Reviewer's report

Title: A calcium-binding protein S100P in normal and malignant human tissues

Version: 1 Date: 12 April 2007

Reviewer: Roger Barraclough

Reviewer's report:

General
The manuscript describes a quantitative PCR and immunohistochemical study of the occurrences of S100P mRNA and protein in a number of human tissues and tumour specimens. It is concluded that the widespread occurrence of S100P might limit the use of S100P as a tumour biomarker, but that it might be a target for therapeutic applications. The manuscript is generally clearly written and does provide some new descriptive information, but it could be improved by a more critical presentation and careful interpretation of the results.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. It is not clear how many tissue samples were used for each column in Figure 1 apart from each cDNA being tested in duplicate. The number of separate tissue samples that were assayed should be made clear, and the variations between different samples reflected in error bars on Figure 1. If only one specimen of each then more should be done.

2. The manuscript would be improved if the particular novelty of the monoclonal antibody is indicated to show that it is not just a different monoclonal antibody. Parallel blocked controls should be carried out with recombinant S100P to rule out any non-specific effects or cross reaction with other S100 proteins. If this has been published already, then reference should be quoted. Information on the precise epitope that the monoclonal antibody recognises would help to establish its unique nature.

3. The discrepancy between mRNA and protein level in oesophagus could be potentially interesting but needs to be replicated on larger numbers of specimens to be convincing.

4. In places the text is somewhat vague, for example “These figures indicate that the staining intensity was usually higher in the tumor compared to the adjacent benign tissue.” “This finding was further confirmed in another large series of breast cancer consisting of 1500 breast cancer tumors”. Numbers should be given and proper analyses carried out. The data showing no correlation to tumor grade should be presented and analyses carried out with other variables.

5. It is difficult to see why the widespread occurrence of S100P is not a bar to therapeutic applications.

6. The Discussion would be improved by being much more focussed and less speculative. Thus, which other proteins might S100P be used with as a diagnostic marker. The rest of the first Discussion paragraph is vague. The final paragraph of the Discussion, discusses ‘not-shown’ results. If the data on the granulocytes is important enough to be discussed, the results should be shown. The rest of the final paragraph is on interleukin. It is speculation, not based on the present work and the manuscript would benefit from its removal.

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

1. Figure 2 legend contains some mislabelling which needs to be corrected.

2. The use of “A calcium-binding protein…” in the title suggests a novelty that is not present. The title should be changed to “The calcium-binding protein…..” as S100P has been well described before.

3. There needs to be a reference to the statement at the start of the discussion ‘S100P has been recently considered a potential biomarker of cancer.’
Discretionary Revisions (which the author can choose to ignore)

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests