Reviewer's report

Title: Pharmacological reversal of endothelin-1 mediated vasospasm of the spiral modiolar artery: a potential new treatment for sudden sensorineural hearing loss

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Reviewer: Kazuo Obara

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General
This manuscript entitled “Pharmacological reversal of endothelin-1 mediated vasospasm of the spiral modiolar artery: a potential new treatment for sudden sensorineural hearing loss” provides insight into the effects of Rho kinase inhibitors and dbc AMP on ET-1-induced vasospasm in the SMA. The interesting findings include the inhibition of ET-1-induced vasoconstriction and Ca<sup>2+</sup>-sensitization by these drugs. However, there are some concerns that should be addressed

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. In Fig1A, inhibitory effect of fasudil is not clear. Because time course of increase in diameter by fasudil looks like that of spontaneous relaxation in response to ET-1. Authors should provide a typical tracing of ET-1-induced constriction of SMA.
2. Page 2, lines 5-9: it is not clear why dbcAMP is used in this study. Please explain.
3. Authors show that there is difference among IC50s of Y-27632, fasudil and hydroxy-fasudil for ET-1-induced vasoconstriction in SMA. In most vascular smooth muscle, IC50 of fasudil for ET-1-induced contraction is almost the same as that of hydroxy-fasudil. Please comment.
4. Page 5, line 3: It is obscure why and how long vessel segments were maintained at 4°C after fluo-4 loading. Authors showed that experiments were started 20 min after loading with fluo-4. Please explain.
5. Rho kinase is considered to increase Ca<sup>2+</sup>-sensitivity of contractile apparatus in vascular smooth muscle through not only an inactivation of MLCP but also activations of MLCK and CPI-17. Have authors measured activity of MLCP and/or MBS phosphorylation during ET-1-induced contraction of SMA?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Authors use “ET-1 induced constriction” and “ET-1-induced constriction” throughout the text. Authors should use either “ET-1 induced constriction” or “ET-1-induced constriction” throughout the text. And also as to: “ET-1 induced vasoconstriction”, “ET-1 induced vasospasm”, “ET-1 induced increase”
2. A similar to minor Comment 1: “flu4” and “flu-4”, “Ca<sup>2+</sup>-sensitivity” and “Ca<sup>2+</sup>-sensitivity”.
3. Page 9, line 14: “a Rho kinase dependent inactivation” should read “a Rho kinase-dependent inactivation”.
4. References Nos. 2, 9, 10, 11, 13, 14, 20, and 21: “Ca2+” should read “Ca<sup>2+</sup>”.

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Discretionary Revisions (which the author can choose to ignore)
Which journal?: Appropriate or potentially appropriate for BMC Medicine: an article of importance in its field

What next?: Accept for publication in BMC Medicine after minor essential revisions

Quality of written English: Acceptable

Statistical review: No