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| January 01, 2020 | Noninvasive monitoring of liver metastasis development via combined multispectral photoacoustic imaging and fluorescence diffuse optical tomography | Rationale: In vivo molecular imaging in preclinical animal models is a tool of choice for understanding the pathophysiological mechanisms involved in |
| January 01, 2020 | Surface-anchored framework for generating RhD-epitope stealth red blood cells | Rhesus D (RhD) is one of the most important immunogenic antigens on red blood cells (RBCs). |
| January 01, 2019 | Indocyanine Green J Aggregates in Polymersomes for Near-Infrared Photoacoustic Imaging | Clinical translation of photoacoustic imaging (PAI) has been limited by the lack of near-infrared (NIR) contrast agents with low toxicity required for |
| December 21, 2018 | Gadolinium Doping Enhances the Photoacoustic Signal of Synthetic Melanin Nanoparticles: A Dual Modality Contrast Agent for Stem Cell Imaging | ABSTRACT: In this paper, we show that gadolinium-loaded synthetic melanin nanoparticles (Gd(III)-SMNPs) exhibit up to a 40-fold enhanced photoacoustic |
| April 30, 2018 | Intraoperative Resection Guidance with Photoacoustic and Fluorescence Molecular Imaging Using an Anti-B7-H3 Antibody-Indocyanine Green Dual Contrast Agent | Breast cancer often requires surgical treatment including breast-conserving surgical resection. |
| January 01, 2016 | Spectroscopic photoacoustic molecular imaging of breast cancer using a B7-H3-targeted ICG contrast agent | Purpose: Breast cancer imaging methods lack diagnostic accuracy, in particular for patients with dense breast tissue, and improved techniques are crit |
| December 30, 2020 | Ultrasound Molecular Imaging of Renal Cell Carcinoma: VEGFR targeted therapy monitored with VEGFR1 and FSHR targeted microbubbles | Recent treatment developments for metastatic renal cell carcinoma offer combinations of immunotherapies or immunotherapy associated with tyrosine kina |
| June 01, 2020 | Prussian blue nanocubes as a multimodal contrast agent for image-guided stem cell therapy of the spinal cord | Translation of stem cell therapies to treat injuries and diseases of the spinal cord is hindered by lack of real-time monitoring techniques to guide r |
| June 01, 2020 | Gambogic acid augments black phosphorus quantum dots (BPQDs)-based synergistic chemo-photothermal therapy through downregulating heat shock protein expression | In an attempt to attain synergistic therapeutic benefits and address various intrinsic limitations of the highly efficient black phosphorus quantum do |
| June 01, 2020 | Monocyte mimics improve mesenchymal stem cell-derived extracellular vesicle homing in a mouse MI/RI model | Stem cell-derived extracellular vesicles (EVs) have been demonstrated to be effective in heart repair and regeneration post infarction. |
| May 01, 2020 | Co-delivery of Cu(I) chelator and chemotherapeutics as a new strategy for tumor theranostic | Chelating Cu from tumors has been verified as an effective and promising strategy for cancer therapy through antiangiogenesis. |
| May 01, 2020 | Melanin-instructed biomimetic synthesis of copper sulfide for cancer phototheranostics | Biomimetic synthesis is a promising strategy for the preparation of nanotheranostics with excellent biocompatibility. |
| May 01, 2020 | Biodegradable theranostic nanoplatfoms of albumin-biomaterialized nanocomposites modified hollow mesoporous organosilica for photoacoustic imaging guided tumor synergistic therapy | Benefit from the integration of therapeutic and diagnostic functions, theranostic nanoplatfoms have attracted widespread attention in preclinical res |
| April 01, 2020 | Surface-modified GVs as nanosized contrast agents for molecular ultrasound imaging of tumor | Nanobubbles, as a kind of new ultrasound contrast agent (UCAs), have shown promise to penetrate tumor vasculature to allow for targeted imaging. |
| April 01, 2020 | Scalable dextran-polypyrrole nano-assemblies with photothermal/photoacoustic dual capabilities and enhanced biocompatibility | Polypyrroles have shown great potential in photoacoustic imaging and photothermal therapy owing to its excellent photothermal conversion capabilities. |

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| April 01, 2020 | Rod-based urchin-like hollow microspheres of Bi₂S₃: Facile synthesis, photo-controlled drug release for photoacoustic imaging and chemo-photothermal therapy of tumor ablation | Hollow nanostructures have been evoked considerable attention owing to their intriguing hollow interior for important and potential applications in dr |
| April 01, 2020 | Janus γ-Fe₂O₃/SiO₂-based nanotheranostics for dual-modal imaging and enhanced synergistic cancer starvation/chemodynamic therapy | Multimodal cancer synergistic therapy exhibited remarkable advantages over monotherapy in producing an improved therapeutic efficacy. |
| April 01, 2020 | TRAIL-expressing cell membrane nanovesicles as an anti-inflammatory platform for rheumatoid arthritis therapy | Rheumatoid arthritis (RA) is one of the most common chronic autoimmune diseases. |
| April 01, 2020 | Less is more: Silver-AIE core@shell nanoparticles for multimodality cancer imaging and synergistic therapy | Nanomaterials with integrated multiple imaging and therapeutic modalities possess great potentials in accurate cancer diagnostics and enhanced therape |
| March 31, 2020 | Long Circulating Drug Dye Based Micelles with Ultrahigh pH Sensitivity for Deep Tumor Penetration and Superior Chemo Photothermal Therapy | Nanocarriers for chemo-photothermal therapy suffer from insufficient retention at the tumor site and poor penetration into tumor parenchyma. |
| March 30, 2020 | Biologically Responsive Plasmonic Assemblies for Second Near-Infrared Window Photoacoustic Imaging-Guided Concurrent Chemo-Immunotherapy | We developed dual biologically responsive nanogapped gold nanoparticle vesicles loaded with immune inhibitor and carrying an anticancer polymeric prod |
| March 01, 2020 | Bimetallic nanodots for tri-modal CT/MRI/PA imaging and hypoxia-resistant thermoradiotherapy in the NIR-II biological windows | Hypoxic tumor microenvironment leads to resistance or failure of radiotherapy (RT). |
| March 01, 2020 | Biodegradable CoS₂ nanoclusters for photothermal-enhanced chemodynamic therapy | Retaining in tumors for cancer diagnosis/treatment with sequential elimination from body is crucial to the clinical translation of inorganic medicamen |
| March 01, 2020 | Cathodic protected Mn²⁺ by Na_xWO₃ nanorods for stable magnetic resonance imaging-guided tumor photothermal therapy | The stability and safety of magnetic resonance imaging (MRI) contrast agents (CAs) are crucial for accurate diagnosis and real-time monitor of tumor d |
| February 01, 2020 | Dual-stimuli responsive nanotheranostics for mild hyperthermia enhanced inhibition of Wnt/β-catenin signaling | Wnt/ β -catenin signaling cascade is highly associated with tumorigenesis and progression of various cancers. |
| February 01, 2020 | Dynamic tracking of bulk nanobubbles from microbubbles shrinkage to collapse | Nanobubbles (NBs) have attracted great attention because of their potential role in interfacial science and application. |
| February 01, 2020 | Photomagnetic Prussian blue nanocubes: Synthesis, characterization, and biomedical applications | Nanoparticles play an important role in biomedicine. |
| January 01, 2020 | Photoacoustic Imaging-Trackable Magnetic Microswimmers for Pathogenic Bacterial Infection Treatment | Micro/nanorobots have been extensively explored as a tetherless small-scale robotic biodevice to perform minimally invasive interventions in hard-to |
| January 01, 2020 | Assessment of Metastatic and Reactive Sentinel Lymph Nodes with B7-H3-Targeted Ultrasound Molecular Imaging: A Longitudinal Study in Mouse Models | Purpose: To explore the potential of B7-H3-targeted ultrasound molecular imaging (USMI) for longitudinal assessment and differentiation of metastatic |
| January 01, 2020 | Efficacy evaluation and mechanism study on inhibition of breast cancer cell growth by multimodal targeted fluorescent nanobubbles carrying AMD070 and ICG | Objective: To construct targeted nanobubbles carrying both small-molecule CXCR4 antagonist AMD070 and light-absorbing material indocyanine green (ICG) |
| January 01, 2020 | Biodegradation-Mediated Enzymatic Activity-Tunable Molybdenum Oxide Nanourchins for Tumor-Specific Cascade Catalytic Therapy | Recent advances in nanomedicine have facilitated the development of potent nanomaterials with intrinsic enzyme-like activities (nanozymes) for cancer |

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| January 01, 2020 | Carbon-coated FeCo nanoparticles as sensitive magnetic-particle-imaging tracers with photothermal and magnetothermal properties | The low magnetic saturation of iron oxide nanoparticles, which are developed primarily as contrast agents for magnetic resonance imaging, limits the s |
| January 01, 2020 | Ultra - small Pyropheophorbide - a Nanodots for Near - infrared Fluorescence/Photoacoustic Imaging-guided Photodynamic Therapy | Rationale: Nanoparticles (NPs) that are rapidly eliminated from the body offer great potential in clinical test. |
| January 01, 2020 | Non-Invasive Photoacoustic Imaging of In Vivo Mice with Erythrocyte Derived Optical Nanoparticles to Detect CAD/MI | Coronary artery disease (CAD) causes mortality and morbidity worldwide. |
| January 01, 2020 | PEGylated-folic acid–modified black phosphorus quantum dots as near-infrared agents for dual-modality imaging-guided selective cancer cell destruction | Biological systems have high transparence to 700–1100-nm near-infrared (NIR) light. |
| January 01, 2020 | Magnetic targeted near-infrared II PA/MR imaging guided photothermal therapy to trigger cancer immunotherapy | Rationale: Photothermal therapy (PTT) alone is easy to cause cancer recurrence and fail to completely resist metastasis, yet recurrence and metastasis |
| January 01, 2020 | Tumor-Specific Endogenous Fe II -Activated, MRI-Guided Self-Targeting Gadolinium-Coordinated Theranostic Nanoplatfoms for Amplification of ROS and Enhanced Chemodynamic Chemotherapy | Low drug payload and lack of tumor-targeting for chemodynamic therapy (CDT) result in an insufficient reactive oxygen species (ROS) generation, which |
| January 01, 2020 | Near-Infrared Light-Responsive Nitric Oxide Delivery Platform for Enhanced Radioimmunotherapy | Radiotherapy (RT) is a widely used way for cancer treatment. |
| January 01, 2020 | Biodegradable rare earth fluorochloride nanocrystals for phototheranostics | Rare earth (RE) doped inorganic nanocrystals have been demonstrated as efficient contrast agents for deep tissue shortwave-infrared (SWIR) imaging wit |
| January 01, 2020 | Microvascular Ultrasonic Imaging of Angiogenesis Identifies Tumors in a Murine Spontaneous Breast Cancer Model | The purpose of this study is to determine if microvascular tortuosity can be used as an imaging biomarker for the presence of tumor-associated angioge |
| January 01, 2020 | Evaluation of ductal carcinoma in situ grade via triple-modal molecular imaging of B7-H3 expression | Ductal carcinoma in situ (DCIS) will account for 62,930 cases of breast cancer in 2019. |
| January 01, 2020 | Light-activated gold nanorod vesicles with NIR-II fluorescence and photoacoustic imaging performances for cancer theranostics | Fluorescence (FL) and photoacoustic (PA) imaging in the second near infrared window (NIR-II FL and NIR-II PA) hold great promise for biomedical applic |
| January 01, 2020 | Transcranial Photoacoustic Detection of Blood-Brain Barrier Disruption Following Focused Ultrasound-Mediated Nanoparticle Delivery | Purpose: Blood-brain barrier disruption (BBBD) is of interest for treating neurodegenerative diseases and tumors by enhancing drug delivery. |
| January 01, 2020 | Glucose Oxidase-Instructed Traceable Self-Oxygenation/Hyperthermia Dually Enhanced Cancer Starvation Therapy | Cancer theranostics based on glucose oxidase (GOx)-induced starvation therapy has got more and more attention in cancer management. |
| January 01, 2020 | Pickering Bubbles as Dual-Modality Ultrasound and Photoacoustic Contrast Agents | Microbubbles (MBs) stabilized by particle surfactants (i.e., Pickering bubbles) have better thermodynamic stability compared to MBs stabilized by smal |
| January 01, 2020 | Coordination-induced exfoliation to monolayer Bi-anchored MnB 2 nanosheets for multimodal imaging-guided photothermal therapy of cancer | Background: Rapid advance in biomedicine has recently vitalized the development of multifunctional two-dimensional (2D) nanomaterials for cancer thera |
| January 01, 2020 | NIR/ROS Responsive Black Phosphorus QD Vesicles as Immunoadjuvant Carrier for Specific Cancer Photodynamic Immunotherapy | 2D black phosphorus (BP) nanosheets and BP quantum dots (BPQD), as two main material styles of BP, are widely used in the biomedical filed. |

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| January 01, 2020 | Ultrasound/Optical Dual Modality Imaging for Evaluation of Vulnerable Atherosclerotic Plaques with Osteopontin Targeted Nanoparticles | Because of the high mortality of coronary atherosclerotic heart diseases, it is necessary to develop novel early detection methods for vulnerable atherosclerosis. |
| January 01, 2020 | Novel Multifunctional Nanoagent for Visual Chemo/Photothermal Therapy of Metastatic Lymph Nodes via Lymphatic Delivery | Breast cancer is one of the major diseases that threaten women's health. |
| January 01, 2020 | GSH Depleted PtCu 3 Nanocages for Chemodynamic Enhanced Sonodynamic Cancer Therapy | The ultrahigh concentration of glutathione (GSH) inside tumors destroys reactive oxygen species (ROS) based therapy, improving the outcome of chemodynamic therapy. |
| January 01, 2020 | Unique spectral signature of human cutaneous squamous cell carcinoma by photoacoustic imaging | Cutaneous squamous cell carcinoma (cSCC) is a common skin cancer with metastatic potential. |
| January 01, 2020 | Molecular Engineered Squaraine Nanoprobe for NIR-II/Photoacoustic Imaging and Photothermal Therapy of Metastatic Breast Cancer | Various squaraine dyes have been developed for biological imaging. |
| January 01, 2020 | Tumor Microenvironment Adaptable Nanoplatfor for O₂ Self Sufficient Chemo/Photodynamic Combination Therapy | Malignant proliferation of tumor cells induces abnormal tissue microenvironments, leading to therapeutic resistance and poor therapeutic outcome. |
| January 01, 2020 | Effects of Freezing on Mesenchymal Stem Cells Labeled with Gold Nanoparticles | Stem cell therapies are a promising treatment for many patients suffering from diseases with poor prognosis. |
| January 01, 2020 | Multifunctional Nanoparticles for Multimodal Imaging-Guided Low-Intensity Focused Ultrasound/Immunosynergistic Retinoblastoma Therapy | Retinoblastoma (RB) is prone to delayed diagnosis or treatment and has an increased likelihood of metastasizing. |
| January 01, 2020 | Molecular imaging of advanced atherosclerotic plaques with folate receptor-targeted 2D nanoprobos | Vulnerable atherosclerotic plaques are responsible for most cardiovascular diseases (CVDs). |
| January 01, 2020 | Gold Nanoframeworks with Mesopores for Raman-Photoacoustic Imaging and Photo Chemo Tumor Therapy in the Second Near Infrared Biowindow | Gold-based nanostructures with tunable wavelength of localized surface plasmon resonance (LSPR) in the second near-infrared (NIR-II) biowindow receive |
| January 01, 2020 | "All-in-One" Silver Nanoprism Platform for Targeted Tumor Theranostics | Designing a multifunctional theranostic nanoplatfor with optional therapeutic strategies is highly desirable to select the most suitable therapeutic |
| January 01, 2020 | Photoacoustic Imaging Quantifies Drug Release from Nanocarriers via Redox Chemistry of Dye Labeled Cargo | We report a new approach to monitor drug release from nanocarriers via a paclitaxel-methylene blue conjugate (PTX-MB) with redox activity. |
| January 01, 2020 | Anti-G250 nanobody-functionalized nanobubbles targeting renal cell carcinoma cells for ultrasound molecular imaging | Traditional imaging examinations have difficulty in identifying benign and malignant changes in renal masses. |
| January 01, 2020 | Dynamic solid-state ultrasound contrast agent for monitoring pH fluctuations in vivo . | The key challenge for in vivo biosensing is to design biomarker-responsive contrast agents that can be readily detected and monitored by broadly available |
| January 01, 2020 | Conjugation of a Scintillator Complex and Gold Nanorods for Dual-Modal Image-Guided Photothermal and X-ray-Induced Photodynamic Therapy of Tumors | Light-mediated therapy has many unique merits but monotherapy strategies rarely completely inhibit tumor growth because resistance often develops. |
| January 01, 2020 | Phospholipid Oxygen Microbubbles for Image-Guided Therapy | In recent work, oxygen microbubbles (OMB) have been shown to oxygenate hypoxic tumors, increase radio-sensitivity and improve tumor control by radiation |

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| January 01, 2020 | Biodegradable Bi₂O₂Se Quantum Dots for Photoacoustic Imaging Guided Cancer Photothermal Therapy | As new 2D layered nanomaterials, Bi ₂ O ₂ Se nanoplates have unique semiconducting properties that can benefit biomedical applications. |
| June 01, 2019 | A near-infrared turn-on probe for in vivo chemoselective photoacoustic detection of fluoride ion | The detection of fluoride ion (F ⁻) in living subjects is of value for healthcare and environmental fields. |
| March 01, 2019 | Multifunctional nanoplatform for photoacoustic imaging-guided combined therapy enhanced by CO induced ferroptosis | A multifunctional CO/thermo/chemotherapy nanoplatform is here reported, which is composed of mesoporous carbon nanoparticles (MCN) as near infrared (N |
| February 01, 2019 | Erythrocyte-cancer hybrid membrane-camouflaged melanin nanoparticles for enhancing photothermal therapy efficacy in tumors | Cell membrane coating has emerged as an intriguing biomimetic strategy to endow nanomaterials with functions and properties inherent to source cells f |
| February 01, 2019 | Recent strategies on targeted delivery of thrombolytics | Thrombus formed in blood vessel is a progressive process, which would lead to life-threatening thrombotic diseases such as ischemic stroke. |
| February 01, 2019 | Functionalized polymer microbubbles as new molecular ultrasound contrast agent to target P-selectin in thrombus | Thrombotic diseases rarely cause symptoms until advanced stage and sudden death. |
| January 01, 2019 | SDF-1-loaded PLGA nanoparticles for the targeted photoacoustic imaging and photothermal therapy of metastatic lymph nodes in tongue squamous cell carcinoma | The combination of photothermal therapy and targeted chemotherapy can produce much greater cytotoxicity than chemotherapy. |
| January 01, 2019 | pH/NIR-responsive semiconducting polymer nanoparticles for highly effective photoacoustic image guided chemo-photothermal synergistic therapy | ABSTRAC T Multifunctional drug delivery nanoplatform (PDPP3T@PSNiAA NPs) based on NIR absorbing semiconducting polymer nanoparticles for pH/NIR light- |
| January 01, 2019 | Development of a Human Photoacoustic Imaging Reporter Gene Using the Clinical Dye Indocyanine Green | Purpose: To develop a photoacoustic imaging (PAI) reporter gene that has high translational potential. |
| January 01, 2019 | Silicon carbide nanoparticles as a photoacoustic and photoluminescent dual-imaging contrast agent for long-term cell tracking | Silicon carbide nanoparticles (SiCNPs) are durable, physically resilient, chemically inert, and biocompatible. |
| January 01, 2019 | Bioinspired lipoproteins-mediated photothermia remodels tumor stroma to improve cancer cell accessibility of second nanoparticles | The tumor stromal microenvironments (TSM) including stromal cells and extracellular matrix (ECM) form an abominable barrier hampering nanoparticles ac |
| January 01, 2019 | Indocyanine Green-Coated Gold Nanoclusters for Photoacoustic Imaging and Photothermal Therapy | Abstract Traditional oncology treatment modalities are often associated with a poor therapeutic index. |
| January 01, 2019 | Mussel-inspired functionalization of semiconducting polymer nanoparticles for amplified photoacoustic imaging and photothermal therapy | A versatile and straightforward strategy for the encapsulation of semiconducting polymer nanoparticles (SPNs) using biocompatible polydopamine (PDA) a |
| January 01, 2019 | New Strategy for Specific Eradication of Implant-Related Infections Based on Special and Selective Degradability of Rhenium Trioxide Nanocubes | The greatest bottleneck for photothermal antibacterial therapy could be the difficulty in heating the infection site directly and specifically to evad |
| January 01, 2019 | In Vivo Photoacoustic Tracking of Mesenchymal Stem Cell Viability | Adult stem cell therapy has demonstrated improved outcomes for treating cardiovascular diseases in preclinical trials. |
| January 01, 2019 | Platelet-Mimicking Biotaxis Targeting Vasculature-Disrupted Tumors for Cascade Amplification of Hypoxia-Sensitive Therapy | Tumorous vasculature plays key roles in sustaining tumor growth. |

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| January 01, 2019 | Ultrasound-Responsive Conversion of Microbubbles to Nanoparticles to Enable Background-Free in Vivo Photoacoustic Imaging | Photoacoustic (PA) imaging based on the photon-to-ultrasound conversion allows the imaging of optical absorbers in deep tissues with high spatial reso |
| January 01, 2019 | Polyethyleneimine-assisted one-pot synthesis of quasi-fractal plasmonic gold nanocompo-sites as a photothermal theranostic agent | Gold nanoparticles have been thoroughly used in designing thermal ablative therapies and photoacoustic imaging for cancer owing to their unique and tu |
| January 01, 2019 | Porphyrin–palladium hydride MOF nanoparticles for tumor-targeting photoacoustic imaging-guided hydrogenothermal cancer therapy | Hydrogen gas, which is an important energy resource, was recently discovered to have high advantage in the treatment of many diseases, but the current |
| December 21, 2018 | Ratiometric Photoacoustic Nanoprobe for Bioimaging of Cu²⁺ | Aberrant copper content implicates numerous diseases including Alzheimer's disease and Wilson's disease. |
| December 16, 2018 | Improving Stem Cell Delivery to the Trabecular Meshwork Using Magnetic Nanoparticles | Glaucoma is a major cause of blindness and is frequently associated with elevated intraocular pressure. |
| December 14, 2018 | Intrinsically absorbing photoacoustic and ultrasound contrast agents for cancer therapy and imaging | Nanoparticles are submicrometer in size and are used in a variety of ways in the biomedical field. |
| December 12, 2018 | Chemodrug-Gated Biodegradable Hollow Mesoporous Organosilica Nanotheranostics for Multimodal Imaging-Guided Low-Temperature Photothermal Therapy/Chemotherapy of Cancer | Noninvasive physical treatment with relatively low intensity stimulation and the development of highly efficient anticancer medical strategy are still |
| November 24, 2018 | Indocyanine Green labeling for optical and photoacoustic imaging of Mesenchymal Stem Cells after in vivo transplantation | The transplantation of Mesenchymal Stem Cells (MSCs) holds great promise for the treatment of a plethora of human diseases, but new non-invasive proce |
| October 18, 2018 | In Vivo Molecular Ultrasound Assessment of Glioblastoma Neovasculature with Endoglin-Targeted Microbubbles | Objectives . Glioblastoma, as one of the most malignant cancer in the world, usually shows substantially increased angiogenesis. |
| October 17, 2018 | In vivo photoacoustic difference-spectra imaging of bacteria using photoswitchable chromoproteins | Photoacoustic (PA) imaging offers great promise for deep molecular imaging of optical reporters but has difficulties in imaging multiple molecular pro |
| May 29, 2018 | Performances of a Pristine Graphene-Microbubble Hybrid Construct as Dual Imaging Contrast Agent and Assessment of Its Biodistribution by Photoacoustic Imaging | Coupling near-infrared (NIR) nanoscale absorbing materials with microbubbles (MBs) can generate a multifunctional dual imaging contrast agent. |
| May 01, 2018 | Histidine-rich glycoprotein-induced vascular normalization improves EPR-mediated drug targeting to and into tumors | Tumors are characterized by leaky blood vessels, and by an abnormal and heterogeneous vascular network. |
| January 01, 2018 | Development and evaluation of a CEACAM6-targeting theranostic nanomedicine for photoacoustic-based diagnosis and chemotherapy of metastatic cancer | Metastasis is the leading cause of cancer-related deaths. |
| January 01, 2018 | A Spectral Fiedler Field-based Contrast Platform for Imaging of Nanoparticles in Colon Tumor | In efforts to improve solid tumor imaging, and enable image-guided drug delivery (IGDD), multiple types of clinical imaging modalities have been combi |
| January 01, 2018 | [ASAP] Gadolinium Metallofullerene-Polypyrrole Nanoparticles for Activatable Dual-Modal Imaging-Guided Photothermal Therapy | Accurate diagnosis of tumor is promising to guide photothermal therapy (PTT) for efficacious tumor ablation with minimal damage to healthy tissues. |
| January 01, 2018 | Photoacoustic imaging of integrin-overexpressing tumors using a novel ICG-based contrast agent in mice | PhotoAcoustic Imaging (PAI) is a biomedical imaging modality currently under evaluation in preclinical and clinical settings. |

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| January 01, 2018 | A catalase-loaded hierarchical zeolite as an implantable nanocapsule for ultrasound-guided oxygen self-sufficient photodynamic therapy against pancreatic cancer | Photodynamic therapy (PDT) is an alternative strategy for treating pancreatic cancer (PC) in clinics. |
| January 01, 2018 | Wulff in a cage gold nanoparticles as contrast agents for computed tomography and photoacoustic imaging | A core-shell nanostructure yields balanced contrast production for both CT and photoacoustics. |
| January 01, 2018 | Thy1-Targeted Microbubbles for Ultrasound Molecular Imaging of Pancreatic Ductal Adenocarcinoma | Purpose: To engineer a dual human and murine Thy1-binding single-chain-antibody ligand (Thy1-scFv) for contrast microbubble-enhanced ultrasound mole |
| January 01, 2018 | Ultrasound molecular imaging as a non-invasive companion diagnostic for netrin-1 interference therapy in breast cancer | In ultrasound molecular imaging (USMI), ligand-functionalized microbubbles (MBs) are used to visualize vascular endothelial targets. |
| January 01, 2018 | Mesopore-Induced Aggregation of Cobalt Protoporphyrin for Photoacoustic Imaging and Antioxidant Protection of Stem Cells | With the ever accelerating development of functional materials design and fabrication, various nanomaterial based molecular imaging platforms with imp |
| January 01, 2018 | Unfavorable effect of calcitriol and its low-calcemic analogs on metastasis of 4T1 mouse mammary gland cancer | Low vitamin D status is considered as a risk factor for breast cancer and has prognostic significance. |
| January 01, 2018 | Multispectral Photoacoustic Imaging of Tumor Protease Activity with a Gold Nanocage-Based Activatable Probe | Tumor proteases have been recognized as significant regulators in the tumor microenvironment, but the current strategies for in vivo protease imaging |
| January 01, 2018 | Endoglin targeted contrast enhanced ultrasound imaging in hepatoblastoma xenografts | Angiogenesis is required for the growth of hepatoblastoma (HB). |
| January 01, 2018 | Facile fabrication of highly photothermal-effective albumin-assisted gold nanoclusters for treating breast cancer | Gold nanoclusters (AuNCs) have been considered to be a promising candidate for hyperthermia-based anticancer therapy. |
| December 01, 2017 | Contrast enhanced ultrasound imaging can predict vascular-targeted photodynamic therapy induced tumor necrosis in small animals | Aims To evaluate the accuracy of contrast-enhanced ultrasound (CEUS) for monitoring tumor necrosis following WST-11 vascular targeted photodynamic the |
| August 01, 2017 | Measuring Absolute Blood Perfusion in Mice Using Dynamic Contrast-Enhanced Ultrasound | We investigated the feasibility of estimating absolute tissue blood perfusion using dynamic contrast-enhanced ultrasound (CEUS) imaging in mice. |
| May 30, 2017 | Preparation and characterization of a novel silicon-modified nanobubble | Nanobubbles (NBs) opened a new field of ultrasound imaging. There is still no practical method to control the diameter of bubbles. |
| May 04, 2017 | Development of prostate specific membrane antigen targeted ultrasound microbubbles using bioorthogonal chemistry | Prostate specific membrane antigen (PSMA) targeted microbubbles (MBs) were developed using bioorthogonal chemistry. |
| March 01, 2017 | Molecular Contrast-Enhanced Ultrasound Imaging of Radiation-Induced P-Selectin Expression in Healthy Mice Colon | Purpose To evaluate the feasibility of using molecular contrast-enhanced ultrasound (mCEUS) to image radiation (XRT)-induced expression of cell adhesi |
| February 28, 2017 | Magnetic Nanoliposomes as in Situ Microbubble Bombers for Multimodality Image-Guided Cancer Theranostics | Nanosized drug delivery systems have offered promising approaches for cancer theranostics. |
| January 20, 2017 | Core-shell and co-doped nanoscale metal-organic particles (NMOPs) obtained via post-synthesis cation exchange for multimodal imaging and synergistic thermo-radiotherapy | Nanoscale metal-organic particles (NMOPs) have recently shown great promise in the area of nanomedicine owing to their tunable compositions, highly en |
| January 01, 2016 | PBCA-based polymeric microbubbles for molecular imaging and drug delivery | Microbubbles (MB) are routinely used as contrast agents for ultrasound (US) imaging. |

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| January 01, 2016 | A Theranostic Nanoplatfrom: Triple-Model Imaging Guided Synergistic Cancer Therapy Based on Liposomes Conjugated Mesoporous Silica Nanoparticles | Mesoporous silica nanoparticles (MSNs) have long since been investigated to provide a versatile drug-delivery platform due to their multitudinous meri |
| January 01, 2016 | Nanoscale covalent organic polymers as a biodegradable nanomedicine for chemotherapy-enhanced photodynamic therapy of cancer | Recently, covalent-organic polymers (COPs), which covalently cross-link different types of organic molecules to form organic network structures, have |
| January 01, 2016 | Detection and characterization of murine colitis and carcinogenesis by molecularly targeted contrast-enhanced ultrasound | AIM To study mucosal addressin cellular adhesion molecule-1 (MAdCAM-1) and vascular endothelial growth factor (VEGF)-targeted contrast enhanced ultras |
| January 01, 2016 | Molecularly Engineered Theranostic Nanoparticles for Thrombosed Vessels: H2O2-Activatable Contrast-Enhanced Photoacoustic Imaging and Antithrombotic Therapy | A thrombus (blood clot), composed mainly of activated platelets and fibrin, obstructs arteries or veins, leading to various life-threatening diseases. |
| January 01, 2016 | Tumor vasculature normalization by orally fed erlotinib to modulate the tumor microenvironment for enhanced cancer nanomedicine and immunotherapy | The abnormal tumor vasculature is one of key reasons that lead to the limited tumor perfusion as well as hypoxic and immunosuppressive tumor microenvi |
| January 01, 2016 | Highly versatile SPION encapsulated PLGA nanoparticles as photothermal ablators of cancer cells and as multimodal imaging agents | We have designed versatile polymeric nanoparticles with cancer cell specific targeting capabilities via aptamer conjugation after the successful encap |
| January 01, 2016 | Tumor Microenvironment Modulation by Cyclopamine Improved Photothermal Therapy of Biomimetic Gold Nanorods for Pancreatic Ductal Adenocarcinomas | Due to the rich stroma content and poor blood perfusion, pancreatic ductal adenocarcinoma (PDA) is a tough cancer that can hardly be effectively treat |
| January 01, 2016 | Photoacoustic Imaging of Human Mesenchymal Stem Cells Labeled with Prussian Blue–Poly(L-lysine) Nanocomplexes | Acoustic imaging is affordable and accessible without ionizing radiation. |
| January 01, 2016 | Proteoglycan-targeting applied to hypoxia-activated prodrug therapy in chondrosarcoma: first proof-of-concept | Due to its abundant chondrogenic matrix and hypoxic tissue, chondrosarcoma is chemo- and radio-resistant. |
| January 01, 2016 | Exosome-like silica nanoparticles: a novel ultrasound contrast agent for stem cell imaging | Ultrasound is critical in many areas of medicine including obstetrics, oncology, and cardiology with emerging applications in regenerative medicine. |
| January 01, 2016 | Cationic microbubbles and antibiotic-free miniplasmid for sustained ultrasound – mediated transgene expression in liver | Despite the increasing number of clinical trials in gene therapy, no ideal methods still allow non-viral gene transfer in deep tissues such as the liv |
| January 01, 2016 | Nilotinib Enhances Tumor Angiogenesis and Counteracts VEGFR2 Blockade in an Orthotopic Breast Cancer Xenograft Model with Desmoplastic Response | Vascular endothelial growth factor (VEGF)/VEGF receptor (VEGFR)-targeted therapies predominantly affect nascent, immature tumor vessels. |
| January 01, 2016 | Photoacoustic imaging of lymphatic pumping | The lymphatic system is crucial for maintaining fluid balance in tissues and for immune cell trafficking; however, there are only a few methods for im |
| January 01, 2016 | Image-Guided Hydrogen Gas Delivery for Protection from Myocardial Ischemia-Reperfusion Injury via Microbubbles | Cardiomyocyte death induced by ischemia-reperfusion is a major cause of morbidity and mortality worldwide. |
| September 01, 2016 | Quantification of Endothelial $\alpha\beta3$ Expression with High-Frequency Ultrasound and Targeted Microbubbles: In Vitro and In Vivo Studies | Angiogenesis is a critical feature of plaque development in atherosclerosis and might play a key role in both the initiation and later rupture of plaq |

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| June 29, 2016 | Graphene Meets Microbubbles: A Superior Contrast Agent for Photoacoustic Imaging | Coupling graphene with a soft polymer surface offers the possibility to build hybrid constructs with new electrical, optical, and mechanical properties |
| June 08, 2016 | Gold Nanoparticle Coated Carbon Nanotube Ring with Enhanced Raman Scattering and Photothermal Conversion Property for Theranostic Applications | We report a new type of carbon nanotube ring (CNTR) coated with gold nanoparticles (CNTR@AuNPs) using CNTR as a template and surface attached redox-ac |
| June 01, 2016 | High-resolution renal perfusion mapping using contrast-enhanced ultrasonography in ischemia-reperfusion injury monitors changes in renal microperfusion | Alterations in renal microperfusion play an important role in the development of acute kidney injury with long-term consequences. |
| January 01, 2015 | Plasmonic fluorescent CdSe/Cu₂S hybrid nanocrystals for multichannel imaging and cancer directed photo-thermal therapy | A simple, crude <i>Jatropha curcas</i> (JC) oil-based synthesis approach, devoid of any toxic phosphine and pyrophoric ligands, to produce size and shape tun |
| January 01, 2015 | Long circulating reduced graphene oxide-iron oxide nanoparticles for efficient tumor targeting and multimodality imaging | Polyethylene glycol (PEG) surface modification is one of the most widely used approaches to improve the solubility of inorganic nanoparticles, prevent |
| January 01, 2015 | Porphyrin Nanodroplets: Sub-micrometer Ultrasound and Photoacoustic Contrast Imaging Agents | Ultrasound offers significant potential as a molecular imaging modality when imaging microbubble agents owing to single-bubble sensitivity. |
| January 01, 2015 | Dual-enhanced photothermal conversion properties of reduced graphene oxide-coated gold superparticles for light-triggered acoustic and thermal theranostics | A rational design of highly efficient photothermal agents that possess excellent light-to-heat conversion properties is a fascinating topic in nanotechnology |
| January 01, 2015 | Exploring Targeted Contrast-Enhanced Ultrasound to Detect Neural Inflammation: An Example of Standard Nomenclature | Targeted contrast-enhanced ultrasound (TCEUS) is an innovative method of molecular imaging used for detection of inflammatory biomarkers in vivo. |
| January 01, 2015 | Ultrasound-guided photoacoustic imaging for the selective detection of EGFR-expressing breast cancer and lymph node metastases | We assessed the use of ultrasound (US)-guided photoacoustic imaging (PAI) and anti-EGFR antibody-conjugated gold nanorods (anti-EGFR-GNs) to non-invasive |
| January 01, 2015 | Accelerated Blood Clearance Phenomenon Reduces the Passive Targeting of PEGylated Nanoparticles in Peripheral Arterial Disease | Peripheral arterial disease (PAD) is a leading global health concern. |
| January 01, 2015 | Re-assessing the enhanced permeability and retention effect in peripheral arterial disease using radiolabeled long circulating nanoparticles | Abstract As peripheral arterial disease (PAD) results in muscle ischemia and neovascularization, it has been claimed that nanoparticles can passively |
| January 01, 2015 | Stable J-aggregation enabled dual photoacoustic and fluorescence nanoparticles for intraoperative cancer imaging | J-aggregates display nanoscale optical properties which enable their use in fluorescence and photo-acoustic imaging applications. |
| January 01, 2015 | Chlorosome-Inspired Synthesis of Templated Metallochlorin-Lipid Nanoassemblies for Biomedical Applications | Chlorosomes are vesicular light-harvesting organelles found in photosynthetic green sulfur bacteria. |
| October 21, 2015 | Validating tyrosinase homologue melA as a photoacoustic reporter gene for imaging Escherichia coli | To understand the pathogenic processes for infectious bacteria, appropriate research tools are required for replicating and characterizing infections. |
| September 22, 2015 | Sequential Drug Release and Enhanced Photothermal and Photoacoustic Effect of Hybrid Reduced Graphene Oxide-Loaded Ultrasmall Gold Nanorod Vesicles for Cancer Therapy | We report a hybrid reduced graphene oxide (rGO)-loaded ultrasmall plasmonic gold nanorod vesicle (rGO-AuNRVes) (~65 nm in size) with remarkably amplified |

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| June 23, 2015 | Determination of biodistribution of ultrasmall, near-infrared emitting gold nanoparticles by photoacoustic and fluorescence imaging | This study compares fluorescence and photoacoustic (PA) imaging of ex vivo tumors and organs from tumor-bearing mice injected intravenously with ultra |
| June 15, 2015 | Breast Cancer Detection by B7-H3-Targeted Ultrasound Molecular Imaging | Ultrasound is a complimentary imaging modality to mammography in breast cancer detection in particular in patients with dense breast tissue, but is li |
| June 01, 2015 | Quantification of bound microbubbles in ultrasound molecular imaging | Molecular markers associated with diseases can be visualized and quantified noninvasively with targeted ultrasound contrast agent (t-UCA) consisting o |
| March 17, 2015 | 2H,3H-Decafluoropentane-Based Nanodroplets: New Perspectives for Oxygen Delivery to Hypoxic Cutaneous Tissues | Perfluoropentane (PFP)-based oxygen-loaded nanobubbles (OLNBs) were previously proposed as adjuvant therapeutic tools for pathologies of different e |
| March 01, 2015 | Vascular Endothelial Growth Factor Receptor Type 2–targeted Contrast-enhanced US of Pancreatic Cancer Neovasculature in a Genetically Engineered Mouse Model: Potential for Earlier Detection | PURPOSE: To test ultrasonographic (US) imaging with vascular endothelial growth factor receptor type 2 (VEGFR2)-targeted microbubble contrast material |
| January 01, 2015 | Design of hybrid MnO₂-polymer-lipid nanoparticles with tunable oxygen generation rates and tumor accumulation for cancer treatment | Manganese dioxide (MnO ₂) nanoparticles (NPs) were discovered in previous work to be effective in improving tumor oxygenation (hypoxia) and reducing |
| January 01, 2015 | Multi-stimuli responsive Cu₂S nanocrystals as trimodal imaging and synergistic chemo-photothermal therapy agents | A size and shape tuned, multifunctional metal chalcogenide, Cu ₂ S-based nanotheranostic agent is deve- loped for trimodal imaging and multimodal therap |
| January 01, 2015 | Subharmonic, non-linear fundamental and ultraharmonic imaging of microbubble contrast at high frequencies. | There is increasing use of ultrasound contrast agent in high-frequency ultrasound imaging. |
| January 01, 2015 | Phototheranostic Porphyrin Nanoparticles Enable Visualization and Targeted Treatment of Head and Neck Cancer in Clinically Relevant Models | Head and neck cancer is the fifth most common type of cancer worldwide and remains challenging for effective treatment due to the proximity to critica |
| January 01, 2015 | Ultrasound Molecular Imaging of Vascular Endothelial Growth Factor Receptor 2 Expression for Endometrial Receptivity Evaluation | Purpose: Ultrasound (US) molecular imaging by examining the expression\nof vascular endothelial growth factor receptor 2 (VEGFR2) on uterus\nvascular |
| January 01, 2015 | Protein-based photothermal theranostics for imaging-guided cancer therapy | The development of imageable photothermal theranostics has attracted considerable attention for imaging guided photothermal therapy (PTT) with high tu |
| January 01, 2015 | Nanoparticle Probes for Structural and Functional Photoacoustic Molecular Tomography | Nowadays, nanoparticle probes have received extensive attention largely due to its potential biomedical applications in structural, functional, and mo |
| October 29, 2014 | Transferring Biomarker into Molecular Probe: Melanin Nanoparticle as a Naturally Active Platform for Multimodality Imaging | Developing multifunctional and easily prepared nanoplatfoms with integrated different modalities is highly challenging for molecular imaging. |
| October 01, 2014 | Dye-Loaded Ferritin Nanocages for Multimodal Imaging and Photothermal Therapy | Multimodal imaging-guided photothermal therapy (PTT), for the therapy of cancer, based on a ferritin (FRT) nanocage loaded with the near-infrared dye |
| October 01, 2014 | Sentinel Lymph Node Biopsy Revisited: Ultrasound-Guided Photoacoustic Detection of Micrometastases Using Molecularly Targeted Plasmonic Nanosensors | Metastases rather than primary tumors are responsible for killing most patients with cancer. |

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| September 10, 2014 | A dual gold nanoparticle system for mesenchymal stem cell tracking | Stem cell-based therapies have demonstrated improved outcomes in preclinical and clinical trials for treating cardiovascular ischemic diseases. |
| July 06, 2014 | Non-invasive multimodal functional imaging of the intestine with frozen micellar naphthalocyanines | There is a need for safer and improved methods for non-invasive imaging of the gastrointestinal tract. |
| June 17, 2014 | Multi-wavelength photoacoustic imaging of inducible tyrosinase reporter gene expression in xenograft tumors | Photoacoustic imaging is an emerging hybrid imaging technology capable of breaking through resolution limits of pure optical imaging technologies |
| June 01, 2014 | Contrast-enhanced magneto-photo-acoustic imaging in vivo using dual-contrast nanoparticles | By mapping the distribution of targeted plasmonic nanoparticles (NPs), photoacoustic (PA) imaging offers the potential to detect the pathologies in th |
| June 01, 2014 | Comparison of dynamic contrast-enhanced MR, ultrasound and optical imaging modalities to evaluate the antiangiogenic effect of PF-03084014 and sunitinib | Noninvasive imaging has been widely applied for monitoring antiangiogenesis therapy in cancer drug discovery. |
| April 22, 2014 | Multifunctional Albumin-MnO₂ Nanoparticles Modulate Solid Tumor Microenvironment by Attenuating Hypoxia, Acidosis, Vascular Endothelial Growth Factor and Enhance Radiation Response | Insufficient oxygenation (hypoxia), acidic pH (acidosis), and elevated levels of reactive oxygen species (ROS), such as H ₂ O ₂ , are characteristic abnor |
| April 15, 2014 | Exercise performance and peripheral vascular insufficiency improve with AMPK activation in high-fat diet-fed mice | Intermittent claudication is a form of exercise intolerance characterized by muscle pain during walking in patients with peripheral artery disease (PA |
| March 01, 2014 | Ultrasound Molecular Imaging in a Human CD276 Expression-Modulated Murine Ovarian Cancer Model. | PURPOSE: To develop a mouse ovarian cancer model that allows modulating the expression levels of human vascular targets in mouse xenograft tumors and |
| January 26, 2014 | Semiconducting polymer nanoparticles as photoacoustic molecular imaging probes in living mice | Photoacoustic (PA) imaging holds great promise for the visualization of physiology and pathology at the molecular level with deep tissue penetration a |
| January 01, 2014 | Active curcumin nanoparticles formed from a volatile microemulsion template | Mitochondria targeted phototherapy, including photodynamic therapy (PDT) and photothermal therapy (PTT), has excelled as an effective approach among o |
| January 01, 2014 | Detection of Melanoma Metastases in Resected Human Lymph Nodes by Noninvasive Multispectral Photoacoustic Imaging | Objective . |
| January 01, 2014 | Dual In Vivo Photoacoustic and Fluorescence Imaging of Assessment , and Surgical Guidance | Biomarker-specific imaging probes offer ways to improve molecular diagnosis, intraoperative margin assessment, and tumor resection. |
| November 01, 2013 | In vitro and in vivo mapping of drug release after laser ablation thermal therapy with doxorubicin-loaded hollow gold nanoshells using fluorescence and photoacoustic imaging | Doxorubicin-loaded hollow nanoshells (Dox@PEG-HAuNS) increases the efficacy of photothermal ablation (PTA) by not only mediating efficient PTA but als |
| November 01, 2013 | Development and optimization of near-IR contrast agents for immune cell tracking | Gold nanorods (NRs) are attractive for in vivo imaging due to their high optical cross-sections and tunable absorbance. |
| January 01, 2013 | Tyrosinase as a multifunctional reporter gene for Photoacoustic/MRI/PET triple modality molecular imaging. | Development of reporter genes for multimodality molecular imaging is highly important. |
| January 01, 2013 | Bio-ink properties and printability for extrusion printing living cells | Angiogenesis is a common pathological characteristic of many solid tumors and vulnerable atherosclero- tic plaques. |

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| January 01, 2013 | VEGF-loaded graphene oxide as theranostics for multi-modality imaging-monitored targeting therapeutic angiogenesis of ischemic muscle | Herein we report the design and synthesis of multifunctional VEGF-loaded IR800-conjugated graphene oxide (GO-IR800-VEGF) for multi-modality imaging-mo |
| November 27, 2012 | Gold nanorods for ovarian cancer detection with photoacoustic imaging and resection guidance via Raman imaging in living mice. | Improved imaging approaches are needed for ovarian cancer screening, diagnosis, staging, and resection guidance. |
| November 01, 2012 | Use of ultrasound to assess renal reperfusion and P-selectin expression following unilateral renal ischemia. | Renal ischemia-reperfusion injury is a major cause of acute kidney injury that carries a high mortality rate and increases the risk of later developme |
| May 16, 2012 | In vivo Ultrasound and Photoacoustic Monitoring of Mesenchymal Stem Cells Labeled with Gold Nanotracers | Longitudinal monitoring of cells is required in order to understand the role of delivered stem cells in therapeutic neovascularization. |
| January 10, 2012 | Biomedical photoacoustics beyond thermal expansion using triggered nanodroplet vaporization for contrast-enhanced imaging | Since being discovered by Alexander Bell, photoacoustics may again be seeing major resurgence in biomedical imaging. |
| January 01, 2011 | VCAM-1-targeting gold nanoshell probe for photoacoustic imaging of atherosclerotic plaque in mice | The development of molecular probes and novel imaging modalities, allowing better resolution and specificity, is associated with an increased potentia |
| January 01, 2011 | Photoacoustic Imaging of Mesenchymal Stem Cells in Living Mice via Silica-Coated Gold Nanorods | Improved imaging modalities are critically needed for optimizing stem cell therapy. |
| June 01, 2011 | In Vivo Targeted Contrast Enhanced Micro-Ultrasound to Measure Intratumor Perfusion and Vascular Endothelial Growth Factor Receptor 2 Expression in a Mouse Orthotopic Bladder Cancer Model | Purpose: We evaluated the feasibility of using targeted contrast enhanced micro-ultrasound imaging to assess intratumor perfusion and vascular endothe |
| May 01, 2011 | Assessing vesicoureteral reflux in live inbred mice via ultrasound with a microbubble contrast agent | Vesicoureteral reflux (VUR) is a common pediatric anomaly linked to renal scarring and hypertension. |
| March 01, 2011 | Tumor Angiogenic Marker Expression Levels during Tumor Growth: Longitudinal Assessment with Molecularly Targeted Microbubbles and US Imaging | PURPOSE: To evaluate the use of molecularly targeted microbubbles (MBs) and ultrasonography (US) in the noninvasive assessment of the level of express |
| November 27, 2010 | Ultrasound-assisted non-viral gene transfer to the salivary glands | We report a non-viral gene transfer method utilizing ultrasound induced microbubble destruction to allow the uptake of plasmid gene transfer vectors t |
| March 01, 2010 | Targeted contrast-enhanced ultrasound imaging of tumor angiogenesis with contrast microbubbles conjugated to integrin-binding knottin peptides. | UNLABELLED: Targeted contrast-enhanced ultrasound imaging is increasingly being recognized as a powerful imaging tool for the detection and quantifica |
| January 01, 2009 | Nonlinear contrast imaging with an array-based micro-ultrasound system | The main goal of this study was to determine the optimal strategy for a real-time nonlinear contrast mode for small-animal imaging at high frequenc |
| January 01, 1990 | Biosynthesis of lipid A in Escherichia coli: Acyl carrier protein-dependent incorporation of laurate and myristate | In previous studies we described enzyme(s) from Escherichia coli that transfer two 3-deoxy-D-manno-octulosonate (KDO) residues from two CMP-KDO molecu |