Review of: "Forecasting of the influence of physical fields on the metabolic nanocurrent in proteins"

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Potential competing interests: No potential competing interests to declare.

The article presents an interesting model of metabolic transport via “proteins as nanowire conductors” approach. The focus of the article appears to be the forecast that magnetic field of the order of 0.1 T should influence such transport, although other contributions along the way are of interest as well, such as:

(a) simplified models of complex proteins via molecular models with the effective charges

(b) band model of the (quantum) conduction along biological molecules.

(c) pointing out that the model functions well within physiologically relevant temperatures

There are some statements that are claimed as “obvious” (as in “it can be shown”), but that should be explicitly clarified, especially because a number of junior scientists might not have all the prerequisites to comprehend or reconstruct the result on their own. An example is (page 3) …"it can be shown that all these deviations except two, methionine and cysteine, …" - there should be either an actual work in the paper, or in the supporting online materials, showing this.

Figure 2 discussion (and the figure itself) need units (or a good explanation why dimensionless units are useful, of later I am skeptical in the context of the applications of this paper).

Values for N_0 and V_0 should be stated, so that the independent reconstruction of the results can be conducted.

In Section 4, there should be a simpe, pedagogically clear illustration of the argument the authors are making. This will increase paper's visibility and citability.

It is not clear from the paper's context what the authors mean by “real conditions” in Section 5 - is this a “wet system” or not, and how is that accounted for?

Near the end of the paper, the authors compare the magnetic fields already used in some relevant experiments with the magnetic field they predict, and it is not clear what the comparison implies (given that there is a discrepancy, if I understand the work correctly).

In conclusion, the paper is interesting, but could use some clarifications towards improvements.