Reviewer's report

Title: Voluntary Exercise Inhibits Intestinal Tumorigenesis in Azoxymethane/Dextran Sulfate Sodium-Treated and ApcMin/+ Mice

Version: 1 Date: 20 February 2008

Reviewer: Melanie Kucherlapati

Reviewer's report:

Major Compulsory Revisions: None.

Ju et al., pose the question does voluntary physical activity reduce the risk of colorectal cancer in mouse models. Two animal models have been examined, male CF-1 mice treated with carcinogen and kept on high fat diet, and female Apcmin with genetic predisposition towards colorectal cancer kept either on AIN93G or high-fat diet. Animals were housed in cages with and without running wheels. Both systems permit assessment of the effects of exercise on tumor incidence, multiplicity, and progression (based on size). A significant correlation in tumor multiplicity and lack of voluntary exercise was found for both groups. The investigators examine IGF1, IGFBP-3 levels, leukotriene B4, Prostaglandin E2, nuclear ß-catenin levels, and E-cadherin. An increase in IGFBP-3 level was observed, along with decreased Prostaglandin E2 and ß-catenin levels, with an increase in E-cadherin. A significant association of fat accumulation and intestinal tumors was not found.

The major questions of the study are well defined, and the methods used appear systematic and well described. Statistics appear to have been done properly implying the data is sound. The discussion and conclusions are well balanced and supported by the data. The authors do not make unwarranted claims, implying that the limitations of the work have been taken into consideration. The authors discuss and acknowledge previous studies published. They mention that previous studies on Apcmin mice have yielded conflicting results, and that this may be due to individual variation in tumor yield. (This is a well known problem with Apcmin mice). The authors might consider using the Apc1638N mouse model in future studies, available through MMHCC. The title and Abstracts are acceptable. A few suggested corrections in writing are listed below.

Minor Essential Revisions
1. Table 1. Footnote â##aâ## should be placed under Table 1.
2. Table 1. p17. Third column should read â##No. of tumors per mouseâ##.
3. Table 1. Give the p value for â##Tumor incidenceâ## to show no significant difference between control and exercise groups.
4. Mention in body of paper how measurements of tumors were made e.g. did the authors use a caliper?
5. Table 4. Define â##SIâ## as small intestine in the footnotes.
Discretionary Revisions
1. Table 2. Footnotes are too lengthy e.g. \#a\# should read \#N = number of mice\#, \#b\# should read \#p < 0.05\# etc.
2. Table 2. The structure of the experiment does not need to be restated in the footnotes as it is in \#Materials and Methods\#.
3. Table 3. Put calculation of molar ratio into \#Material and Methods\# section.
4. \#*\# footnote(s) should read \#* p< 0.03; ** p< 0.005 by Student\#s T-test (two tailed)\#. Remove the text let the reader come to the conclusion by seeing the p value.

What next?: Accept after minor essential revisions

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

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.