Reviewer's report

Title: In vivo MRI volumetric measurement of prostate regression and growth in mice

Version: 1 Date: 9 April 2007

Reviewer: Johannes T. Heverhagen

Reviewer's report:

General

The manuscript needs extensive language corrections before it can be published.

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

The entire manuscript is disorganized. Many descriptions of the materials and methods are stated in the results. Also, other parts of the text are in the wrong section. This makes it hard to comprehend the manuscript, and needs to be organized better, e.g. the entire first paragraph of the results section belongs into materials and methods.

The authors need to describe their methods more thoroughly:
How many animals did they study in total? What was exactly done with how many mice? How many animals were studied multiple times?
What was the exact acquisition protocol? Which sequences were acquired in which animal? In the results section, the authors describe the use of T1-weighted sequences. This is not described in methods.

Was there a 90% or a 100% survival rate? 3.5 hours of anesthesia seem to be too long. Also, for a necessary high throughput this acquisition time is much too long and not practicable.

Please provide the results from the comparison to histology.

Chemical shift is a well known artifact. Therefore, it description especially in the results and discussion sections is too extensive. Please shorten it substantially.

The authors describe that the higher resolution sequence provides better results. However, what was the gold standard that validates this statement?

What was the dose of the DHT administered daily? How much was that compared to natural blood levels of androgens?

The entire discussion needs to be reorganized.

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

The authors use the terms dorso-lateral, dorsal and lateral lobe interchangeably. They should clarify it, and use it consistently.

The methods section of the abstract is too short, and needs to be expanded.

In the background section, the authors state that the resolution of the references 5 and 6 was not good enough. However, for an organ that is about 20mm^3, a resolution of 0.39 and better should be enough to get a good estimate. Please rephrase.

How was the effect of chemopreventive drugs assessed with only one time point (refs 8 and 9)?

The last paragraph of the background should state the purpose of the manuscript. Currently, it provides a
conclusion rather than a purpose. Please rephrase.

What were the acquisition times of the reported sequences? Each sequence seems to be rather long. I calculated about 150 minutes. This would mean that only one of these sequences could have been acquired per animal. Is that correct?

Why have the total pixels to be divided by the magnification factor in order to generate the prostate volume. Please clarify.

Voxel size does not have to be explained extensively.

The first two sentences of the “Regression and re-growth…” section in results should be moved to the introduction or discussion.

The use of high field magnets and small coils to improve resolution is not new. Please rephrase in the discussion.

Please rephrase the statement in the discussion that the used MRI protocol accurately determined the volume of the prostate. This was not studied in this manuscript.

Figures 1,2,4 and 5: One row of images is enough. The ones that outline the prostate can be interchanged with the ones that don’t outline it.

Figure 1: Please mark some anatomic landmarks. What is the round structure in the middle of the gland?

Figure 1: Where is the bladder? Shouldn’t there be a cross section of it?

Figure 1: Why is the prostate shaped so oddly? I would expect it to be more round as it is in humans and other animals.

Figure 4: Panels A to D can be removed. They do not provide any additional information.

Discretionary Revisions (which the author can choose to ignore)

The last sentence of the section animals in the methods should be moved to the front.

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

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

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.