



Newsletter No. 117

The 4th Slovenian Congress on Electroporation

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[The 4th Slovenian Congress on Electroporation](#) represented an important contribution to the continued development of electroporation research in Slovenia. The congress, which was jointly organized by the Institute of Oncology Ljubljana and the University of Ljubljana, Faculty of Electrical Engineering, took place on 16 and 17 January 2026 at the Faculty of Electrical Engineering in Ljubljana. Once again, the event confirmed its role as the central national meeting point for researchers, clinicians, and PhD students working in the rapidly developing field of electroporation and its biomedical applications.

The two-day event brought together a community of basic scientists, electrical engineers, clinicians, and young researchers, offering an excellent opportunity for the presentation of ongoing projects, the exchange of ideas, and the strengthening of existing and new collaborations. The programme reflected the field of electroporation research in Slovenia, spanning fundamental mechanisms of electroporation and electroporation based therapies, gene electrotransfer, electrochemotherapy, cardiac ablation, advanced imaging, and computational modelling.

The congress opened on Friday morning with presentations of new and ongoing projects, chaired by Gregor Serša and Damijan Miklavčič. This introductory session highlighted several major national initiatives, including ARIS-funded projects on cell death and glioblastoma treatment, the interdisciplinary CardioEP project, progress within the ZAP Cancer and JANE2 projects, and the introduction of new experimental equipment for myocardial tissue research at Faculty of Electrical Engineering of University of Ljubljana. The session set the tone for the congress by emphasizing both methodological innovation and strong translational potential.

Section I continued with a focus on molecular and cellular mechanisms, particularly gene expression, gene electrotransfer, and novel cellular models. Presentations addressed diverse topics ranging from transcriptional regulation and siRNA delivery to the role of gap junctions and ion channels in excitable cells. This was followed in the afternoon by Section II, which concentrated on pharmacological aspects, tumour biology, and preclinical models, including pharmacokinetics of bleomycin and platinum drugs, imaging of drug distribution, and the influence of electroporation on glioblastoma invasiveness and the tumour microenvironment.

As in previous editions, the “flash” poster presentations proved to be the highlight of the programme. In a relaxed and dynamic session, young researchers presented their work in concise two-minute talks, successfully stimulating interest and discussion and guiding participants toward the poster session that followed.

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The poster programme featured a rich selection of topics, from safety aspects of pulsed field ablation and AI-driven gene therapy design to lipid oxidation, circulating tumour cells, and machine learning analysis of cardiomyocyte contractility.

The late afternoon and evening sessions on Friday were dedicated to clinical applications. A well-attended session on electrochemotherapy in the clinic presented long-term outcomes in basal cell carcinoma, melanoma metastases, pancreatic cancer surgery, and the ongoing Bleomycin ElectroScleroTherapy (BEST) programme in Ljubljana. This was followed by an extensive session on the role of electroporation in catheter ablation, including first-year clinical experiences, results of the Electro AF study, and a lively panel discussion on future directions of biomedical electroporation in Slovenia. The day concluded with a social dinner that provided an informal setting for continued scientific exchange.

Saturday's programme focused predominantly on cardiac applications and advanced monitoring and modelling techniques. Section III presented clinical and experimental studies on pulsed field ablation, including heart rhythm variability, spatial ventricular gradient, oesophageal injury, and numerical modelling of post-infarction scar. Section IV addressed neural activation, MRI monitoring of tissue electroporation, and computational modelling of intracardiac electrograms, and concluded with a lecture discussing discrepancies between different experimental models used in electroporation research.

Throughout the congress, the atmosphere was marked by openness, enthusiasm, and a strong sense of community. The high quality of the presentations, the active participation of PhD students and early-career researchers, and the close interaction between basic and clinical scientists once again demonstrated the vitality of the Slovene electroporation community.

The 4th Slovenian Congress on Electroporation successfully showcased the latest national achievements, reinforced interdisciplinary collaboration, and highlighted Slovenia's strong position in the international electroporation landscape. The congress was attended by 68 participants. We look forward with great anticipation to the next edition of the congress and to the continued development of this exciting field.

Forthcoming events

6th World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine, & Food and Environmental Technologies

Daytona Beach, September 27 – October 1, 2026

<https://wc2026.electroporation.net/>

20th interdisciplinary postgraduate course and international workshop Electroporation Based Technologies and Treatments (EBTT)

Ljubljana, November 9 – 14, 2026 (*on-site* and *on-line* event)

<https://2026.ebtt.org/>

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An important aspect of the annual Slovenian Congress on Electroporation is the presentation of the many research grants awarded in the past year.

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