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 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

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**Which amplifier is right for me?**

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

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

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

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

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/excision 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