2001-2004)
- Medical Scientist Training (MSTP) Grant Award, University of California Los Angeles School of Medicine (1999-2003)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Radiological Society of North America (2009 - present)
- Member, International Society for Magnetic Resonance in Medicine (2014 - present)
- Member, Society of Abdominal Radiology (2015 - present)

PROFESSIONAL EDUCATION

- Medical Education: Stanford University School of Medicine (2008) CA
- Fellowship: Stanford University Radiology Fellowships (2014) CA
- Residency: Stanford University Radiology Residency (2013) CA
- Internship: University of Hawaii Transitional Year (2009) HI
- Board Certification: Diagnostic Radiology, American Board of Radiology (2013)
- Fellowship, Stanford University Medical Center, CA , Body MRI (2014)
- Residency, Stanford University Medical Center, CA , Radiology (2013)
- Internship, University of Hawaii, HI (2009)
- MD, Stanford University School of Medicine, CA (2008)
- PhD, Stanford University School of Medicine, CA , Bioengineering (2006)
- MEng, Massachusetts Institute of Technology, MA , Electrical Engineering and Computer Science (1999)

PATENTS

- Rao J, So MK, Xu C, Loening AM, Gambhir SS. "United States Patent 8,518,713 Self-illuminating quantum dot systems and methods of use thereof", Aug 27, 2013
- Gambhir SS, Loening AM, Wu AM. "United States Patent 8,378,086 Luciferases and methods for making and using the same", Feb 19, 2013
- Rao J, So MK, Xu C, Loening AM, Gambhir SS. "United States Patent 8,263,417 Self-illuminating quantum dot systems and methods of use thereof", Sep 11, 2012
- Gambhir SS, Loening AM, Wu AM. "United States Patent 8,258,277 Luciferases and methods for making and using the same", Sep 4, 2012
- Gambhir SS, Loening AM, Wu AM. "United States Patent 8,173,791 Luciferases and methods for making and using the same", May 8, 2012
- Gambhir SS, Loening AM, Wu AM. "United States Patent 7,939,649 Polynucleotide encoding luciferase", May 10, 2011

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My lab focuses on expanding the capability of MR and PET/MR as it relates to applications in body imaging. Clinical research aims include the application of new or improved MR sequences to increase the speed, robustness, and diagnostic capability of body MR. Translation research aims include exploring new MR contrast mechanisms and contrast agents, such as for the stratification of cancer within the prostate and the evaluation of the lymphatic system.

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Shailendra Koirala

Publications

PUBLICATIONS

- **Decoding the image: finding diagnostic signals in multi-modality abdominal artifacts.** *Abdominal radiology (New York)*
  Dickerson, G., Chirico, J., Loening, A., Wong-You-Cheong, J. J., Lane, B. F., Doo, F. X.
  2026
- **Successful Lymphatic Embolization for Genital Lymphorrhea in the Setting of Chronic Venous Insufficiency.** *Journal of vascular and interventional radiology : JVIR*
  Seo, Y., Loening, A. M., Hung, M. L.
  2026: 108845
- **Magnetic Particle Imaging in Human Subjects.** *Research square*
  Mason, E. E., Sehl, O. C., Weyhmiller, M. G., Davison, B., Mattingly, E., Konkle, J. J., Sanders, T., Mohtasebzadeh, A. R., Barcikowski, E., Fields, K., Raanes, C. A., Fernando, N., Rinaldi-Ramos, et al
  2026
- **Lymphatic Imaging Techniques: Evaluation of the Peripheral Lymphatic System.** *Seminars in roentgenology*
  Loening, A. M., Yang, J., Sibley, R. C., Kim, T. H., Nguyen, D. H., Dou, Q., Tsai, L. L.
  2026; 62: 150979
- **Atypical manifestation of pulmonary lymphatic perfusion syndrome treated with percutaneous lymphatic embolization.** *Respiratory medicine case reports*
  Rezaee, M., Loening, A. M., Rockson, S., Hung, M.
  2025; 58: 102327
- **A Machine Learning System to Automate Body Computed Tomography Protocoling.** *Journal of imaging informatics in medicine*
  Shokrollahi, P., Zambrano Chavez, J. M., Lam, J. P., Sharma, A. A., Pal, D., Bahrami, N., Gatidis, S., Chaudhari, A. S., Loening, A. M.
  2025
- **Lymphatic Regeneration Visualized on Magnetic Resonance Imaging After Placement of Aligned Nanofibrillar Collagen Scaffolds for Treatment of Lymphedema.** *Annals of plastic surgery*
  Bae, A. S., Loening, A. M., Carrion, K., Posternak, V., He, H., Leong, S. P., Nguyen, D. H.
  2025
- **Motion-Compensated Multishot Pancreatic Diffusion-Weighted Imaging With Deep Learning-Based Denoising.** *Investigative radiology*
  Wang, K., Middione, M. J., Loening, A. M., Syed, A. B., Hannum, A. J., Wang, X., Guidon, A., Lan, P., Ennis, D. B., Brunsing, R. L.
  2025
- **Atypical manifestation of pulmonary lymphatic perfusion syndrome treated with percutaneous lymphatic embolization** *RESPIRATORY MEDICINE CASE REPORTS*
  Rezaee, M., Loening, A. M., Rockson, S., Hung, M.
  2025; 58
- **The Challenge of External Generalisability: Insights from the Bicentric Validation of a [68Ga]Ga-PSMA-11 PET Based Radiomics Signature for Primary Prostate Cancer Characterisation Using Histopathology as Reference.** *Cancers*
  Ghezzo, S., Bharathi, P. G., Duan, H., Mapelli, P., Sorgo, P., Davidzon, G. A., Bezzi, C., Chung, B. I., Samanes Gajate, A. M., Thong, A. E., Russo, T., Brembilla, G., Loening, et al
  2024; 16 (23)
- **A diffusion-prepared reduced FOV sequence for prostate MRI near metallic implants.** *Magnetic resonance in medicine*
  Lee, P. K., Hess, J. J., Gomella, A. A., Loening, A. M., Hargreaves, B. A.
  2024
- **Artificial Intelligence-Driven Model for Prostate Cancer Staging with PSMA PET: A Study Integrating Radiomics Features and SVM Classifier**
  Bharathi, P., Ghezzo, S., Duan, H., Mapelli, P., Davidzon, G., Bezzi, C., Chung, B., Gajate, A., Thong, A., Russo, T., Brembilla, G., Loening, A., Ghanouni, et al

SOC NUCLEAR MEDICINE INC.2024

- **Prospective Comparison of 68Ga-NeoB and 68Ga-PSMA-R2 PET/MRI in Patients with Biochemically Recurrent Prostate Cancer.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
  Duan, H., Song, H., Davidzon, G. A., Moradi, F., Liang, T., Loening, A., Vasanawala, S., Iagaru, A.
  2024

- **68Ga-RM2 PET-MRI versus MRI alone for evaluation of patients with biochemical recurrence of prostate cancer: a single-centre, single-arm, phase 2/3 imaging trial.** *The Lancet. Oncology*
  Duan, H., Moradi, F., Davidzon, G. A., Liang, T., Song, H., Loening, A. M., Vasanawala, S., Srinivas, S., Brooks, J. D., Hancock, S., Iagaru, A.
  2024

- **MRI of Benign Prostatic Hyperplasia: Important Pre- and Posttherapeutic Considerations.** *Radiographics : a review publication of the Radiological Society of North America, Inc*
  Han, E. A., Nandalur, K. R., Morgan, M. A., Arora, S. S., Loening, A. M., Bivalacqua, T. J., Sundaram, K. M.
  2023; 43 (5): e220096

- **Assessment of T2-weighted Image Quality at Prostate MRI in Patients with and Those without Intramuscular Injection of Glucagon.** *Radiology. Imaging cancer*
  Sundaram, K. M., Rosenberg, J., Syed, A. B., Chang, S. T., Loening, A. M.
  2023; 5 (3): e220070

- **Radiology Decision Support System for Selecting Appropriate CT Imaging Titles Using Machine Learning Techniques Based on Electronic Medical Records** *IEEE ACCESS*
  Shokrollahi, P., Chaves, J., Lam, J. P. H., Sharma, A., Pal, D., Bahrami, N., Chaudhari, A. S., Loening, A. M.
  2023; 11: 99222-99236

- **RaLEs: a Benchmark for Radiology Language Evaluations**
  Chaves, J., Bhaskhar, N., Attias, M., Delbrouck, J., Rubin, D. L., Loening, A., Langlotz, C., Chaudhari, A. S.
  edited by Oh, A., Neumann, T., Globerson, A., Saenko, K., Hardt, M., Levine, S.
  NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2023

- **MRI of Lymphedema.** *Journal of magnetic resonance imaging : JMRI*
  Salehi, B. P., Sibley, R. C., Friedman, R., Kim, G., Singhal, D., Loening, A. M., Tsai, L. L.
  2022

- **Correlation of 68Ga-RM2 PET with Post-Surgery Histopathology Findings in Patients with Newly Diagnosed Intermediate- or High-Risk Prostate Cancer.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
  Duan, H., Baratto, L., Fan, R. E., Soerensen, S. J., Liang, T., Chung, B. I., Thong, A. E., Gill, H., Kunder, C., Stoyanova, T., Rusu, M., Loening, A. M., Ghanouni, et al
  2022

- **68Ga-PSMA-11 PET/MRI in patients with newly diagnosed intermediate or high-risk prostate adenocarcinoma: PET findings correlate with outcomes after definitive treatment.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
  Moradi, F., Duan, H., Song, H., Davidzon, G. A., Chung, B. I., Thong, A. E., Loening, A. M., Ghanouni, P., Sonn, G., Iagaru, A.
  2022

- **Renal artery variations in patients with mild-to-moderate hypertension from the RADIANCE-HTN SOLO trial.** *Cardiovascular revascularization medicine : including molecular interventions*
  Sanghvi, K., Wang, Y., Daemen, J., Mathur, A., Jain, A., Dohad, S., Sapoval, M., Azizi, M., Mahfoud, F., Lurz, P., Sayer, J., Levy, T., Zagoria, et al
  2021

- **Lymphatic regeneration after implantation of aligned nanofibrillar collagen scaffolds: Preliminary preclinical and clinical results.** *Journal of surgical oncology*
  Nguyen, D., Zaitseva, T. S., Zhou, A., Rochlin, D., Sue, G., Deptula, P., Tabada, P., Wan, D., Loening, A., Paukshto, M., Dionyssiou, D.
  2021

- **Diagnostic Performance of 9 Quantitative Ultrasound Parameters for Detection and Classification of Hepatic Steatosis in Nonalcoholic Fatty Liver Disease.** *Investigative radiology*
  Pirmoazen, A. M., Khurana, A., Loening, A. M., Liang, T., Shamdasani, V., Xie, H., El Kaffas, A., Kamaya, A.
  2021

- **Upstream Machine Learning in Radiology.** *Radiologic clinics of North America*
  Sandino, C. M., Cole, E. K., Alkan, C., Chaudhari, A. S., Loening, A. M., Hyun, D., Dahl, J., Imran, A. A., Wang, A. S., Vasanawala, S. S.
  2021; 59 (6): 967-985

- **Detection of prostate cancer and determination of its significance using explainable artificial intelligence.**
  Eminaga, O., Loening, A., Lu, A., Brooks, J. D., Rubin, D.
  AMER SOC CLINICAL ONCOLOGY.2020

- **Variable Refocusing Flip Angle Single-Shot Imaging for Sedation-Free Fast Brain MRI.** *AJNR. American journal of neuroradiology*
  Jabarkheel, R. n., Tong, E. n., Lee, E. H., Cullen, T. M., Yousaf, U. n., Loening, A. M., Taviani, V. n., Iv, M. n., Grant, G. A., Holdsworth, S. J., Vasanawala, S. S., Yeom, K. W.
  2020

- **A New Multimodel Machine Learning Framework to Improve Hepatic Fibrosis Grading Using Ultrasound Elastography Systems from Different Vendors.** *Ultrasound in medicine & biology*
  Durot, I., Akhbardeh, A., Sagreiya, H., Loening, A. M., Rubin, D. L.
  2019

- **Prostate Magnetic Resonance Imaging Interpretation Varies Substantially Across Radiologists** *EUROPEAN UROLOGY FOCUS*
  Sonn, G. A., Fan, R. E., Ghanouni, P., Wang, N. N., Brooks, J. D., Loening, A. M., Daniel, B. L., To'o, K. J., Thong, A. E., Leppert, J. T.
  2019; 5 (4): 592–99

- **Simultaneous PET/MRI in the Evaluation of Breast and Prostate Cancer Using Combined Na[18F] F and [18F]FDG: a Focus on Skeletal Lesions.** *Molecular imaging and biology : MIB : the official publication of the Academy of Molecular Imaging*
  Sonni, I., Minamimoto, R., Baratto, L., Gambhir, S. S., Loening, A. M., Vasanawala, S. S., Iagaru, A.
  2019

- **How Often is the Dynamic Contrast Enhanced Score Needed in PI-RADS Version 2?** *Current problems in diagnostic radiology*
  Roh, A. T., Fan, R. E., Sonn, G. A., Vasanawala, S. S., Ghanouni, P., Loening, A. M.
  2019

- **Comparison of End-Expiration Versus End-Inspiration Breath-Holds With Respect to Respiratory Motion Artifacts on TI-Weighted Abdominal MRI** *AMERICAN JOURNAL OF ROENTGENOLOGY*
  Vu, K., Haldipur, A. G., Roh, A., Lindholm, P., Loening, A.
  2019; 212 (5): 1024–29

- **View-Sharing Artifact Reduction With Retrospective Compressed Sensing Reconstruction in the Context of Contrast-Enhanced Liver MRI for Hepatocellular Carcinoma (HCC) Screening** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
  Shaikh, J., Stoddard, P. B., Levine, E. G., Roh, A. T., Saranathan, M., Chang, S. T., Muelly, M. C., Hargreaves, B. A., Vasanawala, S. S., Loening, A. M.
  2019; 49 (4): 984–93

- **Conical ultrashort echo time (UTE) MRI in the evaluation of pediatric acute appendicitis** *ABDOMINAL RADIOLOGY*
  Roh, A. T., Xiao, Z., Cheng, J. Y., Vasanawala, S. S., Loening, A. M.
  2019; 44 (1): 22–30

- **The use of PET/MRI for imaging rectal cancer.** *Abdominal radiology (New York)*
  Hope, T. A., Kassam, Z. n., Loening, A. n., McNamara, M. M., Paspulati, R. n.
  2019

- **Gallium 68 PSMA-11 PET/MR Imaging in Patients with Intermediate- or High-Risk Prostate Cancer** *RADIOLOGY*
  Park, S., Zacharias, C., Harrison, C., Fan, R. E., Kunder, C., Hatami, N., Giesel, F., Ghanouni, P., Daniel, B., Loening, A. M., Sonn, G. A., Iagaru, A.
  2018; 288 (2): 495–505

- **Prospective Evaluation of Ga-68-RM2 PET/MRI in Patients with Biochemical Recurrence of Prostate Cancer and Negative Findings on Conventional Imaging** *JOURNAL OF NUCLEAR MEDICINE*
  Minamimoto, R., Sonni, I., Hancock, S., Vasanawala, S., Loening, A., Gambhir, S. S., Iagaru, A.
  2018; 59 (5): 803–8

- **Structured Reporting of Multiphasic CT for Hepatocellular Carcinoma: Effect on Staging and Suitability for Transplant.** *AJR. American journal of roentgenology*

Poullos, P. D., Tseng, J. J., Melcher, M. L., Concepcion, W. n., Loening, A. M., Rosenberg, J. n., Willmann, J. K.
2018: 1–9

- **The impact of computed high b-value images on the diagnostic accuracy of DWI for prostate cancer: A receiver operating characteristics analysis.** *Scientific reports*
  Ning, P. n., Shi, D. n., Sonn, G. A., Vasanawala, S. S., Loening, A. M., Ghanouni, P. n., Obara, P. n., Shin, L. K., Fan, R. E., Hargreaves, B. A., Daniel, B. L.
  2018; 8 (1): 3409

- **Detection of Recurrent Prostate Cancer Using Ga-68-RM2 PET/MRI in Patients with Negative Conventional Imaging**
  Harrison, C., Sonni, I., Loening, A., Vasanawala, S., Lagaru, A.
  SOC NUCLEAR MEDICINE INC.2017

- **Increased Speed and Image Quality for Pelvic Single-Shot Fast Spin-Echo Imaging with Variable Refocusing Flip Angles and Full-Fourier Acquisition.** *Radiology*
  Loening, A. M., Litwiller, D. V., Saranathan, M., Vasanawala, S. S.
  2017; 282 (2): 561-568

- **Prostate Magnetic Resonance Imaging Interpretation Varies Substantially Across Radiologists.** *European urology focus*
  Sonn, G. A., Fan, R. E., Ghanouni, P. n., Wang, N. N., Brooks, J. D., Loening, A. M., Daniel, B. L., To'o, K. J., Thong, A. E., Leppert, J. T.
  2017

- **Relative value of three whole-body MR approaches for PET-MR, including gadofosveset-enhanced MR, in comparison to PET-CT.** *Clinical imaging*
  Obara, P. n., Loening, A. n., Taviani, V. n., Iagaru, A. n., Hargreaves, B. A., Vasanawala, S. n.
  2017; 48: 62–68

- **Variable refocusing flip angle single-shot fast spin echo imaging of liver lesions: increased speed and lesion contrast.** *Abdominal radiology (New York)*
  Hicks, R. M., Loening, A. M., Ohliger, M. A., Vasanawala, S. S., Hope, T. A.
  2017

- **68Ga-RM2 PET/MRI: feasibility and workflow review**
  Holley, D., Gandhi, H., Gulaka, P., Loening, A., Vasanawala, S., Gold, G., Iagaru, A.
  SOC NUCLEAR MEDICINE INC.2016

- **Imaging Patients with Breast and Prostate Cancers Using Combined 18F NaF/18F FDG and TOF simultaneous PET/MRI**
  Sonni, I., Minamimoto, R., Loening, A., Taviani, V., Jamali, M., Hatami, N., Baratto, L., Wu, F., Gambhir, S., Vasanawala, S., Iagaru, A.
  SOC NUCLEAR MEDICINE INC.2016

- **Biochemically recurrent prostate cancer: 68Ga-RM2 (formerly known as 68Ga-Bombesin or BAY86-7548) PET/MRI is superior to conventional imaging**
  Iagaru, A., Minamimoto, R., Loening, A., Mueller, A., Berndt, M., Stephens, A., Vasanawala, S.
  SOC NUCLEAR MEDICINE INC.2016

- **Pilot Comparison of Ga-68-RM2 PET and Ga-68-PSMA-11 PET in Patients with Biochemically Recurrent Prostate Cancer** *JOURNAL OF NUCLEAR MEDICINE*
  Minamimoto, R., Hancock, S., Schneider, B., Chin, F. T., Jamali, M., Loening, A., Vasanawala, S., Gambhir, S. S., Iagaru, A.
  2016; 57 (4): 557-562

- **High temporal resolution dynamic MRI and arterial input function for assessment of GFR in pediatric subjects.** *Magnetic resonance in medicine*
  Yoruk, U., Saranathan, M., Loening, A. M., Hargreaves, B. A., Vasanawala, S. S.
  2016; 75 (3): 1301-1311

- **Ga-68-DOTA-Bombesin (Ga-68-RM2 or Ga-68-Bombesin) PET versus Ga-68-PSMA PET: A pilot prospective evaluation in patients with biochemical recurrence of prostate cancer.**
  Iagaru, A., Minamimoto, R., Hancock, S., Mittra, E., Loening, A., Vasanawala, S.
  AMER SOC CLINICAL ONCOLOGY.2016

- **Increased Speed and Image Quality in Single-Shot Fast Spin Echo Imaging Via Variable Refocusing Flip Angles** *JOURNAL OF MAGNETIC RESONANCE IMAGING*

Loening, A. M., Saranathan, M., Ruangwattanapaisarn, N., Litwiller, D. V., Shimakawa, A., Vasanawala, S. S.
2015; 42 (6): 1747-1758

- **Prospective Comparison of 99mTc-MDP Scintigraphy, Combined 18F-NaF and 18F-FDG PET/CT, and Whole-Body MRI in Patients with Breast and Prostate Cancer.** *Journal of nuclear medicine*
  Minamimoto, R., Loening, A., Jamali, M., Barkhodari, A., Mosci, C., Jackson, T., Obara, P., Taviani, V., Gambhir, S. S., Vasanawala, S., Iagaru, A.
  2015; 56 (12): 1862-1868

- **Faster pediatric 3-T abdominal magnetic resonance imaging: comparison between conventional and variable refocusing flip-angle single-shot fast spin-echo sequences.** *Pediatric radiology*
  Ruangwattanapaisarn, N., Loening, A. M., Saranathan, M., Litwiller, D. V., Vasanawala, S. S.
  2015; 45 (6): 847-854

- **Imaging patients with breast and prostate cancers using combined F-18 NaF/F-18 FDG and TOF simultaneous PET/MRI**
  Iagaru, A., Minamimoto, R., Jamali, M., Barkhodari, A., Obara, P., Loening, A., Taviani, V., Mittra, E., Gambhir, S., Vasanawala, S.
  SOC NUCLEAR MEDICINE INC.2015

- **Prospective evaluation of Tc-99m MDP scintigraphy, F-18 NaF/F-18 FDG PET/CT and WBMRI in patients with breast and prostate cancers**
  Iagaru, A., Minamimoto, R., Mosci, C., Jamali, M., Barkhodari, A., Loening, A., Taviani, V., Mittra, E., Gambhir, S., Vasanawala, S.
  SOC NUCLEAR MEDICINE INC.2015

- **Prospective evaluation of combined NaF/FDG PET/CT and whole-body MRI in patients with breast and prostate cancer**
  Iagaru, A., Mosci, C., Jamali, M., Loening, A., Mittra, E., Gambhir, S., Vasanawala, S.
  SOC NUCLEAR MEDICINE INC.2014

- **Indirect imaging of cardiac-specific transgene expression using a bidirectional two-step transcriptional amplification strategy** *GENE THERAPY*
  Chen, I. Y., Gheysens, O., Ray, S., Wang, Q., Padmanabhan, P., Paulmurugan, R., Loening, A. M., Rodriguez-Porcel, M., Willmann, J. K., Sheikh, A. Y., Nielsen, C. H., Hoyt, G., Contag, et al
  2010; 17 (7): 827-838

- **A red-shifted Renilla luciferase for transient reporter-gene expression** *NATURE METHODS*
  Loening, A. M., Dragulescu-Andrasi, A., Gambhir, S. S.
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- **BRET3: a red-shifted bioluminescence resonance energy transfer (BRET)-based integrated platform for imaging protein-protein interactions from single live cells and living animals** *FASEB JOURNAL*
  De, A., Ray, P., Loening, A. M., Gambhir, S. S.
  2009; 23 (8): 2702-2709

- **Cell-free metabolic engineering promotes high-level production of bioactive Gaussia princeps luciferase** *METABOLIC ENGINEERING*
  Goerke, A. R., Loening, A. M., Gambhir, S. S., Swartz, J. R.
  2008; 10 (3-4): 187-200

- **Crystal structures of the luciferase and green fluorescent protein from Renilla reniformis** *JOURNAL OF MOLECULAR BIOLOGY*
  Loening, A. M., Fenn, T. D., Gambhir, S. S.
  2007; 374 (4): 1017-1028

- **BIOT 106-"Seeing the light" with cell-free protein synthesis**
  Goerke, A. R., Loening, A. M., Gambhir, S., Swartz, J. R.
  AMER CHEMICAL SOC.2007

- **Red-shifted Renilla reniformis luciferase variants for imaging in living subjects** *NATURE METHODS*
  Loening, A. M., Wu, A. M., Gambhir, S. S.
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- **An improved bioluminescence resonance energy transfer strategy for imaging intracellular events in single cells and living subjects** *CANCER RESEARCH*
  De, A., Loening, A. M., Gambhir, S. S.
  2007; 67 (15): 7175-7183

- **Multimodality imaging of tumor xenografts and metastases in mice with combined small-animal PET, small-animal CT, and bioluminescence imaging** *JOURNAL OF NUCLEAR MEDICINE*
  Deroose, C. M., De, A., Loening, A. M., Chow, P. L., Ray, P., Chatziioannou, A. F., Gambhir, S. S.
  2007; 48 (2): 295-303
- **Bifunctional antibody-Renilla luciferase fusion protein for in vivo optical detection of tumors** *PROTEIN ENGINEERING DESIGN & SELECTION*
  Venisnik, K. M., Olafsen, T., Loening, A. M., Iyer, M., Gambhir, S. S., Wu, A. M.
  2006; 19 (10): 453-460
- **Consensus guided mutagenesis of Renilla luciferase yields enhanced stability and light output** *PROTEIN ENGINEERING DESIGN & SELECTION*
  Loening, A. M., Fenn, T. D., Wu, A. M., Gambhir, S. S.
  2006; 19 (9): 391-400
- **Self-illuminating quantum dot conjugates for in vivo imaging** *NATURE BIOTECHNOLOGY*
  So, M. K., Xu, C. J., Loening, A. M., Gambhir, S. S., Rao, J. H.
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- **Self-illuminating quantum dot conjugates for in vivo imaging.** *Nature biotechnology*
  So, M., Xu, C., Loening, A. M., Gambhir, S. S., Rao, J.
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- **HaloTag protein-mediated site-specific conjugation of bioluminescent proteins to quantum dots** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
  Zhang, Y., So, M., Loening, A. M., Yao, H., Gambhir, S. S., Rao, J.
  2006; 45 (30): 4936-4940
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  So, M., Loening, A. M., Gambhir, S. S., Rao, J.
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- **AMIDE: a free software tool for multimodality medical image analysis.** *Molecular imaging*
  Loening, A. M., Gambhir, S. S.
  2003; 2 (3): 131-137
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