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## Bioelectricity, a Buzzing Field Going Places

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These are exciting times in bioelectricity! Electrical signals are everywhere in the living world, from single-cell organisms to plants and complex primates. Subcellular organelles also express ion-transporting proteins, including ion channels and pumps. We are delighted to have included here an excellent review on the expression and function of ionic transporters in lysosomes by Kondratskyi and colleagues. We hope that future issues will deal with other organelles, since nuclei, endoplasmic reticulum, Golgi apparatus, and mitochondria are all known to have a resting potential, as do individual domains of the cell plasma membrane. Red blood cells would be interesting. This is the only cell type in the human body that does not have a nucleus but still exhibit a membrane potential. Even viruses, such as the influenza virus, are associated with bioelectricity by being capable of making channels in cell membranes.

Medical applications of bioelectricity, beyond neurology, are also on the increase, and the review by a young scientist, Ishu Garg, gives a timely overview of this broad topic. Of course, this area will be further represented in depth and breadth by the special issue on “Bioelectricity in Healthcare” aimed at September.

The rising importance of bioelectricity is being recognized increasingly in two further arenas:

On the one hand, the field is busy with international meetings, and several have occurred recently, and more are coming in several countries as we write. It is one of the aims of our journal to inform the readers of the proceedings of such meetings. This issue contains reports of two such conferences. In particular, it was gratifying to see the National Cancer Institute organize a symposium on the ‘bioelectricity of cancer’. A report of this meeting is also

included here. Meeting organizers would be welcome to submit to us reports of their proceedings. These reports do not just tell what happened then but also aim to give an analyses of impacts and applications and how the given field might develop in the future.

On the other hand, there are now several companies active in applications of bioelectricity in multiple countries. As bioelectricity is such a multi-disciplinary field, such commercial activity will open employment prospects for a range of scientists from molecular biology to bioengineering.

Of course, everybody is talking about artificial intelligence, and applications to the study of bioelectricity are no exception. We are hoping to dedicate a review on this specific topic in a future issue.

Another way in which we try to highlight important developments in the field is through the “Buzz.” Ann Rajnicek has again done us proud by summarizing several recently published key papers. The Buzz now includes two additional quarterly rolling extra sections—“Ion channel ligands in clinical development” and “Drug repurposing patent applications.”

Finally, we truly are delighted to be publishing Dany Adams’ “My Experiments in Bioelectricity.” Dany is the founding editor of *Bioelectricity* and has taken the bold step to set up her own company. There is a lot to learn from her experience in the field at large.

As this is the first issue of 2025, we would like to wish everyone a bioelectrically happy and prosperous New Year, and good luck with the research!

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