Reviewer's report

Title: Benazepril affects integrin-linked kinase and smooth muscle alpha-actin expression in diabetic rat glomerulus and cultured mesangial cells

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Reviewer: Alexander Kirsch

Reviewer's report:

Niu and colleagues report the results of their studies on the effect of the ACE-I benazepril on the expression of alpha-SMA and integrin-linked kinase. They show comprehensive in vitro and in vivo data on mRNA and protein level of how both benazepril-treated rats and glomerular mesangial cells show a lower of aSMA and ilk levels. Overall, the manuscript is well-written, the data are presented clearly and the analysis seems to have been conducted thoroughly. I do however – apart from some minor issues – see an important issue with the controls the authors chose for their in vivo studies, which I believe warrant caution in the interpretation of their in vivo data.

Major Compulsory Reviews

1. The authors chose untreated, diabetic control rats to compare their ACE-I treated rats to. As expected and nicely shown by the authors, the control rats were diabetic, lower in body weight, had lower blood pressure, and a bit unexpectedly lower blood glucose levels than diabetic control animals. How can the authors exclude that the effect they observed in the ACE-I treated group was really specific to the inhibition of the RAAS rather than secondary to i) lower body weight, thus less hyperfiltration and less glomerular hypertrophy, ii) less hyperglycemia and most importantly iii) lower blood pressure. All of these factors are well known driving factors behind the development of diabetic nephropathy and must not – I believe – be ignored. The authors should at the very least include a diabetic control group treated with e.g. a thiazide diuretic to lower blood pressure level to a similar degree as seen in the treatment group. Without such controls, the authors’ conclusions about the in vivo effects of benazepril are not truly supported by their data.

Minor Essential Reviews

1. Spelling, Grammar
   a. Page 4, line 5 from the bottom: “intraglomerular” --> “glomerulus”
   b. Page 5: “renal protective” --> “renoprotective”
   c. Page 6 and throughout the rest of the manuscript: ‘diabetes nephropathy’ --> ‘diabetic nephropathy’
   d. Page 7, last paragraph: “... was carried out in four different the types of medium...” --> “...was carried out in the four different types of medium...”
e. Page 10, last line before first bold heading: “the beneficial effects of benazepril were mainly mediateD…”

2. Please indicate the number of independent experiments performed for western blotting. There are only exemplary blots shown with one replicate, the quantification however has SEM, therefore there must have been other experiments.

3. Section on Renal Histology: The authors’ description of their histological findings is a little vague. Please describe what is meant by:

a. “lost the typical structures of the cortical tubulues”

b. “some features of healing”

c. When stating that there were fewer inflammatory cells, is this based on subjective impression or were the number of cells counted. If they were not and this is feasible, it should be done.

4. Discussion

a. The authors should mention the limitations of their study.

Discretionary Reviews

1. The discussion focuses a lot on other literature but gives only a relatively brief impression of what the authors think their data mean.

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.