

Project #10: **Gang Bao** and **Changhui Li**: *Developing novel imaging methods for early detection of atherosclerosis with bio-conjugated nanoparticles*

Atherosclerosis is a major vascular disease that can cause many organ dysfunctions, such as heart attack, brain stroke, and body pain. During the atherosclerosis, plaques form in the artery walls leading to narrowness or clog in the artery. Although atherosclerosis generally begins in the adolescence, there is no effective early detection method. More than 50% of the patients do not realize they have the disease until getting heart attack or stroke. A method for detecting atherosclerotic plaques at its onset is desirable. In this proposal, we will investigate both novel bio-conjugated nanoparticles targeting the plaque and whether the photoacoustic technique can detect these nanoparticles. The successfulness of this collaborated research would provide a sensitive and non-invasive detection method for early atherosclerotic plaques.