The atheroprotective properties of Hsp70: a role for Hsp70-endothelial interactions?

Abstract:
Although heat shock (stress) proteins are typically regarded as being exclusively intracellular molecules, it is now apparent that they can be released from cells in the absence of cellular necrosis. We and others have reported the presence of Hsp60 (HSPD1) and Hsp70 (HSPA1A) in the circulation of normal individuals and our finding that increases in carotid intima-media thicknesses (a measure of atherosclerosis) in subjects with hypertension at a 4-year follow-up are less prevalent in those having high serum Hsp70 (HSPA1A) levels at baseline suggests that circulating Hsp70 (HSPA1A) has atheroprotective effects. Given that circulating Hsp70 (HSPA1A) levels can be in the range which has been shown to elicit a number of biological effects in vitro, and our preliminary findings that Hsp70 (HSPA1A) binds to and is internalised by human endothelial cell populations, we speculate on the mechanisms that might be involved in the apparent atheroprotective properties of this protein.