Reviewer's report

Title: Effect of topical fluoroquinolones on the expression of matrix metalloproteinases in the cornea.

Authors:

Dr Victor E Reviglio (victorwilmer@aol.com)
Melinda A. Hakim (mhakim@jhmi.edu)
Jae K. Song (navymed@hanmail.net)
Terrence P. O'Brien (tobrien@jhmi.edu)

Version: 2 Date: 19 May 2003

Reviewer: Gustavo Chiabrando

Level of interest: A paper of considerable general medical or scientific interest

Advice on publication: Accept after discretionary revisions

1.- The authors clearly define the objective of the work, where they propose to evaluate the comparative effects of various fluoroquinolone eye drops on the expression of MMPs in intact and wounded corneal epithelium. Interestingly, by using immunochemical and zymography assays they had demonstrated that MMP-1 and MMP-8 collagenases as well as MMP-2 and MMP-9 gelatinases can be expressed in the cornea by each topical fluoroquinolone used in this study.

a) Discretionary revisions: Would be important indicate into the antecedents of the manuscript why the authors selected MMP-8 as a collagenase to study. It is known that MMP-8 is secreted by PMN granulocytes. So, is it known that corneal epithelium or keratocytes can synthesize and secrete MMP-8 in eye? Could the authors evaluate if after the topical fluoroquinolone application in each eyes a leukocyte infiltration occur?

b) Compulsory revisions: I do not have comments.

2. In general the experimental design is well described and has sufficient details, but there are some points that would be revised.

a) Discretionary revisions: Excessive abbreviations are used into the text, for example: O.C.T., C.-C.C, and ECL. Would be advisory include as footnote an abbreviation section.

b) Compulsory revisions: In Material and Methods, Immunoblot assays, section: The authors specify that "fifteen microliters of conditioned medium was mixed with lysis buffer", which contain 1% Triton X-100. Why did author use lysis buffer since in the conditioned medium have not cells? Could lysis buffer be changed by Laemmli sample buffer?.

In the same section: Is it possible to electrotransfer proteins onto nitrocellulose membranes for 120 minutes at 25 volts ?

3.- The data as well as figures are consistent with the objectives proposal in this study. However, there are minor questions:

a) Discretionary revisions: In figures 2 and 3 the authors presents western blotting of MMP-1 and MMP-8, and zymography assays of MMP-2 and MMP-9. In both case only showed the active form of MMPs in intact as well as wounded corneal epithelium. How do the authors explain that never appear the pro-activated form of MMPs?.

b) Compulsory revisions: I do not have comments.

4.- I do no have comments.
5.- The conclusions are well balanced in relation to the objective proposal and results obtained. The authors emphasize the use of commercially fluoroquinolone drugs as prophylactic application for both normal and impaired corneal tissues.
   a) Discretionary revisions: Would be interesting that the authors make any comments about the possible molecular mechanism of MMP expressions by fluoroquinolones in corneal epithelium.
   b) Compulsory revisions: I do not have comments.

6.- The title and abstract are accurately convey.

7.- The writing of manuscript is very acceptable.

Duplicate and Trivial Publication:
Based in a bibliographic searches and author antecedents I can say you that this manuscript don't have duplication and don't form part of a more substantial paper. In addition, the authors have previous papers published in relates topics mainly in the cornea research.

Competing interests:
None declared.