NIST BMD/IBBR Seminar: "HDL: Lipid Nanoparticles at the Intersection of Health and Disease"

**Event Type:** IBBR Seminar Series  
**Contact Person:** Nicole Tenly  
**Host:** Wyatt Vreeland

**Date:** Feb 23 2021 - 11:00am to 12:00pm  
**Location:** Auditorium

**Event Info**

**Details**

**Speaker/Presenter:** Angela Zivkovic  
**Speaker Affiliation:** University of California, Davis

**Event Description:**

Although much is known about lipoprotein biology, particularly low-density lipoproteins (LDL), because of their strong associations with cardiovascular disease, many questions about the less well-understood high density lipoproteins (HDL) remain unanswered. Lipoproteins are lipid nanoparticles that range in size from the smallest HDL particles which are 5nm in diameter, to the largest intestinally-derived chylomicron particles which can be as large as 1000nm in diameter. They also range in density from 1.006 g/mL to 1.21 g/mL, thus they span both the density and size range of many molecules in blood from large proteins to small cells, making them difficult to isolate with high purity. These lipid nanoparticles are also challenging to characterize due to their high heterogeneity in structure, composition, and function. Yet these analytical challenges must be overcome if we are to improve a number of health outcomes that are directly related to aberrant lipoprotein metabolism beyond the simple lowering of LDL-cholesterol in blood. It is quickly becoming clear that HDL particle biology is especially important to elucidate given recent discoveries about their association with a broad array of diseases from neurological diseases such as Alzheimer’s to infectious diseases such as Covid-19.