

Response to reviewers' comments:

We are very grateful for the constructive suggestions from the reviewers. Following reviewers' suggestions, we have provided the missing information and modified our manuscript. As listed below, we have point-by-point addressed all the concerns raised from three reviewers.

Specific comments:

*"In last paragraph of introduction, authors should provide hypotheses and aims for the study rather than mention the main discoveries and conclusion of the study"*

We agree with the reviewer on this point. We have modified the last paragraph of introduction and highlighted it.

*"In the method section, authors performed the microarray analysis in BE tissues for PARP1 expression from animals and staining of  $\gamma$ H2AX, NF- $\kappa$ B and PAR in humans separately. Why authors not synchronously performed the all tests in animals or humans, then authors can confirm the same findings of BE tissues both from animals and humans."*

Thank you for the reviewer's comments. We chose both animal and human study based on the following reasons:

Usually mouse study is the best model to simulate the human diseases and also a good means to monitor treatment effects. In our Barrett's oesophagus study, we used surgical to generate the Barrett's oesophagus model. Though it is an artificial way, we found the similar pathological changes and similar molecular changes from staining of  $\gamma$ H2AX, NF- $\kappa$ B and PAR as the gene expression microarray results and the human cell lines results later. Therefore, the animal findings verified the human studies well.

Also the cell lines experiments are all based on the microarray results and the cell lines are originated from human.

*"In the discussion, second to fourth paragraphs look like introduction (review of literature) rather than discussion relation to own discoveries in the study. The discussion should base on the results from the study and compared own results with others. What is new from the present study and what is consistent or different from other studies"*

We agree with the reviewer on this point. We have modified the discussion and highlighted it.

*“The basic data of animals should be provided, for example number, species, gender and body weight. How many animals were died after three months of operation?”*

Experiments in 20 male C57Bl/6 mice with mean weight 29 g (27-31) were performed in the lab. During the surgical operation, the mortality rate of mice is 10%, the perioperative mortality rate is 15% and 1 week later, the mortality rate is 10%.

*The basic data of humans should be provided too.*

The basic data of patients are summarized in the Table 1 in the manuscript.

*“The locations of tissues obtained from animals or humans for the microarray analysis of PARP1 expression and staining of  $\gamma$ H2AX, NF- $\kappa$ B and PAR should be clearly indicated.”*

The tissues for staining of  $\gamma$ H2AX, NF- $\kappa$ B and PAR were obtained from the low-oesophagus from Barrett’s oesophagus mouse model. And all human tissue samples were obtained from the low-esophagus in normal and Barrett’s oesophagus.