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**L R Ritter\*** ([lr Ritter@spsu.edu](mailto:lr Ritter@spsu.edu)), 1100 S. Marietta Pkwy, Dept. of Mathematics, Marietta, GA 30060. *Foam cell formation in atherosclerosis: HDL and macrophage reverse cholesterol transport*. Preliminary report.

Macrophage derived foam cells are a major constituent of the fatty deposits characterizing the disease atherosclerosis. Foam cells are formed when certain immune cells (macrophages) take on oxidized low density lipoproteins through failed phagocytosis. High density lipoproteins (HDL) are known to have a number of anti-atherogenic effects. One of these stems from their ability to remove excess cellular cholesterol for processing in the liver—a process called reverse cholesterol transport (RCT). HDL perform macrophage RCT by binding to forming foam cells and removing excess lipids by efflux transporters.

We consider a model of foam cell formation accounting for macrophage RCT. The model takes the form of a system of ordinary differential equations. Numerical and steady state analyses are performed; the results are interpreted in terms of their potential bio-medical implications. (Received September 04, 2012)