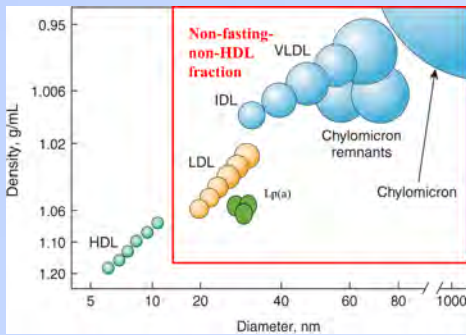# Non-HDL is a better CAD risk predictor than just LDL

Non-fasting Non-HDL Lipoproteins

- Non-fasting lipid levels predict CAD events better than fasting lipid levels.

- Non-HDL cholesterol level is a better predictor of CAD risk than LDL-cholesterol

- Enhanced lipoprotein-proteoglycan interactions may promote non-HDL retention

Blaha MJ *et al.*, *J Clin Lipidol* 2008;2:267-273

Objective and Hypothesis

- Evaluate fasting or non-fasting LDL-C and non-HDL-C on cellular cholesterol uptake in macrophages and smooth muscle cells (SMCs)
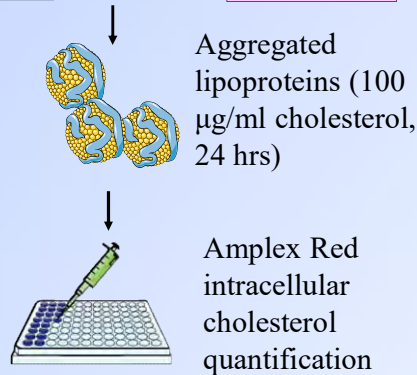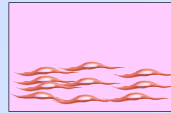
Hypothesis :

- Loading macrophages and SMCs with non-HDL-C from non-fasting plasma will lead to the highest intracellular cholesteryl ester accumulation

Research Method

Human macrophages

Human SMCs

Aggregated lipoproteins (100 µg/ml cholesterol, 24 hrs)

Amplex Red intracellular cholesterol quantification

Cellular Lipoprotein Uptake

Macrophage Lipoprotein Uptake (100 µg/ml cholesterol)
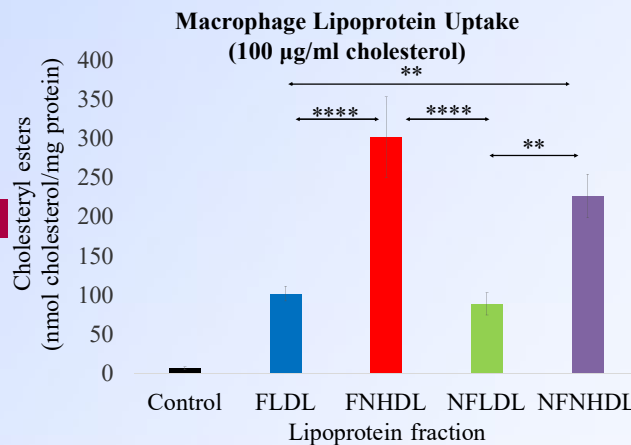

SMC Lipoprotein Uptake (100 µg/ml cholesterol)

Conclusion

- First *in vitro* comparisons of various lipoproteins in foam cell development

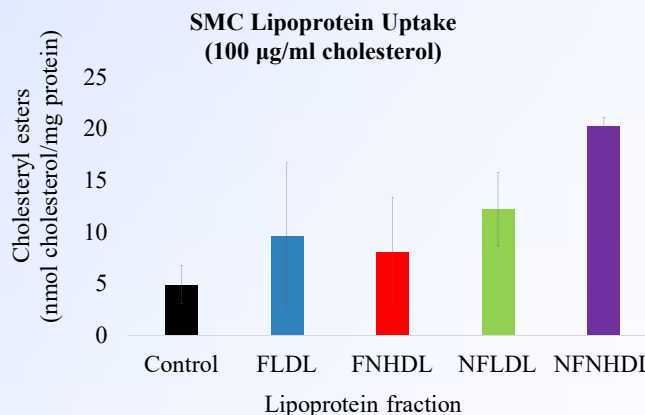- Non-HDL is more atherogenic compared to LDL in human macrophages

Limitation and Future Direction

- Monoculture data might not represent foam cell development *in vivo*

- Future work will evaluate fasting and non-fasting lipoproteins on cholesterol uptake in macrophage-SMC cocultures

Macrophage-SMC coculture

Acknowledgement

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Evaluation of Fasting and Non-fasting Lipoproteins in Cellular Cholesterol Uptake

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