Reviewer's report

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

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**Reviewer:** John J V Forrester

**Level of interest:** A paper whose findings are important to those with closely related research interests

**Advice on publication:** Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

**General comments**

These are generally well performed experiments which address the question of whether quinolone antibiotics induce matrix metalloproteinases after topical application to the eye. The main observation is that quinolones can induce MMP's in intact cornea. The methods for quantitation of MMPs are not sufficiently robust to permit interpretation of whether the quinolones induce increased MMP secretion in the wounded cornea. In addition, the quinolones should be compared to a second class of antibiotic or other topical drug to determine specificity of this toxic effect.

Some concerns can be raised corning an epithelial wound model using alcohol. This will tend to "fix" the tissue and thus this type of wound may induce special ECM responses not characteristic of "normal" wound healing. As such the information may have limited relevance regarding the wound healing aspect of the study but does not detract from the important observations of MMP induction in the intact cornea.

**Specific comments**

Some minor "usage of English" problems need attention eg see paragraph 2 in Methods. The hypothesis to be tested should be stated in the abstract. The results stated in the abstract should indicate whether there were differences between wounded and non-wounded corneas. The reliability of the densitometric measurement should be validated and the specific differences between the groups should be detailed with significance levels in the text as well as demonstrated in figures.

**Compulsory revisions**

1. evidence of specificity of effect for quinolones
2. validation of densitometric quantification

**Discretionary revision**

1. improved photographs for MMP staining
2. alterations to abstract and other details indicated in comments above
Competing interests:

None declared.