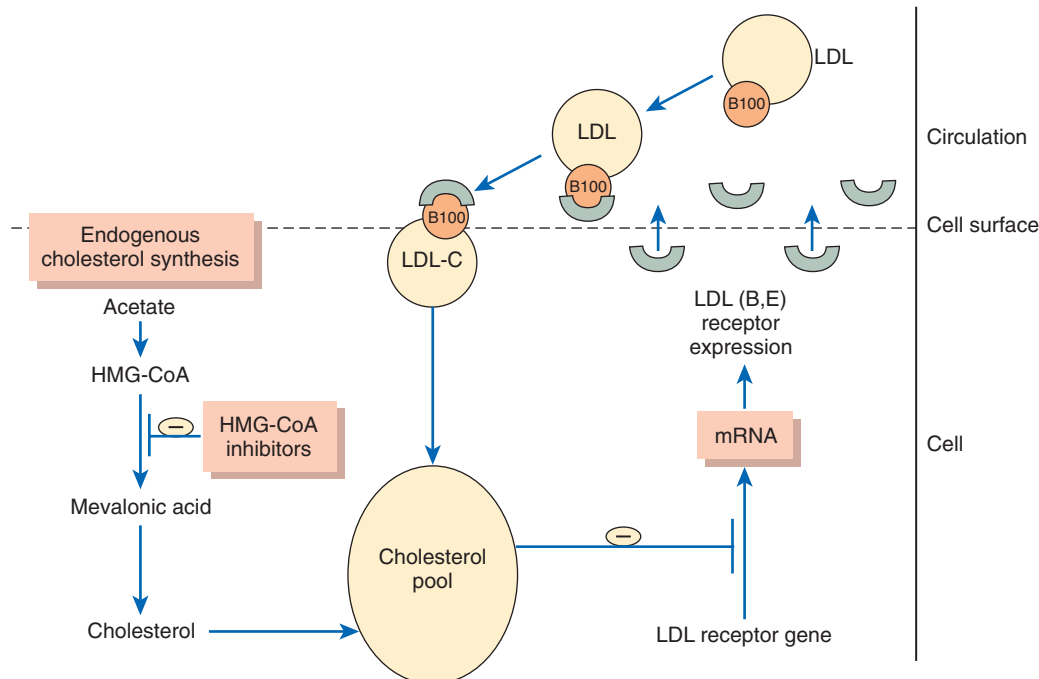


**FIGURE 69-1** Normal metabolism of plasma lipoproteins (see text for details). apo, Apolipoprotein; B,E, membrane receptor for lipoproteins containing apo B and apo E (synonymous with the LDL receptor); FC, free (unesterified) cholesterol; FFA, free (unesterified) fatty acids; HDL, high-density lipoprotein; IDL, intermediate-density lipoprotein; LDL, low-density lipoprotein; LPL, lipoprotein lipase; VLDL, very-low-density lipoprotein.

#### LDL Cholesterol Uptake from Circulation



**FIGURE 69-2** Regulation of low-density lipoprotein (LDL) receptor expression (see text for details). B100, Apolipoprotein B100; B,E, membrane receptor for lipoproteins containing apo B and apo E (synonymous with the LDL receptor); HMG-CoA, 3-hydroxy-3-methylglutaryl-coenzyme A; LDL-C, LDL-cholesterol; mRNA, messenger RNA.

converted to cholesterol through a series of steps. HMG-CoA reductase is the rate-limiting step in the cholesterol synthesis pathway. Drugs that inhibit this enzyme decrease cholesterol biosynthesis and cellular cholesterol pools. Internalization of LDL particles into cells is regulated by negative feedback (see Fig. 69-2). A negative cholesterol balance increases the expression of

LDL receptors and subsequent uptake of cholesterol from the circulation. A positive cell cholesterol balance suppresses LDL receptor expression and decreases uptake of LDL-cholesterol into cells. Circulating LDL then enter macrophages and other tissues via scavenger receptors. Because the scavenger receptors are not regulated, these cells accumulate excess intracellular