# MOLECULAR DEVICES

Action your potential

The Axon Instruments® portfolio provides comprehensive solutions for patch-clamping that includes amplifiers, digitizer, software, and accessories. Our best-in-class instruments facilitate the entire range of patch-clamp technique experiments from the smallest single channel to the largest macroscopic recordings. The addition of Axon pCLAMP 11 Software Suite creates a streamlined workflow, allowing for sophisticated and efficient experiments, and higher quality data generation.

Axon Instruments

Acquisition—get more flexibility and easier acquisition

- Enhanced protocol editor in pCLAMP 11 Software allows for longer and more sophisticated protocols to be programmed and reduces protocol setup time
- Multiple windows can be simultaneously displayed during a Membrane Test protocol, making it easier to patch multiple cells
- Gap-free mode allows the programming of command and digital outputs in a continuous recording, allowing you to enhance protocol design and trigger actions within the protocol automatically
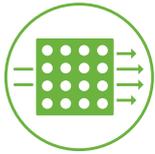
Amplification—amplify your success

- Control via pCLAMP software maximizes flexibility in setting up and performing different experimental protocols
- A wide range of amplifiers means we can offer the ideal choice for your application, providing the best possible data
- Our lowest-noise amplifier/digitizer instruments provide the highest signal resolution, and eliminate 50 or 60 Hz line-frequency noise contamination

Digitization—get better data, faster

- High rate of sampling (500kHz) means a more faithful digitization process, allowing for precise digital reconstruction of the analogue signal due to minimal information loss
- Eight channels can be sampled and digitized simultaneously, increasing data acquisition speed
- The HumSilencer option with the Digidata range eliminates of 50 and 60Hz line-frequency noise, making the biological signal clearer without distorting the data

Analysis—discover more while saving time

- Acquisition and analysis are combined in one package, streamlining the entire process
- Advanced modules allow action potential and population spike measurements to be made automatically
- New Batch Analysis feature allows multiple datasets to be analysed using an identical macro; saving time on data analysis and ensuring the exact same analysis is carried out on each dataset

> Our pCLAMP software has been cited over 41,000 times as of February 2020!

Which amplifier is right for me?

	Axopatch 200B Amplifier*	MultiClamp 700B Amplifier	Axoclamp 900A Amplifier
Single-channel recording	● ● ●	●	
Whole-cell voltage-clamp	● ● ●	● ● ●	
Whole-cell current-clamp	●	● ● ●	● ● ●
Bilayer study	● ● ●	● ● ●	
Extracellular field-potential recording	●	● ● ●	● ● ●
Amperometry/voltammetry study	● ●	● ● ●	
Nanopore study	● ● ●	●	
Intracellular sharp-electrode recording	●	● ● ●	● ● ●
Two-electrode voltage-clamp recording			● ● ●

Electrophysiology workflow using Axon Instruments

1 Prepare solutions
Make internal and external solutions.
Adjust osmolarity and pH values.

2 Prepare cells or brain slices
Prepare cultured cells, isolated neurons, brain slices, or whole animals.

3 Pull and polish the pipette
Prepare the recording electrode.
Pull the glass capillary tube and polish pipette tip.

4 Turn on the instruments and set up the perfusion system
Set up the perfusion system. Open the data acquisition software. Ensure that the system is shielded.

5 Patching a cell
Use the micromanipulator to touch the cell membrane with the pipette. Ensure a high resistance electrical seal is formed.

6 Signal acquisition and amplification
The signal will be amplified. For best results, ensure you are using the correct type of amplifier for your research.

Axopatch 200B or MultiClamp 700B or Axoclamp 900A

7 Signal digitization
The analog signal is then digitized so that the signal can be analyzed.

Digidata 1550B (with HumSilencer option)

8 Data acquisition
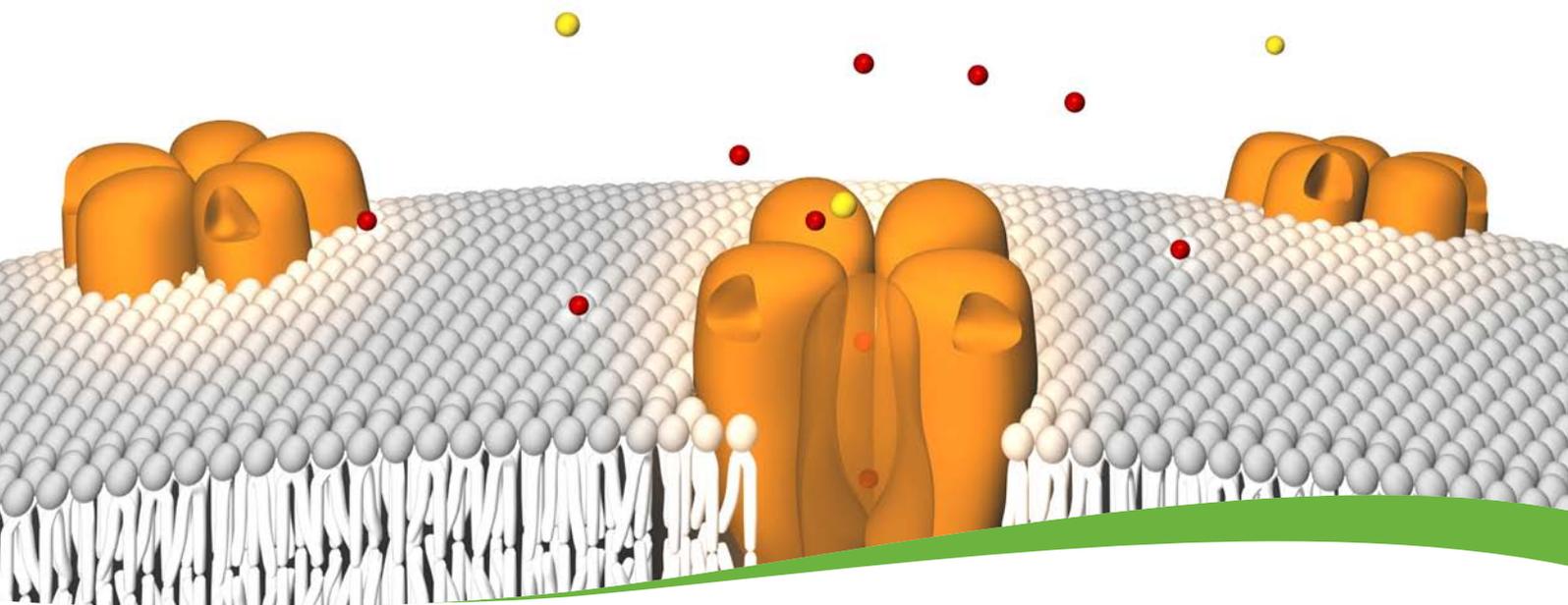With Clampex 11, longer and more sophisticated protocols can be programmed.

pCLAMP 11 acquisition and analysis software

9 Data analysis
With ClampFit 11, more precise measurement and faster data analysis are now possible.

Fast and effective data analysis turns data into actionable insights and publication-ready results.
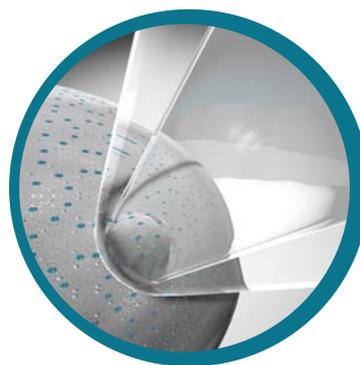
Applications

Our solutions can be used across almost the entire range of electrophysiology techniques, from single channel to whole cell to extracellular field-potential recording.

Extracellular recording

- Single-unit recording
- Multi-unit recording
- Field-potential recordings
- Amperometry/voltammetry

Intracellular recording

- Cell-attached/excised patch-clamp
- Whole-cell voltage-clamp
- Whole-cell current-clamp
- Sharp-electrode

Want to learn more about electrophysiology techniques?

Download the free Axon Guide:
www.moleculardevices.com/axon-guide

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