Reviewer's report

Title: Therapeutic effects of STAT3-decoy oligodeoxynucleotide on human lung cancer in xenograft

Version: 1 Date: 9 February 2007

Reviewer: salih sanlioglu

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General
In this manuscript, Zhang et al., tested therapeutic effects of STAT3-decoy oligodeoxynucleotide (ODN) on a single lung cancer cell line, namely A549. Previously, constitutive STAT3 DNA binding activity has already been reported in a serious of human non-small lung cancer cell lines (Song et al., Oncogene, 2003). Instead of using antisense STAT3 oligonucleotides or adenovirus vectors expressing dominant negative mutant forms of STAT3 as it is done before, Zhang et al utilized a new strategy involving the use of STAT3-decoy ODN to check whether or not it would induce apoptosis in A549 lung cancer cell line. Transfection efficiency of STAT3 decoy ODN was determined by flow cytometry and fluorescein microscopy. Annexin V binding assay was employed to reveal apoptosis following the transfection. RT-PCR analysis and Western Blotting were performed to detect the decrease in mRNA or protein levels of STAT3 targeted genes, respectively. Cell death was also confirmed by TUNEL assay. The study suggested that STAT3-decoy ODN application suppressed not only the in vitro proliferation of A549 lung cancer cells but also its tumorigenic potential as demonstrated using xenograft mice model of lung cancer. Immunohistochemistry analysis indicated a reduction in STAT3 targeted gene expressions in tumor cells following the decoy ODN application as well.

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

Specific Comments:
1- Authors stated on Discussion page (line five from the top) that “the present study demonstrates that STAT3 constitutively activated in several human lung cancer cell lines (data not shown).” This data has to be shown in the manuscript to make generalizations about lung cancer cells.
2- Only a single cell line (A549) was tested in the manuscript. In order to rule out the cell line effect, the efficacy of STAT3 decoy ODN application has to be shown at least in another non small cell lung cancer cell line with constitutive STAT3 DNA binding activity. Here, an in vitro assay would be sufficient so there is no need to repeat in vivo assays.
3- Despite the fact that experiments are well designed, the manuscript was written very poorly since there is a major concern with the language. So the authors are strongly advised to get help in writing the manuscript. The ideas have to be presented in a more concise and clear way.

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

Discretionary Revisions (which the author can choose to ignore)

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 importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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'