Patrick Tso, PhD
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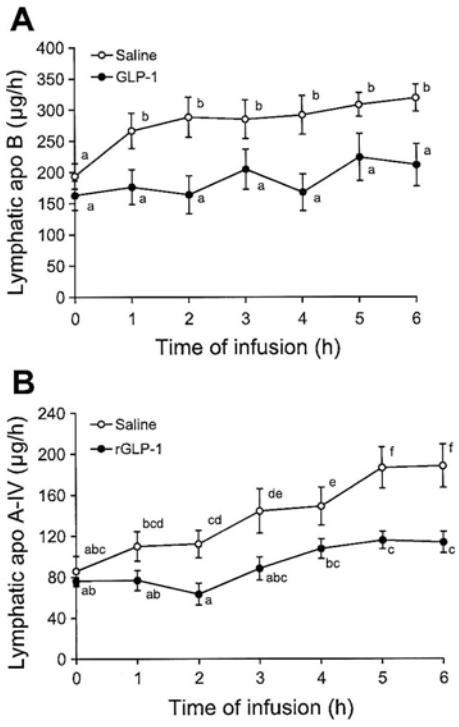
Description of Research:

Dr. Tso studies the mechanisms and factors regulating the assembly and secretion of chylomicrons and very low-density lipoproteins by the small intestine. Recently, he demonstrated that the secretion of apolipoprotein B into lymph by the small intestine was unaltered by acute feeding of triglyceride. Since each triglyceride-rich lipoprotein contains one copy of apolipoprotein B, it would imply that the number of triglyceride-rich lipoproteins made by the small intestine is not altered during active lipid absorption. Rather, the triglyceride-rich lipoproteins simply enlarge to accommodate the excess triglycerides. He also demonstrated that the reason why the gut makes a smaller version of apolipoprotein B (B-48 instead of B-100 in the liver) is because it is more efficient in facilitating the transport of triglyceride as chylomicrons by the enterocytes. Additionally, he demonstrated that increased apolipoprotein A-IV in chylous lymph is an important factor involved in anorexia after fat feeding. This finding demonstrates for the first time a physiological function of apolipoprotein A-IV that is not shared by apolipoprotein A-I. He is actively pursuing both the site of action of apolipoprotein A-IV and the active site of the apolipoprotein A-IV molecule.

Collaborations:

Dr. Tso collaborates with Drs. Aronow, Hui, and Warner on apolipoprotein and cholesterol absorption. He also works with Dr. Heubi investigating the effects of intraluminal bile acid concentrations on cholesterol absorption.

Representative Figure:



Lymphatic apolipoprotein (apo) B panel A and apo A-IV panel B output of lipid-infused rats treated with or without recombinant glucagon-like peptide (7-36) amide (rGLP-1). Values are means ± SE of 6 rats per group. Means between rGLP-1 and control groups at a time point or means among different time points within rGLP-1 or control group differ significantly ($P < 0.05$ by Tukey's pairwise multiple comparison) if they do not share a letter (a–f). Fig. 5 from Am J Physiol Gastrointest Liver Physiol 2005; 288: G943-G949.