Review of: "Proton Mechanisms of Neurotransmission and Calcium Signalling for Impulse Initiation, Development, and Propagation"

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Potential competing interests: No potential competing interests to declare.

The review "Proton Mechanisms of Neurotransmission and Calcium
Signalling for Impulse Initiation, Development, and Propagation"
of Giuliano Molinari presents an interesting review of the importance of protons in neurotransmission and nerve impulse propagation.
This review certainly deserves publication.

I have a few remarks:

a) The pentameric ligand-gated channel GLIC is also activated by the proton (through acidic pH) and played an important role in understanding the structure-function relationship of nicotinic receptors at a time when the nicotinic receptor structures were not known. Thus, it would be interesting for this receptor to be mentioned in the review.

b) Concerning proton diffusion in solution, simulations showed
already some years ago (Tuckerman et al, 1995) that for the diffusion of
H3O+ and OH- in water, the rate-limiting step is the formation and
breaking of hydrogen bonds in the solvation shells of the ions.
This aspect should also be mentioned in the review.

Ab Initio Molecular Dynamics Simulation of the Solvation and Transport of H30+ and OH Ions in Water. Mark Tuckerman, Kari Laasonen, Michiel Sprik and Michele Parrinello. J. Phys. Chem. 1995, 99, 5749-5752

Finally, I am not completely sure about the relevance of the following
English expressions:

"it has been posited that they are responsible for conduction in axons"

"Some authors have also posited a significant role"

"some criticisms have been levelled"