

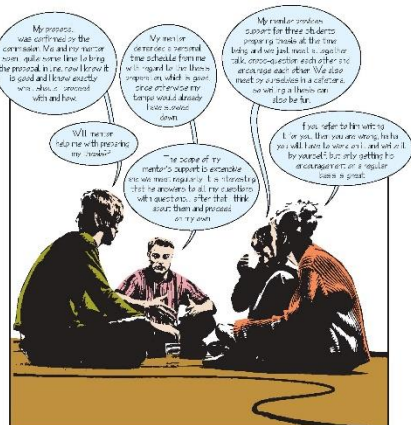
# Guidelines for designing a conference poster

- 1) Some basic design guidelines are available and explained in the video available at [https://www.youtube.com/watch?v=AwMFhyH7\\_5g](https://www.youtube.com/watch?v=AwMFhyH7_5g).
- 2) The size of the poster should be A1. It can be designed either in portrait or landscape format.
  - Always check your poster at 200x or higher magnification to check how it looks before sending it out to print.
- 3) Please, follow the following guidelines when designing the poster:
  - a. The text included in the poster should not be too long. People are not able to process too much information. 500 words may be enough.
  - b. Do not write the text in full sentences. It can be organised in bullet points.
  - c. Titles and subtitles should be short and easy to remember. They should convey the message of the section.
  - d. Support information with pictures, graphs, etc. They should be easily visible from a distance, so keep them simple.
  - e. There should be some free space without text and pictures in the poster as well (40 % of the poster should be blank). Most important messages can be emphasised by being surrounded by the blanks.
  - f. Organise poster in columns (most common 3 columns). Organise sections with text and pictures in titled boxes. The boxes can be framed or not.
  - g. Structure your story from top to bottom and from left to right side of the column/poster.
  - h. On top of the poster, you should put the introduction and conclusions. In the middle part of the poster put sections explaining the results, on the bottom of the poster put the research methodology, references and acknowledgements.
  - i. Do not use too many colours – three to five are enough.
  - j. For the presentation of the text and the pictures or graphs use white as the background colour. Colour of the text might be black, titles also in a different colour.
  - k. Everything written on the poster should be easily visible from 2 metres distance from the poster. Nothing in the poster should be smaller than 25pt.
  - l. Use simple fonts such as Times New Roman (e.g., for text) or Arial (e.g., for titles and subtitles).
  - m. Sizes of the text could be for example 85pt for the titles, 42pt for subtitles and 30pt for ordinary text.
  - n. The pictures should be 600 dpi if possible, 300 at the bare minimum.
- 4) Which software can be used to design the poster:
  - a. Inkscape (<https://inkscape.org/>)
  - b. LibreOffice Draw (<https://www.libreoffice.org/discover/draw/>)
  - c. MS Publisher
  - d. MS Powerpoint
  - e. Corel Draw
  - f. Adobe InDesign
  - g. Adobe Illustrator
  - h. La-Tex
- 5) Two examples of a poster

# A Journey from an Idea to the Thesis; Mentoring – an Opportunity for Cooperative Learning

## Student looks for an idea/content

- In the field of study
- In the field I work/I have experience in
- The content interests me
- It is in the interest of the faculty (mentor)



Mentoring, especially of postgraduate students, is a type of learning and personal development and a typical form of guiding, monitoring and at the same time supervising and teaching more or less experienced students and other participants in education. Good cooperation between a student and a mentor is crucial to their successful completion of studies. Students with consistent support of a committed mentor are more successful in completing their studies, and also develop personally during the preparation of their research projects and final thesis.

Understanding of mentoring has passed through various stages: from control in the past to a cooperative two-way process in the present. Recently, mentoring has also been



## Mentor directs work related to a proposal of the thesis

- What has already been written and researched?
- What new can I add? What else interests me and why is this something new/original?
- What would I like to prove (hypothesis)? What would I like to understand (research question)?
- How would I like to start? Will the selected way of research really help me find the answers to the given questions or the hypothesis?
- How and where will I get the data? How will I process the data?

## Student prepares his thesis

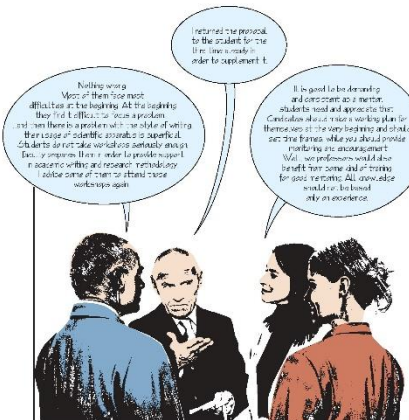
- Following mentor's guidelines
- Following university guidelines and rules
- Critical assessment of various resources (books, articles, web resources)
- The usage of relevant methodology, observance of ethics in research
- Consistent observance of copyright law
- Consistent usage of scientific apparatus and academic style of writing

## The viva and the graduation



## Student looks for a mentor

- He/she meets the terms/requirements set by the faculty
- He/she is involved into field projects and has published his/her works
- He/she finds a content/theme interesting



considered in terms of quality interaction between a mentor and mentee, and their environment. Such cooperation, characterized by advice, training, exposure, protection, friendship, voluntary and active participation and emotional intensity, leads to the development of skills, competences and mutual respect.

Various forms of mentoring can be used – the purpose of all of them is to ensure successful and efficient completion of studies. Group mentoring is a form of mentoring where one or more mentors work with several students on a similar problem at the same time, it's an approach where also students can learn each from other and encourage their self on the journey from an idea to the viva of the final thesis.



# The use of high-frequency short bipolar pulses in cisplatin electrochemotherapy *in vitro*

Authors and their affiliations

Is it possible to use high-frequency bipolar pulses in electrochemotherapy?

## Introduction

In electrochemotherapy (ECT), chemotherapeutics are administered, followed by short 100  $\mu$ s monopolar pulses. These pulses cause pain and muscle contractions. We thus administer muscle relaxants, general anesthesia and synchronize pulses

with the patient's heart rhythm, which makes the treatment more complex. It was suggested in ablation with irreversible electroporation, that bursts of short high-frequency bipolar pulses (HF-IRE) could alleviate these problems.

## Conclusions

It is possible to use high-frequency electroporation (HF-EP) in electrochemotherapy; however, at the expense of applying higher electric fields than in classical ECT, i.e., - 2.5-times higher electric field to achieve a

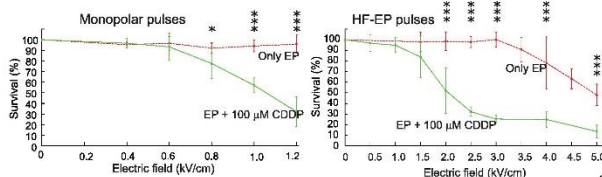
similar effect at the same total treatment time. The result obtained, nevertheless, offer an evidence that HF-EP could be used in electrochemotherapy with potentially alleviated muscle contractions and pain.

## Results

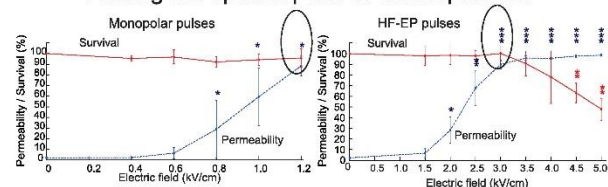
With both types of pulses (ECT and HF-EP) the combination of electric pulses and cisplatin was more efficient in killing cells than cisplatin

or electric pulses only. However, we needed to apply a higher electric field in HF-EP (3 kV/cm) than in ECT (1.2 kV/cm) to obtain comparable cytotoxicity.

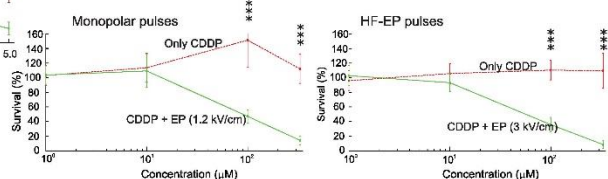
Survival as a function of E-field



Finding the optimal point of electroporation



Survival as a function of cisplatin concentration



## Materials and Methods

We performed *in vitro* experiments on mouse skin melanoma B16-F1 cells by adding 1–330  $\mu$ M cisplatin and delivering either:

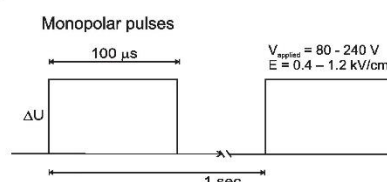
### (a) MONOPOLAR PULSES

### (b) HIGH-FREQUENCY ELECTROPORATION PULSES

It was possible to compare ECT with HF-EP pulses because the on-time was equivalent (800  $\mu$ s) for both type of pulses.

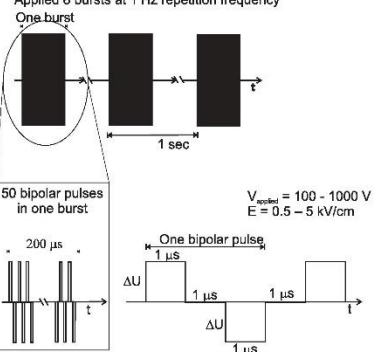
Survival was assessed with the metabolic MTS assay 24–72 hours after the treatment and the permeability to propidium iodide with the flow cytometry.

Pulse application scheme



High-frequency electroporation: HF-EP pulses

Applied 8 bursts at 1 Hz repetition frequency



## Literature

- 1) Serša G, Čemažar M, Miklavčič D. Antitumor effectiveness of electrochemotherapy with cis-diamminedichloroplatinum(II) in mice. *Cancer Res* 1995; 55: 3450–5.
- 2) Arena CB, Sano MB, Rossmel JH, Caldwell JL, Garcia PA, Rylander M, et al. High-frequency irreversible electroporation (H-FIRE) for non-thermal ablation without muscle contraction. *Biomed Eng OnLine* 2011; 10: 102.
- 3) Sweeney DC, Reberšek M, Dermol J, Rems L, Miklavčič D, Davales RV. Quantification of cell membrane permeability induced by monopolar and high-frequency bipolar bursts of electrical pulses. *Biochim Biophys Acta BBA - Biomembr* 2016; 1858: 2689–98.

More in: M. Scuderi et al., The use of high-frequency short bipolar pulses in cisplatin electrochemotherapy *in vitro*, *Radiol Oncol*, 53:2, 194–205, 2019.

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