

Hosted by the Department of Medicine Office for Research

Wednesday, September 6th, 2023

12:00-1:00 pm

Via Zoom Only

(To join via zoom: <https://msu.zoom.us/j/96662081683?pwd=LzJCTEQvVFN5WkVwanF4c29UZzdHUT09> Or
telephone: 312-626-6799 Meeting ID: 966 6208 1683)

“The Role of Cholesterol Crystals in Carcinogenesis and Atherosclerosis”

Goals:

1. Evaluation of the role of Cholesterol Crystals in triggering inflammation (NLRP3 & IL- β).
2. Effect of Cholesterol Crystals in mechanical injury of atherosclerotic plaque and cancerous tumors.
3. Cholesterol Crystals activate VEGF, CD44 and Ub-H2B.
4. The role of Aspirin, Statins, Colchicine in inhibiting Cholesterol Crystals.

George S. Abela, MD, MSc, MBA, FACC, FAHA, FNLA

Professor and Chief Division of Cardiology
Director, Cardiology Fellowship Training Program
Adjunct Professor of Pathology
Department of Medicine
Michigan State University



Dr. George S. Abela is a clinician-scientist with expertise in atherosclerosis. He was trained in pharmacology, pathology, electron microscopy and is a clinical cardiologist. At Harvard he initiated a program evaluating plaque rupture and at MSU his lab discovered a mechanism of plaque rupture by expanding cholesterol crystals (CCs). This discovery was achieved by avoiding ethanol dehydration during tissue processing. This mechanism was confirmed in human coronary arteries where CCs were found perforating plaque caps of patients who died of myocardial infarction. In collaboration with a group in Germany they reported in *Nature* the role of CCs in triggering inflammation via NLRP3 inflammasome. Because of shared risk factors between atherosclerosis and cancer, he demonstrated extensive presence of CCs in 11 different cancers perforating the tumors as in atherosclerosis that potentially leads to local spread and metastasis. A similar mechanism was recently reported in diabetic retinopathy. These findings define a universal process of injury in many disease conditions.