Reviewer’s report

Title: Human antimicrobial peptide LL-37 is present in atherosclerotic plaques and induces death of vascular smooth muscle cells: a laboratory study

Version: 1 Date: 28 November 2006

Reviewer: Dennis Bruemmer

Reviewer’s report:

General
This study by Ciornei and colleagues demonstrates the presence of the antimicrobial peptide LL-37 in human atherosclerotic lesions. Using immunohistochemical analysis the authors provide evidence that LL-37 is present in the neointima and colocalizes with macrophage staining. In vitro, the authors demonstrate that LL-37 induces smooth muscle cell apoptosis. This is demonstrated using a variety of techniques including cell morphology, DAPI staining, DNA fragmentation, annexin V expression and FACS analysis. The experiments are overall well-performed, the data provided is convincing, and the manuscript is well-written. There are, however, several major and a few minor concerns which the authors will need to address to support the relevance of these observation and their conclusions.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
Major concerns:
1. It has previously been demonstrated that LL-37 is present in atherosclerosis (Edfeldt et al, ATVB 2006;26:1551). Therefore, the reported observation of the presence of LL-37 in atherosclerosis is more or less confirmative. This work should have been cited and discussed.
2. The authors demonstrate the presence of LL-37 in the neointima of a fibroatheroma (not an advanced lesion) but discuss the relevance of their findings in the context of smooth muscle apoptosis of an advanced lesion with a fibrous cap. To support this concept the authors should demonstrate the presence of LL-37 in the fibrous cap of an advanced lesion. In the same context, it might be useful to analyze LL-37 expression in different stages of atherosclerosis. Similarly, it is not clear whether the CD68 staining was obtained from the same lesion as in Figure 1A. The authors should perform serial staining for macrophages, smooth muscle cells, and LL-37 to support the conclusion that LL-37 is secreted only by macrophages.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
N/A

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests