**MEASUREMENT AND MANIPULATION OF LOX-1 LIGAND LEVEL TO PREDICT AND TO PREVENT CVD**

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LOX-1 is a multi-ligand receptor recognizing oxidized LDL, dead cells, activated platelets, and CRP etc. The property suggests the biology of LOX-1 is not limited within cholesterol metabolism. To understand the role of LOX-1 in the pathogenesis of atherothrombotic disease and inflammation, it is of essence to know its native ligands. For lipoprotein ligands, so far, malondialdehyde-LDL, 4-hydroxy-2-nonenal -LDL, 4-oxo-2-nonenal -LDL; HClO modified-LDL, and carbamylated LDL etc. have been reported to be recognized by LOX-1 as modified LDL existing in vivo. In addition, as endogenous lipoprotein ligands, electronegative LDL (L5), and remnant are proposed.

To measure biological activity of these lipoprotein ligands, it is important to measure whole receptor binding activity of these lipoprotein ligands, not to measure single epitope of modified LDL. We performed 11-year cohort study, measuring LOX-1 ligand containing apoB (LAB), and demonstrated high LAB activity is a potent risk factor for cardiovascular disease after adjustment of multivariable. To reduce or to block the binding of LAB to LOX-1, reduced lipid deposition and retarded progression of atherosclerosis at least in animal models. Furthermore, we found blocker for the oxidized LDL binding to LOX-1 by screening food stuffs. Namely, procyanidins, which is contained rich in apple and red wine, blocked oxidized LDL binding to LOX-1 in vitro and reduced lipid deposition in animal model in vivo.

Thus, measurement of LAB and blocking its action might be useful means to predict and to prevent CVD.