LDL Apheresis:  
An Effective and Safe Treatment  
for Refractory Hypercholesterolemia  

Lisa Cooper Hudgins, Bruce R. Gordon, Thomas S. Parker,  
Stuart D. Saal, Daniel M. Levine, and Albert L. Rubin  

The Rogosin Institute and The Rockefeller University, New York, NY, USA  

___________________________________________________________  

**Key words:** Cholesterol — DALI — Familial hypercholesterolemia — HELP  
— LDL apheresis—Lipids—Liposorber.  

___________________________________________________________  

**ABSTRACT**  

Through the efforts of Edward H. Ahrens, LDL apheresis became available for the  
treatment of patients, often with familial hypercholesterolemia, who have no alternative  
therapy for severely elevated LDL cholesterol levels. In the U.S., the FDA has approved  
this treatment for individuals on maximum diet and drugs with an LDL cholesterol greater  
than 300 mg/dL or greater than 200 mg/dL with coronary artery disease. Unlike plasmapheresis, apolipoprotein B-containing lipoproteins (LDL, Lp(a), and VLDL) are selectively removed by heparin precipitation or columns containing dextran sulfate cellulose or antibodies to apolipoprotein B. The acute lowering of LDL-cholesterol by a typical 2 – 3 h treatment is up to 80%, and the time-averaged lowering in the 1 to 2 week interval between treatments is up to 50%, with very few side effects. The lowering of LDL-cholesterol and other cardioprotective effects of LDL apheresis have reduced chest pain, prevented new disability and prolonged life. Whole blood compatible columns in development offer the possibility of simpler and less expensive treatments.