Dr. David Hasan is a cerebrovascular neurosurgeon-scientist and devotes his research efforts to translational and experimental laboratory work. His long-term goal is to understand the role of inflammation in the pathophysiology of cerebral aneurysms, and devise effective anti-inflammatory treatment strategies that will reduce the risk of aneurysm growth and rupture. Dr. Hasan's laboratory is one very few labs that studies both human and animal model of cerebral aneurysm simultaneously and complimentary to each other to understand the mechanisms of aneurysm formation, growth, and rupture. To date, his research specifically focuses on studying novel ideas, charting in unknown scientific territories, and challenging unfounded clinical dogmas that dictate clinical aneurysm management practices. To that effect, his published research work has involved studies of human subjects with cerebrovascular disease and mechanisms of aneurysm formation and rupture in a murine model of cerebral aneurysms. Relevant studies include: 1) conceiving the idea that aspirin decreases the risk of aneurysm rupture and to validate that, he and his performed retrospective and prospective studies of patients with unruptured aneurysms that showed a decreased rate of aneurysm rupture in patients treated with aspirin, 2) providing mechanistic pathways by which aspirin attenuates inflammation in the aneurysm wall and therefore decreases aneurysm rupture using a well-established murine model of cerebral aneurysm, 3) discovering the gender deferential response to aspirin in decreasing aneurysm rupture in human and provide a mechanistic pathway explaining this phenomenon in a murine model of cerebral aneurysms, 4) providing insight on the role of macrophages and inflammatory cytokines in the inflammatory pathways present in the wall tissue and the sac of human cerebral aneurysms, 3) publishing preliminary data suggesting that ferumoxytol-enhanced MRI (Fe-MRI) is a reliable imaging tool of macrophages in the wall of human cerebral aneurysms that could predict which human aneurysm proceed to rupture and monitor aspirin effect in attenuating inflammation in the wall of human cerebral aneurysms, 4) providing a rational that aneurysm sac growth, not coil compaction, is the plausible etiology of recurrence following successful coil embolization, and 5) establishing a direct relationship of transient spikes in systemic hypertension and changes in the pressure within the sac of human cerebral aneurysms using invasive techniques, 6) providing evidence that dual anti-platelet therapy reduce the risk of clinical vasospasm and delayed ischemic changes in subarachnoid hemorrhage setting, 7) providing preliminary data that show that our newly proposed radiographic classification for chronically occluded ICA that could be used successfully and safely to revascularize endovascularly symptomatic chronically occluded ICA, 8) developed coating technology is developed to coat intracranial stents and flow diverters to create hemocompatible and antithrombotic surface to minimize thromboembolic events.