

COMPOUNDS AND METHODS FOR OPTICAL IMAGING OF MYELOPEROXIDASE ACTIVITY IN VIVO

The invention relates to novel diagnostic methods for functionally assessing the presence of myeloperoxidase (MPO) activity in living subjects, including model organisms, animals and humans. While MPO is central to normal host defense mechanisms, dysregulated MPO contributes to the pathogenesis of inflammatory disease states ranging from atherosclerosis to cancer. We show that upon systemic administration, the small molecule luminol and related analogues enable noninvasive, specific and highly sensitive bioluminescence imaging (BLI) of MPO activity in vivo. This can be used to assess the risk of a subject for development of a pathological condition associated with high levels of oxidative stress, in particular, cardiovascular disease. In addition, methods are described for monitoring the effectiveness of therapy in a subject, and for establishing a prognosis in a subject undergoing treatment for a condition such as a cardiac condition, using non-invasive imaging to assess MPO activity in vivo as a specific marker of oxidative stress and as an indicator of disease progression or inhibition thereof.

POTENTIAL AREAS OF APPLICATIONS:

- Cardiovascular
- Imaging

PATENT STATUS: Pending

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