



BILKENT UNIVERSITY

unam - INSTITUTE of MATERIALS SCIENCE & NANOTECHNOLOGY

FACULTY OF SCIENCE

**MATERIALS SCIENCE and NANOTECHNOLOGY
GRADUATE PROGRAM SEMINAR**

**“Novel Mechanisms and Therapeutic Approaches in
Cardiometabolic Syndrome”**

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Endoplasmic reticulum (ER) stress has emerged as an important mechanism underlying obesity, insulin resistance and type 2 diabetes associated morbidities. While atherosclerosis can give rise to ER stress in vascular lesions and macrophages also exhibit ER stress when exposed to lipotoxic signals associated with atherosclerosis, the pathophysiological significance and the underlying mechanisms of macrophage ER stress remain unknown. We recently demonstrated that mitigation of ER stress with chemical chaperones can markedly reduce atherosclerosis in mouse models and that this effect is independent of alterations in lipid metabolism. Modulation of ER function can provide marked protection against lipid-induced ER stress and apoptosis in macrophages. Interestingly, such interventions also regulate lipid chaperone activity in the macrophages. In this seminar, I will present data on the impact of ER stress on atherosclerosis in mouse models, how the cytosolic lipid chaperones of macrophages are vital in dictating the lipotoxic outcomes in these cells that are relevant to atherosclerosis, and the molecular mechanisms underlying these effects. Our findings support the possibility of using ER modifying strategies for the management of atherosclerosis in experimental models and signify that different components of metabolic syndrome are integrated through the functional networks emanating from this organelle.

Date : November 5, 2010 (Friday)

Time : 15:40

Place : Faculty of Science Building, A Block, Seminar Room (SA 240)

Tea will be served after the seminar