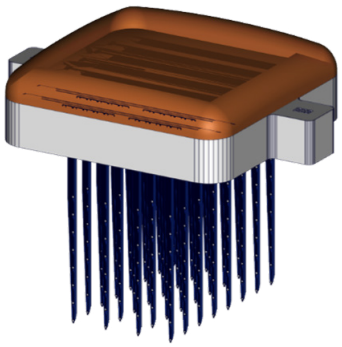
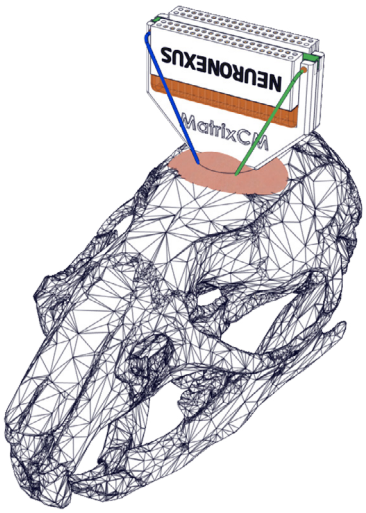
NeuroNexus

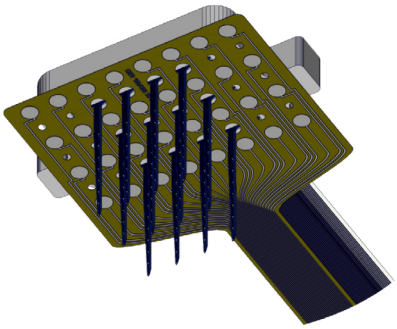
Mini Matrix™

For Small Animals

Mini Matrix is a customizable multi-shank probe engineered for high-density recordings across 3 dimensions - expanding access to insights of large populations of neurons in small animals for chronic or acute application.







Key Features

- **3D Neural Interface** – The Matrix Array™ concurrently spans a 2D footprint and multiple depths, covering a volume of tissue and interfacing with large populations of neurons.
- **High Channel Density** – Record and stimulate from 32, 64, 128, or channels.
- **Automated Surgical Procedure** – NeuroNexus worked closely with leading primate labs to develop a low-speed, low-risk, automated implantation procedure, reducing recovery time and preserving tissue health.
- **Robust** – Lab-tested and refined to the smallest detail, the Matrix Array™ can withstand repeated acute use and demanding chronic applications.
- **Versatile** – The modular assembly of the Matrix Array™ allows for varied configurations: record from cortical and/or subcortical areas, as well as from the brain surface, all with the same device.
- **Customizable** - Electrode length, site area, shank/site spacing, cable length, guide rod length, and headstage compatibility can all be customized for your workflow.
- **Optogenetics-Compatible** – Configure a Matrix Array™ with an integrated optical fiber for novel optogenetics applications.

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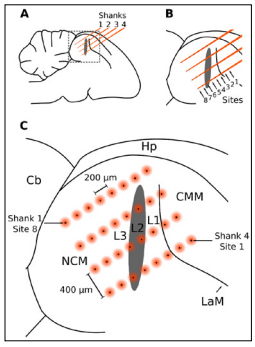
Customizations

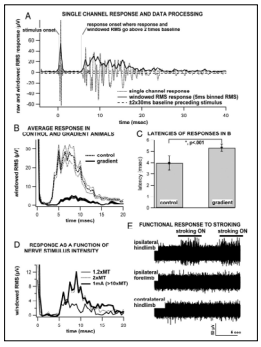
Channel Count	32, 64, 128
X-Dimension (2D array)	1800 µm max width allowed, varies by design
Y-Dimension (Platform Spacing)	300, 400, 600, 800, 1000 µm
Cable Length (H-series packages)	22 - 40+ mm, varies by package
Electrode Site Material	Iridium + Z-Coat

Package	Channel count	Details
MCM - 'Cableless'	32, 64, 128	Has a short cable concealed by the outer case
MH - Matrix Hybrid	32, 64, 128	Has polyimid hybrid cables. Lengths range from 20-40 mm, standard is 25 mm
MA - Matrix Acute	64, 128	Rigid and rugged design. Attaches directly to stereotactic equipment and can be inserted into tissue, removed, and reused. Optogenetics compatible
MMH - Module Matrix Hybrid	32, 64	Elongated large head mount that can easily be replaced
MHS - Matrix Hybrid Strengthened	128	Ti housing cap for increased rugedness with small feet for stability

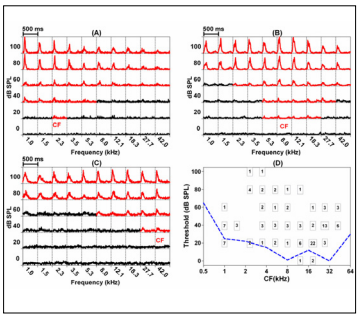
Papers using the Mini Matrix



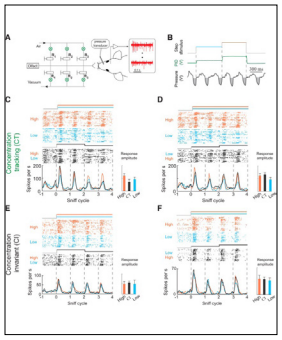
Beckers & Gahr et al., 2010



Bonner et al., 2011



Chen et al., 2012



Parabucki et al., 2019

[Read more papers using the Mini Matrix here]