

《招待講演》

The Future of Nuclear Cardiology

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The future of nuclear cardiology, or for that matter any nuclear specialty, is undeniably linked to technical advancement (comprising development of camera devices with superior resolution, or better accessibility to imageable targets) and biological advancements (comprising development of targeted imaging). The biologic characterization or better termed as *bioprofiling* of the targets (Strauss HW, 2001) is based on the identification of molecules which are uniquely expressed in the pathologic lesion and are not distributed in normal tissues (*hot-spot imaging*) or evaluation of loss of those molecules from the diseased territory which are normally expressed excessively by the healthy tissue (*cold-spot imaging*). For such a strategy of bioprofiling to be successful, it becomes mandatory to study histomolecular characteristics of the disease state, and to preferably identify the molecules that are expressed accessibly on the cell surface. The most deserving areas of emphasis in the *renaissance of nuclear cardiology* (Zaret BL, 2000) include development of targeting strategies for identification of vulnerable atherosclerotic plaques, characterization of myocardial cell death to select the salvageable myocellular insult, prediction of outcomes in heart failure especially pertaining to validation of treatments involving gene transfection, and assessment of evolution of angiogenesis. Recently reported noninvasive recognition of apoptosis (Blanckenberg FD, 1999; Narula J, 2000), detection of macrophage infiltration (Strauss HW, 2001) and metalloproteinase activity in the atherosclerotic plaque (Narula J, 2001), and use of radionuclide reporter probes during gene delivery have offered fascinating diagnostic and prognostic avenues. Bioprofiling promises to lay the worthy foundation for nuclear cardiology of the coming years. It is expected that the grandeur of the façade of the discipline based on molecular nuclear cardiology will be brighter than the one built by the preceding tenets of nuclear cardiology based on physiology.