



NeuroNexus

Wiring Configuration

Chronic Experiments

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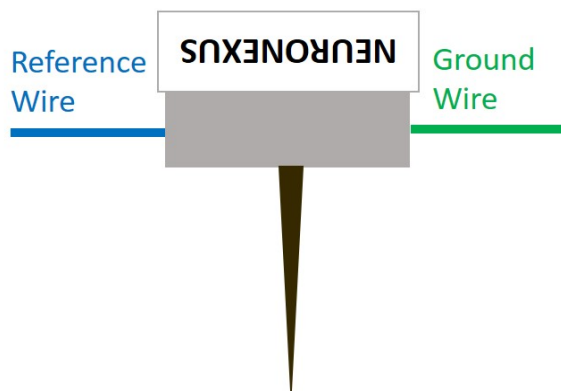
Wiring Configuration

Proper wiring and grounding are essential for obtaining clean and usable signals, maximizing the performance of NeuroNexus probes. This protocol outlines effective strategies for referencing and grounding probes. While the theory is straightforward, practical implementation can be complex. NeuroNexus probes offer multiple wiring options for optimal flexibility. It's crucial to understand these options before placing an animal on the stereotaxic frame, allowing quick adjustments if needed. NeuroNexus has designed probe wiring to accommodate diverse experiments. This section details wiring setups for 16, 32, and 64-channel electrodes. For more information, contact us at support@NeuroNexus.com or visit our website.

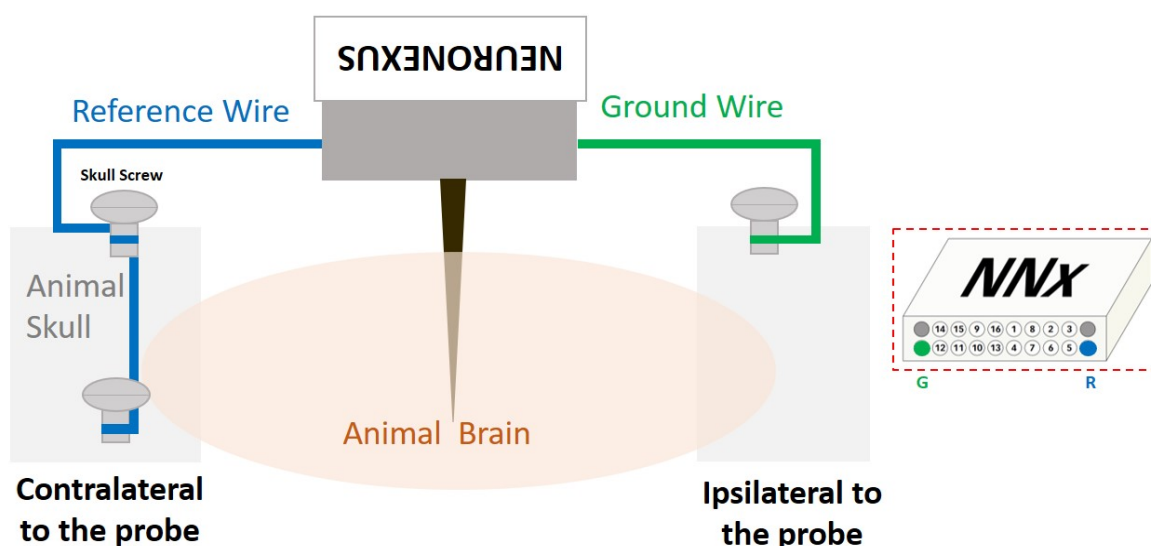
Chronic 16-channel Electrode

Chronic probes with 16 channels include a Ground Wire and a Reference Wire.

Note: Before implantation, strip a small length of insulation from the ends of the Reference and Ground Wires.

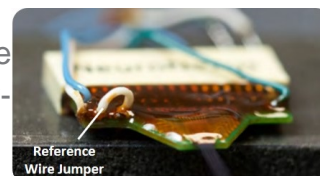
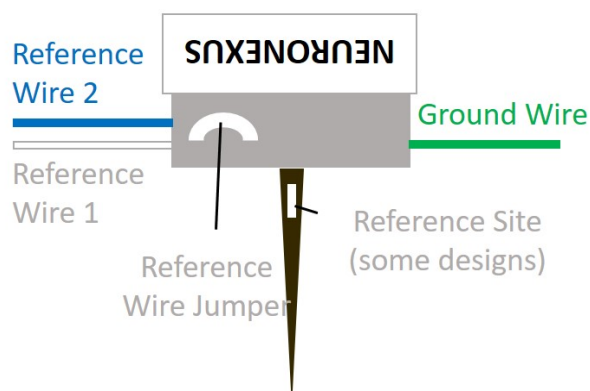


Attach the Ground and Reference Wires individually to the bone screws that were placed during the surgery. The Ground Wire should be wrapped around the bone screw on the side ipsilateral to the probe. The Reference Wire should be wrapped around the bone screws above the side contralateral to the probe.

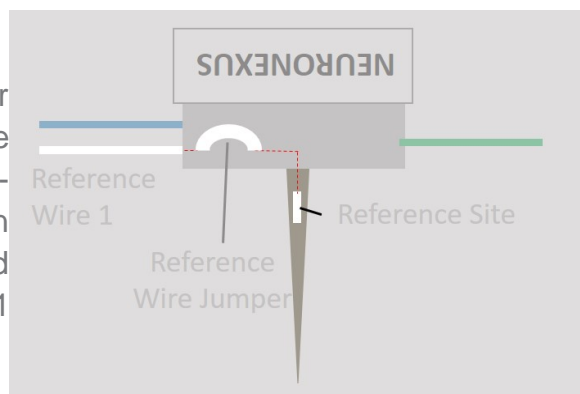


Chronic 32-channel Electrode

Chronic probes with 32 or more channels are equipped with a Reference Wire Jumper, allowing researchers to tailor the Reference and Ground Wiring configuration to suit their specific application.



The Reference Wire Jumper and the white Reference Wire 1 are linked to the reference site present in certain electrode array designs, and they are wired to channel R1 on the probe package.



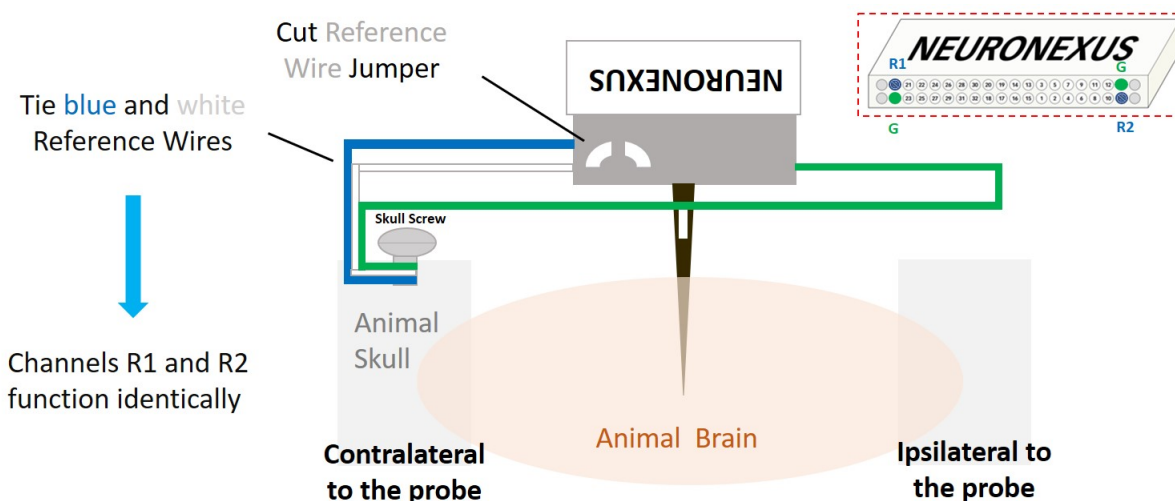
Note: Before implantation, strip a small length of insulation from the ends of Reference and Ground Wires.

Models for 32-channel Chronic Probe

Some 32-channel electrodes feature a reference site on the silicon probe shank.

32-channel chronic probe with reference site

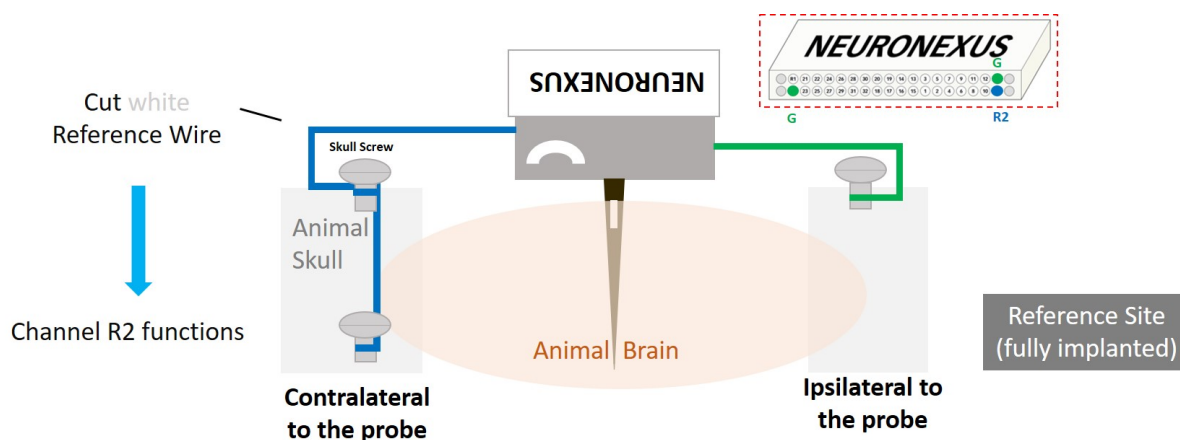
The most straightforward wire configuration involves bundling the Ground and Reference wires together and securing them to a single bone screw contralateral to the probe.



Nevertheless, the following configurations may be contemplated based on the experiment.

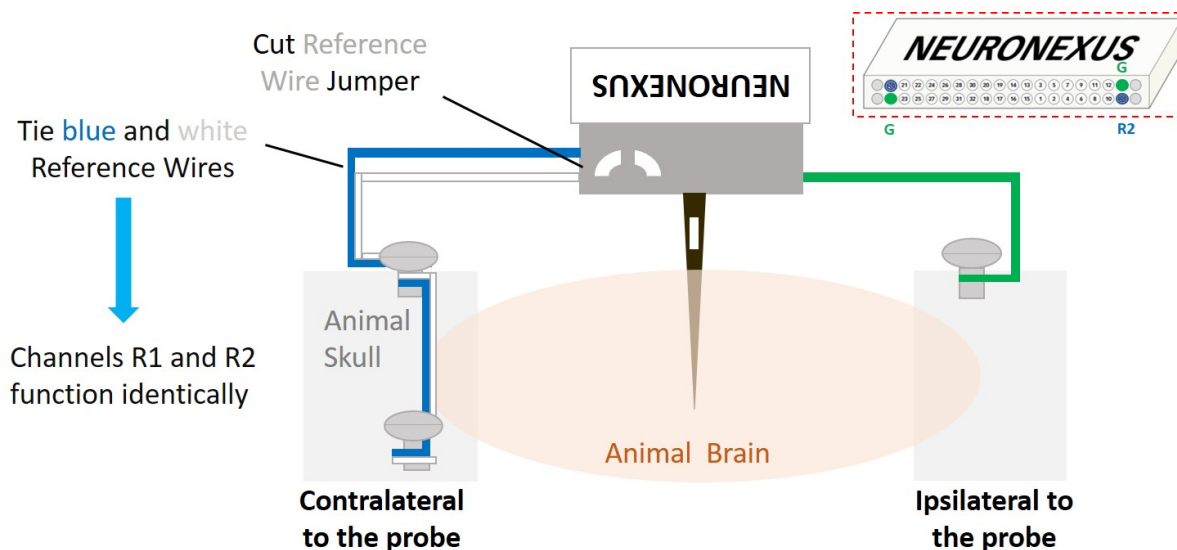
Internal reference site model

Cut the white Reference Wire and connect the blue wire to the screws contralateral to the probe.



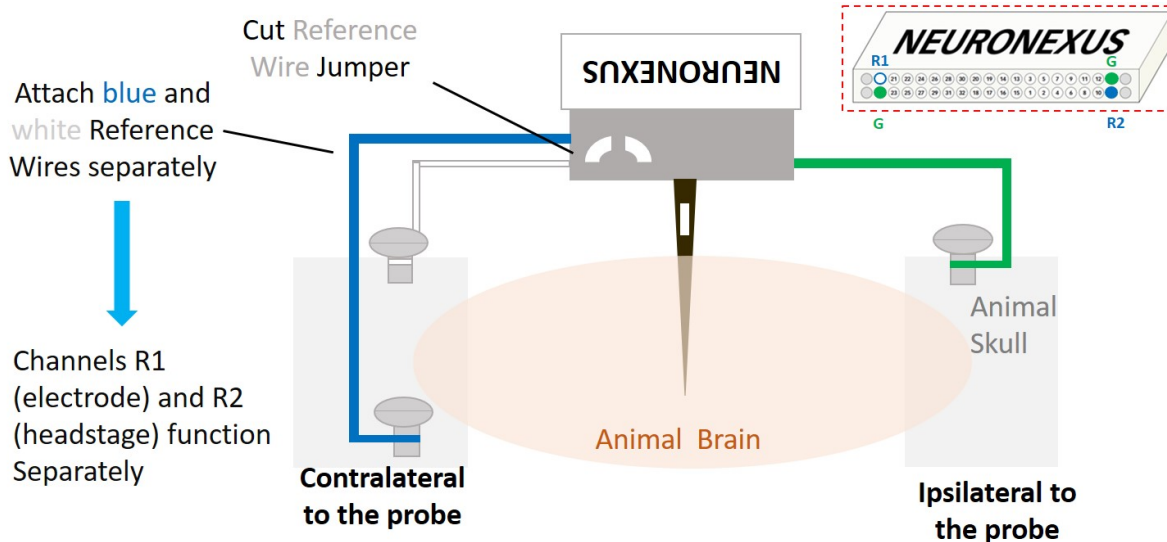
One external reference model

Cut the Reference Wire Jumper and connect both Reference Wires to the screws contralateral to the probe, while the Ground wire should be wrapped around the screw ipsilateral to the probe.



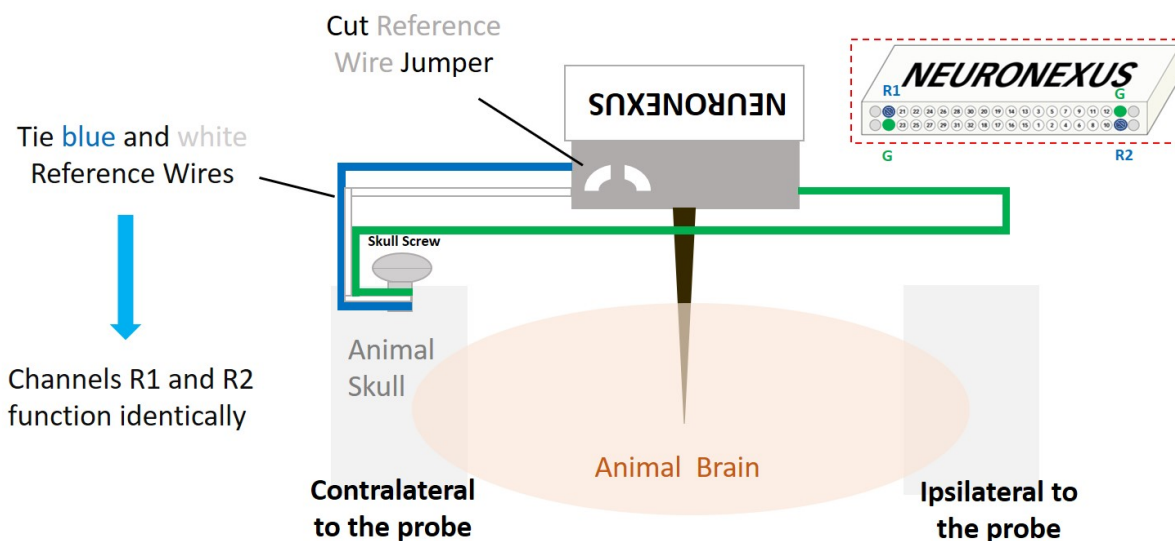
Two external references model

Cut the Reference Wire Jumper and affix each Reference Wire individually to different bone screws contralateral to the probe, while the Ground wire should be wrapped around the screw ipsilateral to the probe.



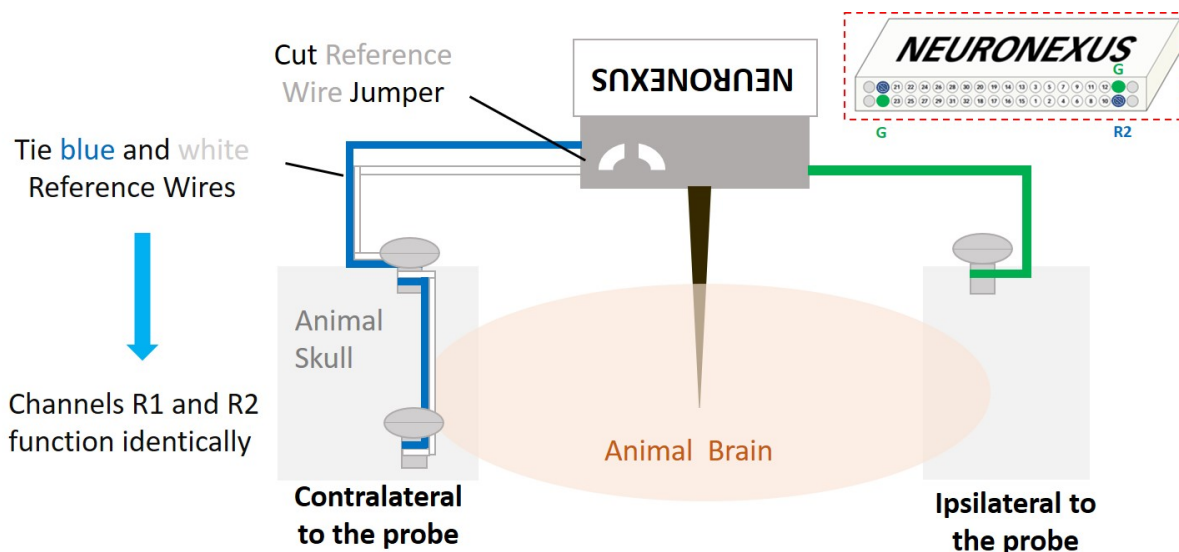
32-channel chronic probe without reference site

The simplest wire configuration is to bundle the Ground and Reference Wires together and fasten them to one bone screw contralateral to the probe.



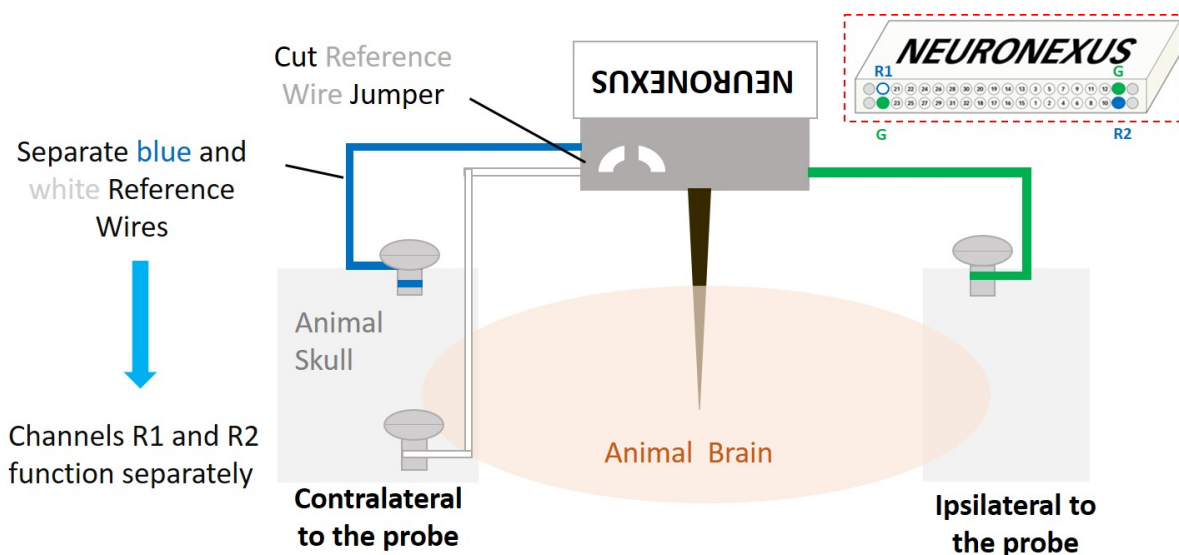
One external reference model

Cut the Reference Wire Jumper, combine the blue and white Reference Wires, and connect both to the bone screws contralateral to the probe. The Ground wire should be wrapped around the screw ipsilateral to the probe.



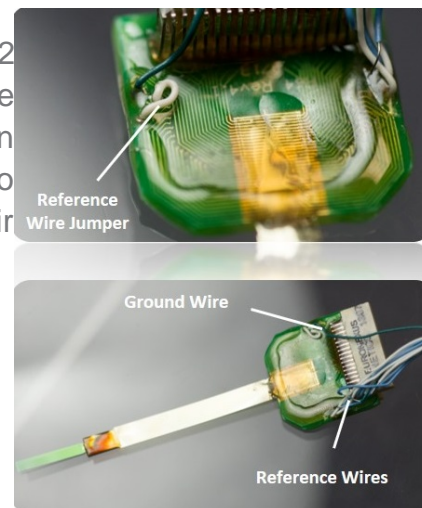
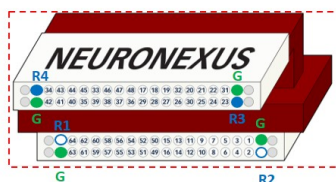
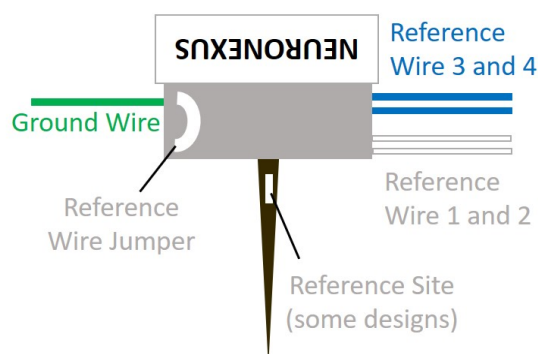
Two external references model

Cut the Reference Wire Jumper and attach each Reference Wire to the bone screws contralateral to the probe.

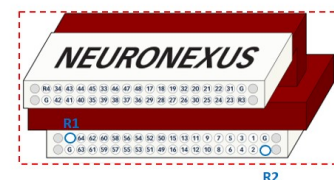
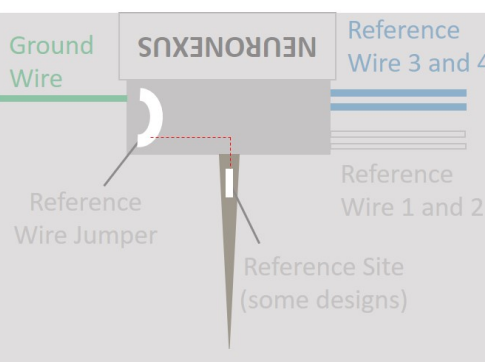


Chronic 64-channel electrode

Chronic probes with 64 channels operate similarly to those with 32 channels. They include a Reference Wire Jumper, 4 Reference wires (two for the electrode in white, and two for the headstage in blue), and 1 Ground Wire. These components allow researchers to tailor the Reference and Ground wiring configuration to suit their specific application.



The Reference Wire Jumper and both white Reference Wires are linked to the Reference Site featured in certain electrode array designs. They are wired to channel R1 and R2 on the Omnetics connector.



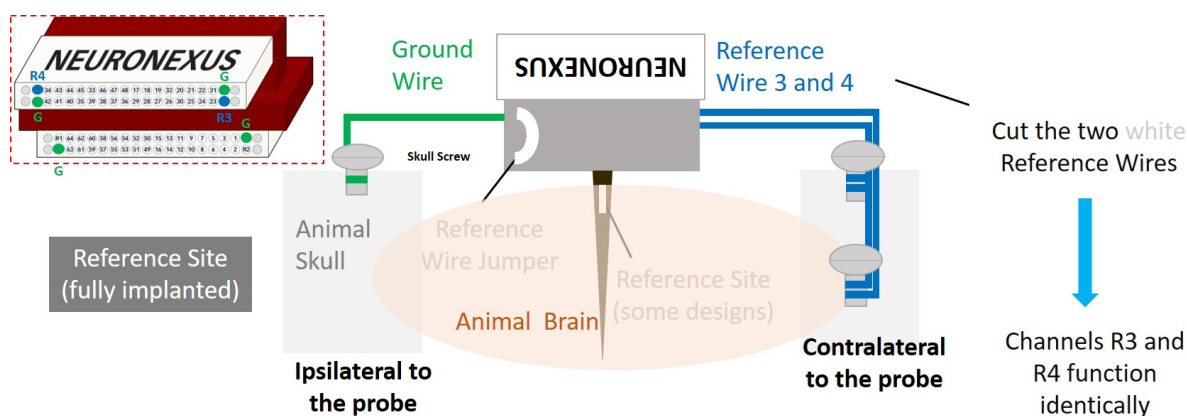
Note: Before implantation, strip a small length of insulation from the ends of Reference and Ground Wires.

Models for 64-channel Chronic Probe

Some 64-channel electrodes feature a Reference Site on the silicon probe shank.

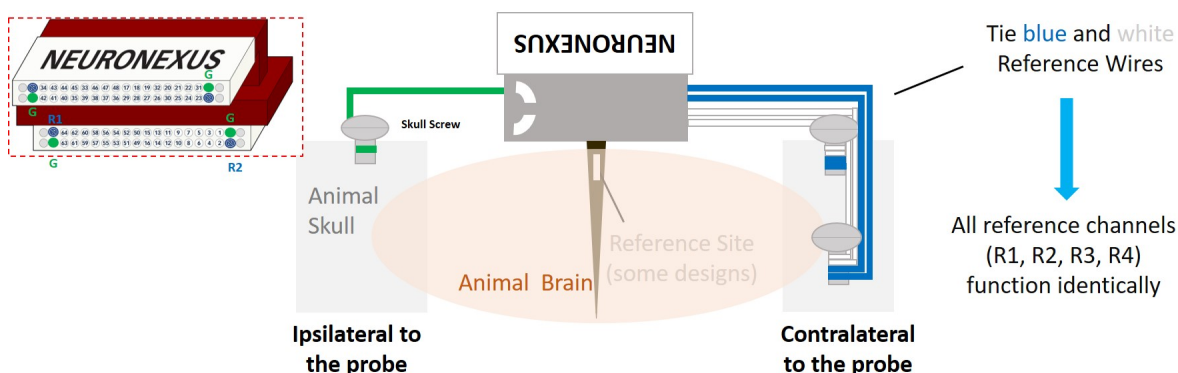
Internal reference site model

To utilize the Reference Site, cut the white Reference Wire, while connecting the blue Reference Wires to the screws contralateral to the probe.



One external reference model

If you wish to combine the electrode and headstage references, cut the Reference Wire Jumper. Tie together the blue and white Reference Wires and connect both to the bone screws on the contralateral side of the probe. Meanwhile, wrap the Ground wire around the screw on the ipsilateral side to the probe.



Two external references model

Attach each Reference Wire separately to different bone screws contralateral to the probe, while the Ground wire should be wrapped around the screw ipsilateral to the probe.

