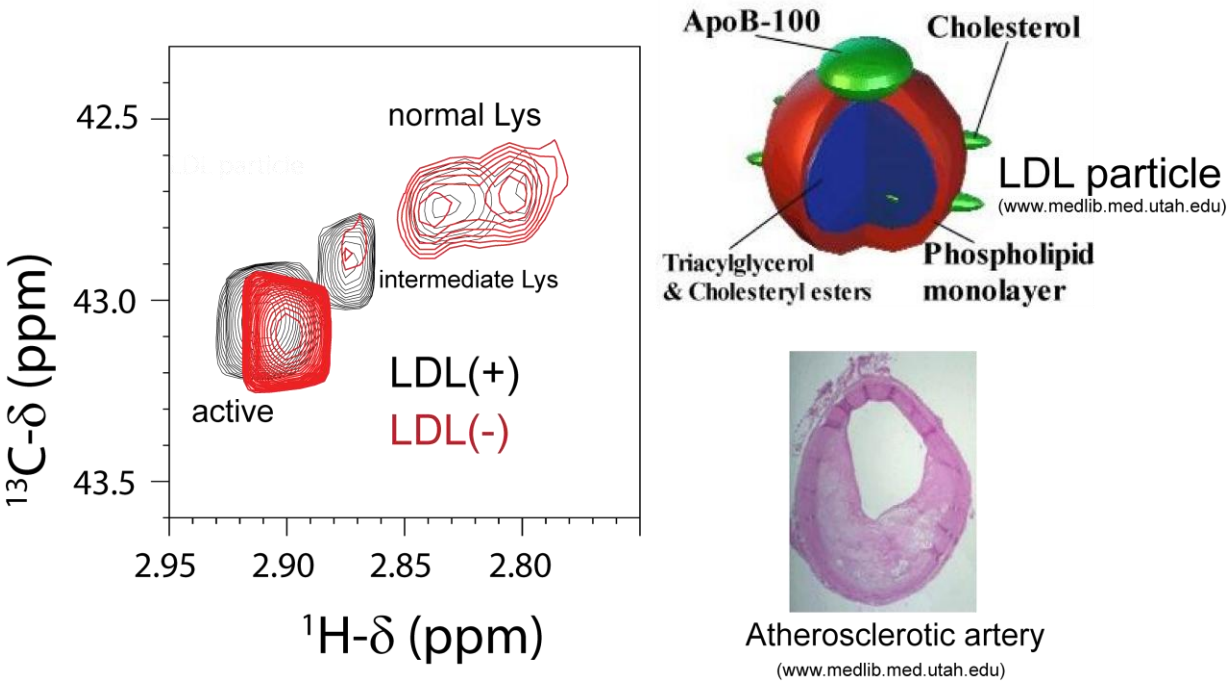
Novel properties of LDL atherogenic particles uncovered by NMR

The electronegative fraction of Low Density Lipoproteins (LDL particles) have low affinity for their receptor, which result in impaired plasma clearance atherogenesis, but the molecular basis for the reduced receptor affinity is not well understood. A team of researchers from CIC bioGUNE and the Hospital de la Santa Creu i Sant Pau, in Barcelona, have measured 2D-NMR spectra of the surface-exposed lysine residues of the apoB-100 protein in both LDL(-) and LDL(+) subfractions. LDL(+) showed two populations of lysine residues: normal Lys, with pKa=10, and active Lys, with pKa=8.8, which have been suggested to be involved in receptor binding. In contrast, the LDL(-) subfraction presented a third type of Lys, intermediate Lys, with a different microenvironment and more basic (pKa=10.7). These differences between LDL(+) and LDL(-) are indicative of a distinct conformation of apoB-100 that could be related to loss of affinity for the LDL receptor and for their atherogenic properties.



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