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IN BRIEF

 LIPIDS

Genome-wide scan identifies variation in *MLXIPL* associated with plasma triglycerides.

Kooner, J. S. *et al. Nature Genetics* 13 Jan 2008 (doi:10.1038/ng.2007.61)

Six new loci associated with blood low-density lipoprotein cholesterol, high-density lipoprotein cholesterol or triglycerides in humans.

Kathiresan, S. *et al. Nature Genetics* 13 Jan 2008 (doi:10.1038/ng.75)

Newly identified loci that influence lipid concentrations and risk of coronary artery disease.

Willer, C. J. *et al. Nature Genetics* 13 Jan 2008 (doi:10.1038/ng.76)

Plasma lipid levels are a major risk factor for coronary heart disease — a major cause of mortality and morbidity. Three new genome-wide association studies report seven novel genes or loci that are associated with lipid levels, including high-density lipoprotein (HDL) cholesterol, low-density lipoprotein (LDL) cholesterol and total plasma triglycerides. Willer and colleagues also tested whether the plasma-lipid-associated loci were associated with coronary artery disease (CAD), and found that variants that were associated with increased LDL levels were also associated with an increased risk of CAD in last year's Wellcome Trust Case Control Consortium study. Understanding the molecular, cellular and clinical consequences of the newly identified loci might help to improve therapy and clinical care.

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PTRF-Cavin, a conserved cytoplasmic protein required for caveola formation and function.

Hill, M. M. *et al. Cell* **132**, 113–124 (2008)

Caveolae are abundant small membrane invaginations that are involved in lipid regulation and endocytosis and are important for cell signalling. Hill *et al.* used comparative proteomics to identify PTRF (also called Cav-p60 or Cavin) as a new constituent of the caveolar coat. PTRF-Cavin selectively associates with mature caveolae at the plasma membrane, but not with Golgi-localized caveolae. In the absence of PTRF-Cavin in mammalian cells and zebrafish, caveolae become flattened and caveolin-1 — one of the main components of caveolae — is released into the cell membrane, where it is rapidly internalized and degraded. These results indicate that PTRF-Cavin is required for caveola formation.

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Membrane phosphatidylserine regulates surface charge and protein localization.

Yeung, T. *et al. Science* **319**, 210–213 (2008)

The contribution of the anionic phospholipid phosphatidylserine (PtdSer) to the surface charge of individual cellular membranes is unknown, partly because of the lack of reagents for analysis of its distribution in intact cells. Yeung *et al.* have now developed a biosensor to study the subcellular distribution of PtdSer and have found that it binds the cytosolic leaflets of the plasma membrane, and of endosomes and lysosomes. The presence of anionic PtdSer directed proteins with moderately positive charges to the endocytic pathway. The presence of pools of PtdSer on endosomes and lysosomes implies that these compartments can dock proteins with PtdSer-binding domains, which include important signalling and fusogenic effectors.