



# Cardiac Action Potential Analysis

Software for Automatic Analysis of  
Cardiac Action Potential Recordings  
on MS Windows 64-bit Systems

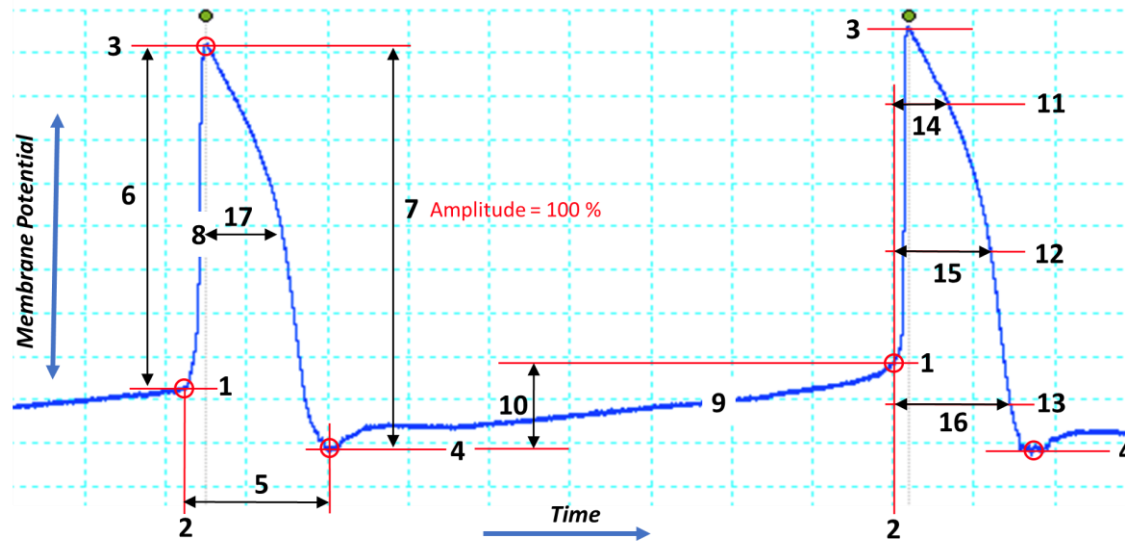
By

Rolf Thieleczek & Erich Wettwer

Action potentials (AP), spontaneous or evoked, are automatically detected and parameterized with **CAPA** in a user-independent manner. Membrane potential recordings of stem-cell derived or primary cultured cardiomyocytes or multicellular cardiac muscle preparations, respectively, can be analyzed. Analysis results and figures created during analysis are saved to PowerPoint and Excel files, respectively.

**CAPA provides a very efficient and objective, unbiased, reliable, and reproducible procedure of AP data analysis.**

## Selection of Parameters Obtainable with CAPA Automatically



### Meaning of Parameters in Relation to the Threshold

- 1 Threshold Potential (THRpot)
- 2 Threshold Time
- 3 Peak Potential (PP)
- 4 Minimum Diastolic Potential (MDP)
- 5 Time from Threshold to MDP
- 6 AP Amplitude from THRpot to PP
- 7 AP Amplitude from MDP to PP
- 8 Maximum Depolarization Rate  
(MDR =  $(dV/dt)_{max}$ )
- 9 Diastolic Depolarization Rate (DDR)\*
- 10 Diastolic Potential (DP)

### 11-17 Selected Parameters from AP Scanning

- 11 Pot. at 20% Repolarization rel. to Ampl. 7 ( $AP_{20}$ )
- 12 AP Width at  $AP_{20}$  ( $APW_{20}$ )
- 13 Pot. at 50% Repolarization rel. to Ampl. 7 ( $AP_{50}$ )
- 14 AP Duration from THRpot to  $AP_{50}$  ( $APD_{50}$ )
- 15 Pot. at 90% Repolarization rel. to Ampl. 7 ( $AP_{90}$ )
- 16 AP Duration from THRpot to  $AP_{90}$  ( $APD_{90}$ )
- 17 AP Width at point of MDR

# Downloads

## **Booklet with detailed description of CAPA**

<https://e.pcloud.link/publink/show?code=XZdKvsZFsvASdnyIBHLv56rLUCU68eFuyS7>

## **Analyzed sample files (Power-Point and Excel)**

<https://e.pcloud.link/publink/show?code=XZiKvsZYrCQdrl2CCREIacU3ny3ppvk0Gek>

<https://e.pcloud.link/publink/show?code=XZ7lvsZcEQ5irX3FiFCFw8bkH60kmFyWEmV>

## **CAPA\_Quick\_Installation\_Guide.pdf**

<https://e.pcloud.link/publink/show?code=XZqKvsZXbHv2VQmvA4YwLGluXE8W0uofXW7>

## **Current version of CAPA software package (1GB)**

<https://e.pcloud.link/publink/show?code=XZTjQDZ6XuSgXzOAWLXzx3Rn8M7BzO0ITBV>

# Contacts

For questions and comments please contact:



Prof. Dr. rer. nat. Erich Wettwer

## **Erich Wettwer**

Retired scientist highly experienced in cardiac cellular electrophysiology at Ruhr-University Bochum, University Duisburg-Essen, Dresden University of Technology, Germany.

Affiliation: Institute of Pharmacology  
University of Duisburg-Essen  
**erich.wettwer@online.de**



PD Dr. rer. nat. Rolf Thieleczek

## **Rolf Thieleczek**

Retired scientist highly experienced in biochemistry and molecular physiology of skeletal muscle at Ruhr-University Bochum, Germany.

**rolf.thieleczek@rub.de**