

Disease / Medical Condition	Biomarker	Imaging Technique	Investigators	Comments	Disease Category
Acute myocardial infarction	Intravascular thrombus	MRI	Brady T		Cardiology / Vascular
Alveolar pulmonary edema	Pulmonary consolidation	CT MRI	McLoud T Shepard J		Cardiology / Vascular
Aortic aneurysm	Vascular diameter and circumference	US CT MRI	Waltman A		Cardiology / Vascular
Aortic dissection	Anatomic disruption of arterial wall	US MRI Angiography	CT Gonzalez R Waltman A		Cardiology / Vascular
Arterial embolism	Intravascular thrombus	CT MRI Angiography	Waltman A		Cardiology / Vascular
Arteriosclerosis / central	Arterial calcification	CT	Brady T		Cardiology / Vascular Neurological Metabolic
Arteriosclerosis / central	Vascular lumen diameter	CTA MRA Angiography	Gonzalez R Hunter G Lev M Waltman A		Metabolic Cardiology / Vascular
Arteriosclerosis / peripheral	Lumen vascular diameter	CTA MRA Angiography	Gonzalez R Hunter G Lev M Waltman A		Cardiology / Vascular Metabolic
Arteriosclerosis / peripheral	Vascular lumen diameter	CTA MRA Angiography	Gonzalez R Hunter G Lev M Waltman A		Cardiology / Vascular Neurological Metabolic
Carotid dissection	Anatomic disruption of arterial wall	US CT / CTA MRI / MRA Angiography	Gonzalez R Waltman A		Neurological Cardiology / Vascular
Coronary artery disease	Arterial calcification	CT	Brady T		Cardiology / Vascular Metabolic
Coronary artery disease	Myocardial blood flow via ¹³ N-ammonia	Nuclear medicine SPECT	Fischman A		Cardiology / Vascular Metabolic
Coronary artery disease	Myocardial contractility / function	MRI Nuclear medicine	Brady T Fischman A		Cardiology / Vascular Metabolic
Coronary artery disease	Myocardial perfusion	Nuclear medicine	Fischman A		Cardiology / Vascular Metabolic
Deep venous thrombosis	Intravascular thrombus	US MRI Angiography	O'Neill MJ Waltman A		Cardiology / Vascular
Dissection / peripheral	Vascular lumen diameter	CT MRI Angiography	Waltman A		Cardiology / Vascular
Hypertension	Relative cerebral blood volume (rCBV)	Dynamic susceptibility contrast MRI	Hunter G Rosen B	Using Gd-DTPA following L-arginine infusion	Neurological Cardiology / Vascular
Iliac aneurysm	Vascular diameter and circumference	US CT MRI	Waltman A		Cardiology / Vascular

Cardiology / Vascular

Inflammatory abdominal aortic aneurysm (IAAA)	Perianeurysmal fibrosis Aneurysmal wall thickness	CT	Brady T Saini S Waltman A		Inflammatory Cardiology / Vascular
Interstitial pulmonary edema	Increased pulmonary interstitial markings	CT	McLoud T Shepard J		Inflammatory Cardiology / Vascular Infectious Disease
Intracranial arterial dissection	Anatomic disruption of arterial wall	CTA MRA Angiography	Gonzalez R Lev MH Waltman A		Neurological Cardiology / Vascular
Ischemic heart disease	Myocardial blood flow via 13N-ammonia	Nuclear medicine SPECT	Fischman A		Cardiology / Vascular
Myocarditis	Myocardial function contractility Perfusion / diffusion	Nuclear medicine	Fischman A		Cardiology / Vascular Inflammatory Infectious Disease Endocrine Metabolic
Myocarditis	Myocardial function contractility Perfusion / diffusion	MRI	Brady T		Cardiology / Vascular Inflammatory Infectious Disease Endocrine Metabolic
Myopathy	Soft tissue inflammation	MRI	Palmer W Rosenthal DI		Endocrine Inflammatory Infectious Disease Cardiology / Vascular
Portal vein thrombosis	Intravascular thrombus	US CT MRI Angiography	Hahn P Mueller P O'Neill MJ Waltman A		Cardiology / Vascular Gastrointestinal
Pulmonary embolism	Embolism volume	MRI	Weissleder R	Via monocrySTALLINE iron oxide nanoparticles (MION)	Cardiology / Vascular
Pulmonary embolism	Intravascular thrombus	CT	McLoud T		Cardiology / Vascular
Pulmonary embolism	Ventilation / perfusion mismatch	Nuclear medicine	Fischman A		Cardiology / Vascular
Splenic trauma	Splenic tissue characterization	MRI	Harisinghani M Weissleder R	Using ultrasmall superpara-magnetic iron oxide	Gastrointestinal Cardiology / Vascular
Stroke	Apparent diffusion constant (ADC) Relative cerebral blood flow index (rCBF)	Diffusion weighted imaging fMRI MRI (morphometry)	Kennedy D Lo E Rosen B		Neurological Cardiology / Vascular
Stroke	Cerebral blood flow (CBF) Cerebral blood volume (CBV) Mean transit time (MTT) Flow heterogeneity (FH)	MRI (combined Arterial spin labeling and dynamic susceptibility contrast) CAPTIVE	Harris G Hoge R Ostergaard L Rosen B Sorensen AG Wald LL	MTT helps to stratify patients in clinical trials MR perfusion territory imaging	Neurological Cardiology / Vascular
Stroke	Intravascular thrombus	CT / CTA MRI / MRA Angiography	Caviness VS Gonzalez RG Schaefer P Sorensen AG		Neurological Cardiology / Vascular

Cardiology / Vascular

Stroke	Neuronal activation CMRO2	Arterial spin labeling MRI O2 15 PET Xenon Enhanced CT	Wald LL		Neurological Cardiology / Vascular
Stroke	Neuronal activation CMRO2	fMRI Diffuse optical topography (Near infrared spectroscopy)	Boas D Mandeville JB Strangman G	NIRS agrees well with fMRI, useful in longitudinal studies	Neurological Cardiology / Vascular
Stroke	Oxygen consumption Cerebral Blood flow (CBF)	Optical imaging	Boas, D Dunn, A Lo E		Neurological Cardiology / Vascular
Stroke / ischemic	Cerebral Blood flow (CBF) Relative cerebral blood volume (rCBV) Water EF	CAPTIVE MRI	Bogdanov A Jenkins B Kwong K Weissleder R		Neurological Cardiology / Vascular
Stroke / ischemic	Vascular occlusion, ischemic brain tissue	Diffusion / Perfusion weighted imaging MRI CT perfusion CTA	Gonzalez R Harris G Sorensen AG Wu O		Neurological Cardiology / Vascular
Stroke / recovery	Cortical activation during sensorimotor tasks	fMRI	Schaechter J Rosen BR		Neurological Cardiology / Vascular
Vulnerable plaque	Atherosclerotic plaque temperature	Thermography	Brady T Lev M Waltman A		Neurological Cardiology / Vascular Inflammatory
Vulnerable plaque	Macrophage content Fibrous cap thickness Plaque Type	Optical coherence topography	Weissleder R		Neurological Cardiology / Vascular Inflammatory
Vulnerable plaque	Subendothelial lipid pool	Optical coherence topography Near infrared spectroscopy	Brady T Muller J Weissleder R		Neurological Cardiology / Vascular Inflammatory
Vulnerable plaque	Targeted microbubble contrast agents	Contrast enhanced US	O'Neill MJ Waltman A		Neurological Cardiology / Vascular Inflammatory
Vulnerable plaque	Thickness and composition of plaque	Intravascular US IVUS	Brady T Lev M O'Neill NJ Waltman A		Neurological Cardiology / Vascular Inflammatory