

# Review of: "Kirchhoff Coupling Generates ATP, the Chemical Energy of Life"

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**Potential competing interests:** No potential competing interests to declare.

This is a rather esoteric manuscript of an important function of life at the molecular and cellular levels. As such, my review commences with the needed identification and expansion of the importance of the role of current flow in energy transfer (chemical to current flow to chemical) in living systems. Such explanation would enhance the readership and by doing so, the impact, of this manuscript.

There are also numerous statements made in the manuscript that require empirical proof, or at least prior citation of this proof. Such proof is important to establish validity of concept and knowledge. Added evidence of how Kirchoff Coupling fits within Mitchell's 1961 Chemiosmotic Theory Of Oxidative Phosphorylation would also be important here.

When reading beyond the Background, there is no Methods section that would be necessary to decipher the Figure data presented in the Results. For the unfamiliar to biophysics such details are necessary. Furthermore, there is no reference to the Figures in the Results and Discussion sections.

Finally, within the Discussion I was hoping for examples of how Kirchhoff coupling could be used in understanding mitochondrial function, the activity of hydrogen ions and electrons within mitochondrial compartments, and many other biological phenomena. Then, as all scientists need to be aware of limitations, what are these for the comprehension and application of this feature of living systems?