Port-a-Patch

The world's smallest patch clamp set-up

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Enjoy electrophysiology

The Port-a-Patch is a turn-key miniaturized patch clamp system enabling the user to rapidly generate high quality data, regardless of experience. This makes it ideal as an easy-to-use tool for learning patch clamp electrophysiology and it can be implemented in many aspects of drug discovery and basic ion channel research.

Behind its small and compact appearance lies sophisticated technology, producing high-quality measurements with giga-seals and high success rates in all recording configurations. Its strength and flexibility are found in multiple add-ons, providing the user with a powerful tool for ion channel research.

Key features at a glance

1. Easy-to-use, even for non-experts
2. Voltage and current clamp as standard
3. Whole-cell and single channel recordings
4. Versatile liquid handling
5. Temperature control (cooling and heating)
6. Compatible with most amplifiers
7. Light stimulation (optional)
8. Consumables produced in-house

Simple yet versatile

PatchControl is a graphical user interface that controls the parameters needed for cell capture and sealing. Through innovative communication with electrophysiology software, PatchControl reads important parameters and moves through pre-defined steps accordingly.

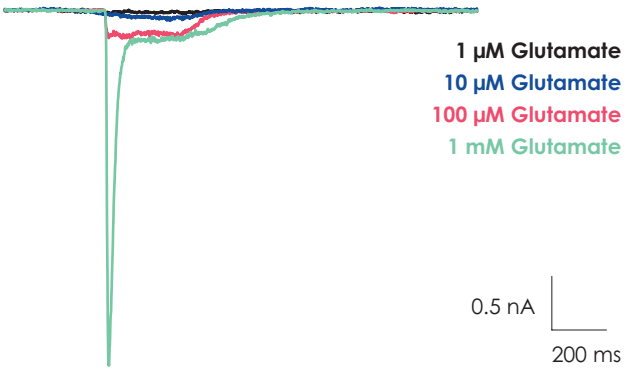
- Cell can be captured and sealed automatically
- Changes possible at any point by the user
- Compatible with most electrophysiology programs e.g. PatchMaster, pClamp, WinWCP

Flexible add-ons for the Port-a-Patch expand the experimental possibilities.

- Temperature-controlled external perfusion
- Internal perfusion
- Light stimulation—SOL
- Suction Control Pro
- Microscope slide for simultaneous electrophysiology and fluorescence measurements

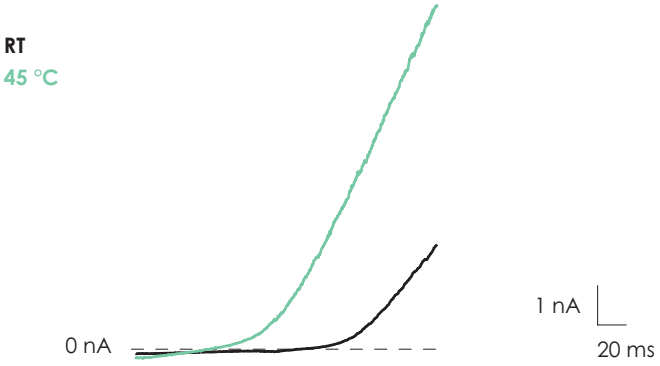
PatchControl
The PatchControl software controls cell capture and sealing. PatchMaster is used for data acquisition and analysis when the HEKA amplifier is used.

Versatile and flexible: Research highlights



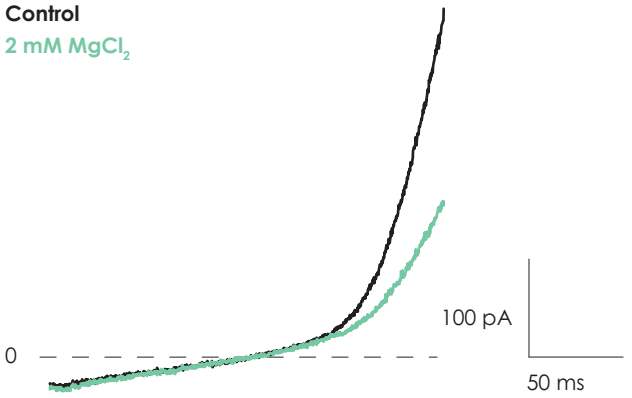
Ligand-gated ion channels

The External Perfusion System for the Port-a-Patch precisely controls application of ligand with fast exchange time. Exposure time can be minimized down to 300 ms. The External Perfusion System can be triggered by the electrophysiology software, the PatchControl software or manually.



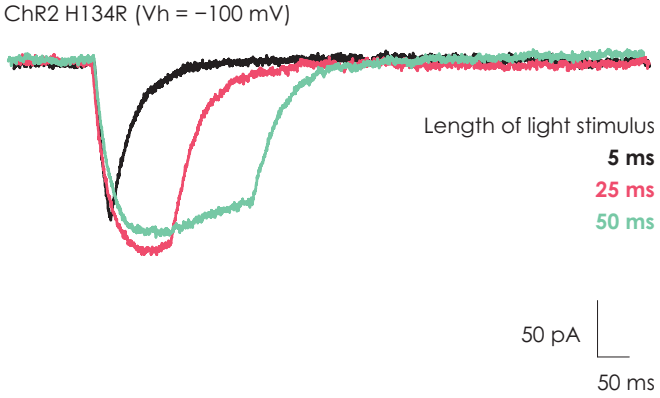
Temperature control

The sophisticated temperature control can be used to activate heat- or cool-activated channels such as TRPV4 or TRPM8. Solution is heated or cooled and applied via the bath solution. Alternatively, recordings can be made at physiological temperature.



Internal Perfusion

The Internal Perfusion add-on for the Port-a-Patch can be used to perfuse up to 8 solutions on the inside of the chip. Compounds or ions can be added to the internal side of the chip to activate or block ion channels.



Light activation

The Port-a-Patch SOL can be used to activate light sensitive ion channels such as channelrhodopsin (ChR) or caged compounds. Light intensity and duration can be controlled automatically through the electrophysiology software or manually.

Your research, our passion

Ion channels

Ideal for both voltage- and ligand-gated ion channels.

Assay development and validation

Full flexibility to design assays for a wide variety of cell lines.

Drug Discovery

Suitable for all phases of drug discovery in pharma and biotech.

CiPA validation study

The Port-a-Patch is delivered fully compliant with the latest CiPA recommended guidelines.

Academic research

Easy solutions tailored to ensure your next scientific breakthroughs.

Channelopathies

Sophisticated functional assays for the discovery of ion channel mutations.

CROs

Deliver accurate, reproducible and high quality data on time and within budget.

Primary cell/iPSC profiling

Low cell consumption for recording primary and stem cells.

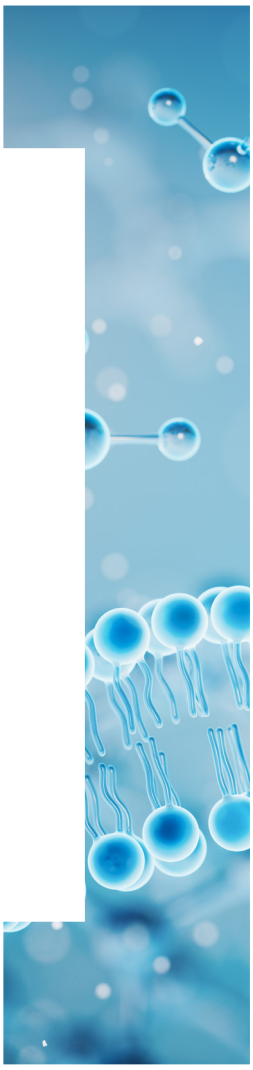
The Port-a-Patch system includes

- **Port-a-Patch recording station (including Faraday top)**
- **Port-a-Patch Suction Control, USB-controlled (no house vacuum needed)**
- **EPC-10 USB amplifier (HEKA Electronics), system compatible with other amplifiers**
- **Desktop PC or Notebook with pre-installed PatchControl & electrophysiology software**
- **NPC-1 borosilicate recording chips**
- **Reagent starter kit**
- **On-site installation support**
- **1 year warranty with further optional comprehensive service plans available**

Specifications

Average whole-cell stability	**~30 min**
Successful whole-cell recordings	**70–90 % (consistent between cell lines)**
Throughput	**20–50 data points per day**
Chip resistance	**2–3.5 MΩ (customized resistances available)**
Seal resistance	**>1 GΩ**
Series resistance	**<10 MΩ**
Liquid consumption	**~30 µl/compound**
Perfusion time constant	**~150 ms**
Minimum exposure time	**250 ms**
Internal perfusion time constant	**~5 s**
Optical stimulation	**Yes (optional)**
Current clamp	**Integrated as standard**

accelerate your research



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