BIOELECTRICITY Volume 6, Number 3, 2024 © Mary Ann Liebert, Inc. DOI: 10.1089/bioe.2024.0034

Open camera or QR reader and scan code to access this article and other resources online.



## More on Pulsed Electric Fields, and More...

Mustafa B.A. Djamgoz, PhD<sup>1</sup> and Michael Levin, PhD<sup>2</sup>

It is with great pleasure that we present to you this latest issue. It is a little unusual as nearly all the contents represent a continuation of the Special Issue on Biomedical Applications of Pulsed Electric Fields. In fact, we could have easily called it part 2 of that Issue. Many thanks go again to Rich Nuccitelli for organizing such swell contents and, in doing so, galvanizing the field internationally. Thus, here we have papers on electroporation in cancer therapy, regulated cell death and immunological aspects, supported by novel techniques like percutaneous electrodes.

The back to back publication of these two issues also coincides with the 5th World Congress on Electroporation and Pulsed Electric Fields, taking place in Rome this month. This field has grown significantly in recent years and now covers food and environmental technologies in addition to biology and medicine. Another noteworthy meeting is the 18th workshop on Electroporation Based Technologies and Treatments (EBTT) taking place in Ljubjiana in November. *Bioelectricity* continues to enjoy a close association with the International Society for Electroporation-Based Technologies and Treatments (ISEBTT) and will be represented at both meetings.

We are pleased that the publication of the current and the previous issues of *Bioelectricity* coincided with these two highly prestigious international meetings. Going to conferences, presenting one's latest data, meeting old friends/collaborators, making new ones etc. etc. are second nature to research scientists. At its heart, *Bioelectricity* has the "human element" and conferences are a part of that. It is with this belief that we also like to publish meeting reports, so people know what's been happening in the field, who said what, where etc. We are pleased to include here a report of the inaugural Membrane Physiology Symposium (MPS) that took place in Nepa (CA) in last April. We welcome similar contributions from organizers of other bioelectricity-related conferences.

We are also delighted to include Part 2 of Professor Menachem Hanani's "My Experiments in Bioelectricity." We are grateful to Professor Hanani that he has done this during all the troubles in the Middle East. Although MEB articles are usually contributed by invitation, we would always welcome

unsolicited papers (another example of the journal's flexible approach scientific communication). In such cases, however, it would be good to have a prior consultation. Altogether, this is a great way to learn about senior scientists' careers and those "eureka" moments that they will have experienced during their long and distinguished careers.

Recent advances in the field have included new work on electrical stimulation for immunomodulation<sup>1</sup>, proposals for bioelectric modulators as electroceuticals in the fiend of longevity and gerontology<sup>2,3</sup>, a number of new devices for ionic delivery in contexts such as bacterial biofilms<sup>4-7</sup>. All of these speak to interesting and novel work in this thriving and diverse field. We would like to repeat our open invitation to prospective guest editors who would like to organize special issues. Speaking to young(er) scientists, this is a great way of raising one's profile in the field, make new contacts, experience the science even art of dealing with reviewers and reviewer reports, and, ultimately, joining the editorial board of Bioelectricity. We found that guest editors work extremely well in partnership. In particular, we would like to see special issues on topics like, bioelectric signaling in immune cells and stem cells, systems bioelectricity, metabolism, bioelectric materials, biosensors, wearable devices, brain-computer interfaces, electrical therapies, use of bioelectrics in synthetic biology and biobots, and, of course, AI. Please contact us if you have an idea and we will do everything to help you make it happen!

Until December...

## References

- Roy Barman S, Jhunjhunwala S. Electrical stimulation for immunomodulation. ACS Omega 2024;9(1):52–66; doi: 10.1021/acsomega.3c06696
- Tabibzadeh S, Brown OR. Trending toward gero-electroceuticals that target membrane potential for reprogramming aging and lifespan. Aging and Cancer 2024;5(1–2):3–13; doi: 10.1002/aac2 .12070
- Pio-Lopez L, Levin M. Aging as a loss of morphostatic information: A developmental bioelectricity perspective. Ageing Res Rev 2024;97:102310; doi: 10.1016/j.arr.2024.102310

<sup>&</sup>lt;sup>1</sup>Imperial College London, London, United Kingdom.

<sup>&</sup>lt;sup>2</sup>Tufts University, Medford, Massachusetts, USA.

EDITORIAL 153

4. Park Y, Hernandez S, Hernandez CO, et al. Modulation of neuronal activity in cortical organoids with bioelectronic delivery of ions and neurotransmitters. Cell Rep Methods 2024;4(1):100686; doi: 10.1016/j.crmeth.2023.100686

- 5. Marquez G, Dechiraju H, Baniya P, et al. Delivering biochemicals with precision using bioelectronic devices enhanced with feedback control. PLoS One 2024;19(5):e0298286; doi: 10.1371/journal.pone.0298286
- 6. Asefifeyzabadi N, Nguyen T, Li H, et al. A pro-reparative bioelectronic device for controlled delivery of ions and
- biomolecules. Wound Repair Regen 2024; doi: 10.1111/wrr .13191
- Dechiraju H, Li Y, Comerci C, et al. Bioelectronic Delivery of Potassium Ions Controls Membrane Voltage and Growth Dynamics in Bacteria Biofilms. Biomedical Materials & Devices 2024; doi: 10.1007/s44174-024-00209-w

-Mustafa B.A. Djamgoz, PhD and Michael Levin, PhD