

2.1.7. New cardiac markers

Prof Torbjørn Omland



Circulating markers of disease (biomarkers) are currently used for diagnosis of myocardial infarction and heart failure, but have potential also for use in disease management. The established markers troponins and natriuretic peptides are released from the myocardium during necrosis and strain, thus limiting the information provided by these markers to conditions characterized by cardiomyocyte necrosis and strain. With several other pathophysiological processes activated in the diseased myocardium, including fibrosis, inflammation, and altered contractility, there is a need to complement established markers with new biomarkers. Our main research focus is to integrate experimental models for biomarker discovery with clinical trials for biomarker validation. This work is carried out in close partnership with the research group of Professor Geir Christensen, Institute for Experimental Medical Research, thus providing us with state-of-the-art experimental models and leading expertise in basic cardiac research. Combined with the experience and expertise of our group in clinical trials, and the large patient population available at Akershus University Hospital, this

unit is a leading group for biomarker discovery in Norway. Our current main research focus is the granin protein family and the role of the chromogranins and secretogranins as biomarkers and pathophysiological mediators in cardiac disease. This work has resulted in several prestigious oral presentations in international meetings (European Cardiology Society meeting 2010, American Heart Association meeting 2009), publications in leading international journals (Røsjø et al. *Eur J Heart Fail*, 12: 549-556, 2010; Røsjø et al. *Circ Heart Fail*, 3 :503-511, 2010), and two patent applications.

Helge Røsjø (PhD student)
Anett H. Ottesen (PhD student)
Mai Britt Dahl (engineer)

Main priorities for 2011 will be to examine these markers more closely in large populations of patients with cardiac disease and myocardial dysfunction, with special focus on patients with acute coronary artery disease and decompensated heart failure. We will also aim to understand the pathophysiological processes that drive the production of granin proteins during cardiac disease and the impact of the granin proteins

on myocardial function. Both of these work packages are joint projects with the group of Professor Christensen at Institute for Experimental Medical Research, which is reflected in the co-affiliation of the project manager A. Hellebø Ottesen between the Institute for Experimental Medical Research and Akershus University Hospital.