Reviewer's report

Title: Rapamycin reduces bone growth, decreases angiogenesis and lowers chondroclastic activity in young rats

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Reviewer: Frederick Kaskel

Reviewer's report:

1. The authors use Weanling rats (3wks of age, treated to age 5 weeks and 7 weeks): what is the human equivalent to that? Are the 5 week old rats adolescents and the 7 week old rats adults? So that we can extrapolate to where the growth data might apply?

2. The authors talk about the "hypertrophic zone" in the growth palte cartilage. They should explain what that area means/signifies at the first mention of the term: as it pertains to the whole paper (discussion/results etc).

3. They looked at the tibial growth plates, is that the best place to look for growth? If so, they might want to mention the preceding work done to demonstrate that.

4. In Methods: is the term "cell profile" (page 5) clear, does it need to be defined?

5. The Results section needs the most clarification: Thruout the explanation of the results, the authors mention percents of change while referring to the tables. The tables however have raw data, no percents are noted. For example, tables 1 and 2 are clear, but perhaps they need another column or table to show the percents referred to in the body of the text.

Clarify Food Efficiency Ratio

For the photomicrographs, perhaps it would be good to clearly delineate in Figure 1, where the normal proliferation zone is, where the hypertrophic zone is, to orient the reader.

The In-Situ Hybridization and Immunohistochemistry Studies section:

Needs editing as there is a lot of introduction/discussion type material that may best have been introduced earlier(i.e at the end of page 6). This is a results section, and the results get lost in all the wording.

In the text, when talking about Ihh expression (page10), they say "Ihh expression confined mostly to the hypertrophic chondrocytes increased approximately 2-fold after 2 weeks of rapamycin (Figure 3a)" but in the legend of that Figure, it seems to jive more with Figure 3B.
Level of interest: An article of outstanding merit and interest in its field

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.