COST Action TD1104 organized a special session on Electrochemotherapy (ECT) and Irreversible Electroporation (IRE) for deep seated tumors at the 6th European Conference of the International Federation for Medical and Biological Engineering, MBEC2014 in Dubrovnik, Croatia last September.

The special session was organized by professors Damijan Miklavcic and Rafael V. Davalos and brought together clinicians and researchers from around the world to discuss current practices, exchange clinical experiences, and optimize the ECT/IRE treatment for deep seated tumors. Electrochemotherapy (ECT) and Irreversible Electroporation (IRE) are both evolving technologies for cancer treatment that use microsecond pulsed electric fields to inflict defects on cell membrane leading to increase in membrane permeability. ECT uses pulse parameters in the range known as reversible electroporation, to deliver chemotherapeutics into the cells within the targeted region of treatment; this prevents some of the side effects of systemic toxicity from conventional chemotherapy. IRE uses higher intensity electric fields and/or higher number of pulses to induce damage to the cell past the point of recovery, thus leading to cell death. The non-thermal mechanisms of the techniques makes them safe to treat traditionally unresectable tumors while sparing critical structures to preserve major blood vessels and nerves.

World experts came from various locations including the Italy, Slovenia, Spain, South Korea, Denmark, Israel, Australia, and the United States to share their knowledge and experience. Specifically renowned speakers in medical imaging, treatment planning algorithms, and clinicians were invited to speak and share their experiences in ECT/IRE. Among the accomplished researchers were Dr. Giuseppe Bianchi from the Istituto Ortopedico Rizzoli di Bologna, Italy; Dr. Ibrahim Edhemovic from the Institute of Oncology in Ljubljana, Slovenia; Dr. John H. Rossmeisl Jr. from the Department of Neurology and Neurosurgery at the Virginia-Maryland Regional College of Veterinary Medicine.
Dr. Mohammad Hjouj from the Medical Imaging Department at Al Quds University in Jerusalem, Israel; Quim Castellvi from the Universitat Pompeu Fabra in Spain; Dr. Paulo Garcia from the Massachusetts Institute of Technology in Cambridge, Massachusetts, US; Dr. Bor Kos, Dr. Matej Kranjc, and Dr. Marija Marčan from the University of Ljubljana in Slovenia; Dr. Faisal Mahmood from Herlev Hospital at the University of Copenhagen in Denmark; Dr. Robert Neal II from the Department of Radiology at The Alfred Hospital in Melbourne, Victoria, Australia; Dr. Igor Sersa from the Institute Jozef Stefan, Ljubljana; Dr. Eung Je Woo from Kyung Hee University in South Korea and Dr. Michael Moche from the Department of Diagnostic and Interventional Radiology at the Medical University of Leipzig in Germany.

Following the vivid discussion and exchange of experience we decided to prepare a special issue collecting the experience on deep seated tumors either by electrochemotherapy or irreversible electroporation, monitoring early changes and modeling electric field distribution and processes involved in treatments in the journal Biomedical Engineering Online. The open access and peer-reviewed journal is aimed at readers with an interest in using the physical sciences to address challenges in medicine and as such is not strictly limited to those attending and presenting at the Special session in Dubrovnik. Professors Miklavcic and Davalos will serve as guest editors and papers will be published at a reduced rate of 597 £ per manuscript. Authors are asked to strictly follow the guidelines for the journal available at:

http://www.biomedical-engineering-online.com/manuscript

Manuscripts should be submitted via e-mail directly to Professor Davalos at Davalos@vt.edu. Please address additional inquiries to the same address.

The deadline for submission of papers is November 30, 2014.

Forthcoming activities

**Electroporation based Technologies and Treatments – EBTT**

Ljubljana, November 16-22, 2014
http://2014.ebtt.org

**The Electroporation-based Technologies for Biorefinery Workshop**

Compiegne, January 27-28, 2015
http://www.electrobioref.com/ebr2015

**School on PEF for Food Processing**

Fisciano, February 7-12, 2015
http://www.prodalricherche.it/PEFSchool