



THE STANDARD^{1,2}

in Neuroscience and Brain Research Studies for Cementing ANY Substrate to Skull/Bone Including Metals

Trusted for Decades by Virtually All Top U.S. Neuroscience & Brain Research Institutes

This truly unique adhesive system has been invaluable to experiments and clinical trials conducted by esteemed researchers in neuroscience and related fields.

Unlike acrylics, which require an intermediate glue layer and can be messy and weak, C&B-Metabond® R&D creates a strong, durable, and stable bond between metals and skulls or bone without any extra steps, making it ideal for a wide range of neuroscience applications.

C&B-Metabond R&D is approved for dental use only in the United States (cleared by the U.S. FDA in 1995). However, it has been widely used for research and development purposes in elite universities and neuroscience research facilities and laboratories in the United States and around

the globe. Some of these institutions include most Ivy League universities, Oxford University, the Cleveland Clinic, and the National Institutes of Health.

Don't just take our word for it — see the numerous citations on the next page that demonstrate the long-standing trust and reliability Parkell's C&B-Metabond R&D has gained in the scientific community. Once you try it we know you'll agree, there is nothing quite like it for adhesive stabilization.

See other side for example protocols using C&B-Metabond.

Item #	Product
S380-RD	C&B-Metabond® R&D Adhesive Luting Cement System • (1) "B" Quick Base (10 ml) • (1) Catalyst (0.7 ml) • (1) Radiopaque L-Powder (5 gm) • (1) Clear L-Powder (3 gm) • (50) Adjustable Applicator Brushes • (100) Disposable Applicator Brush Tips • (1) Ceramic Mixing Dish w/ Thermometer • (1) Mixing & Application Accessory Kit

ACCESSORIES & REFILLS

Item #	Product	Item #	Product
S398-RD	"B" Quick Base (10 ml)	S379-RD	(50) Adjustable Applicator Brushes
S371-RD	Catalyst (0.7 ml)	S377-RD	(100) Disposable Applicator Brush Tips
S396-RD	Radiopaque L-Powder (5 gm)	S387-RD	(1) Ceramic Mixing Dish w/ Thermometer
S399-RD	Clear L-Powder (3 gm)	S393-RD	(1) Liquid Universal Dentin Activator



1. Allen Institute for the Brain, A Standardized Head-Fixation System for Performing Large-Scale, In Vivo Physiological Recordings in Mice, *Journal of Neuroscience Methods* 346 (2020) 108922
2. International Brain Laboratory Protocol: 2020. Appendix 1: IBL protocol for headbar implant surgery in mice, v4.

Example Research and Protocols Using C&B-Metabond® (Parkell, Inc.):

- Allen Institute for the Brain, A Standardized Head-Fixation System for Performing Large-Scale, In Vivo Physiological Recordings in Mice, *Journal of Neuroscience Methods* 346 (2020) 108922
- International Brain Laboratory Protocol: 2020. Appendix 1: IBL protocol for headbar implant surgery in mice, v4.
- Durand et al. (2023). Acute head-fixed recordings in awake mice with multiple neuropixels probes. *NATURE PROTOCOLS*, vol. 18, 424-457. <https://doi.org/10.1038/s41596-022-00768-6>.
- Diehl et al. (2023). Differential processing of decision information in subregions of rodent medial prefrontal cortex. *eLife* 12:e82833. <https://doi.org/10.7554/eLife.82833>
- Ding et al. (2023). Highly synchronized cortical circuit dynamics mediate spontaneous pain in mice. *The Journal of Clinical Research*, 133(5):e166408. <https://doi.org/10.1172/JCI166408>.
- Kravchenko et al. (2023). Optogenetic and chemogenetic manipulation of seizure threshold in mice. *STAR Protocols* 4, 102019. <https://doi.org/10.1016/j.xpro.2022.102019>
- Claar et al. (2023). Cortico-thalamo-cortical interactions modulate electrically evoked EEG responses in mice. *eLife* 12:RP84630. <https://doi.org/10.7554/eLife.84630.1>.
- Barkus et al. (2022). Refinements to rodent head fixation and fluid/food control for neuroscience. *Journal of Neuroscience Methods*, vol. 381. ("Members of the working group have had most success with C&B dental cement from Parkell, marketed as C&B-Metabond...". see 3.2.4, second full paragraph) (emphasis added). <https://doi.org/10.1016/j.jneumeth.2022.109705>.
- Coelho-Santos et al. (2022). Reinforced thinned-skull window for repeated imaging of the neonatal mouse brain. *Neurophotonics*, Vol. 9, Issue 3, 031918. <https://doi.org/10.1117/1.NPh.9.3.031918>.
- Marks et al. (2021). Stimulus-dependent representational drift in primary visual cortex. *Nature*, 12:5169. <https://doi.org/10.1038/s41467-021-25436-3>
- Trevathan et al. (2021). Calcium imaging in freely moving mice during electrical stimulation of deep brain structures. *J. Neural Eng.* 18 026008.
- Chen, Heming. (2021). Mouse Behavior in Virtual Reality System under Optogenetic Manipulation via UCNPs. *Protocol Exchange*. <https://doi.org/10.21203/rs.3.pex-1629/v1>.
- Bauer et al. (2021). Modeling intrahippocampal effects of anterior hippocampal hyperactivity relevant to schizophrenia using chemogenetic excitation of long axis-projecting mossy cells in the mouse dentate gyrus. *Biol Psychiatry Glob Open Sci.* 1(2):101-111. doi: 10.1016/j.bpsgos.2021.04.005.
- International Brain Laboratory Protocol: 2020. Appendix 1: IBL protocol for headbar implant surgery in mice, v4.
- Smith et al. (2020). Astrocyte deletion of $\alpha 2$ -Na/K ATPase triggers episodic motor paralysis in mice via a metabolic pathway. *Nature*, 11:6164 | <https://doi.org/10.1038/s41467-020-19915-2>
- Asleh et al. (2020). Brain-wide structural and functional disruption in mice with oligodendrocyte-specific Nf1 deletion is rescued by inhibition of nitric oxide synthase. *PNAS*, 117 (36) 22506-22513. <https://doi.org/10.1073/pnas.2008391117>.
- Juavinett et al. (2020). Implanting and Recycling Neuropixels Probes for Recordings in Freely Moving Mice. *Bio-Protocol Journal*, volume 10, issue 3.
- Vasalauskaite et al. (2019). Plasticity in Adult Mouse Visual Cortex Following Optic Nerve Injury. *Cerebral Cortex*, Volume 29, Issue 4, April 2019, Pages 1767–1777, <https://doi.org/10.1093/cercor/bhy347>.
- Crestani et al. (2018). Metaplasticity contributes to memory formation in the hippocampus. *Neuropsychopharmacology: Official Publication of the American College of Neuropsychopharmacology*, 44(2):408-414. DOI: 10.1038/s41386-018-0096-7.
- Indersmitten et al. (2018). Utilizing Miniature Fluorescence Microscopy to Image Hippocampal Place Cell Ensemble Function in Thy1.GCaMP6f Transgenic Mice. *Current Protocols*. <https://doi.org/10.1002/cpph.42>.
- Steinmetz et al. (2017). Aberrant Cortical Activity in Multiple GCaMP6-Expressing Transgenic Mouse Lines. *eNeuro*, 4 (5) ENEURO.0207-17.2017; DOI: <https://doi.org/10.1523/ENEURO.0207-17.2017>.
- Silasi et al. (2016). Intact skull chronic windows for mesoscopic wide-field imaging in awake mice. *J Neurosci Methods*, 267: 141–149. doi:10.1016/j.jneumeth.2016.04.012.
- El-Gaby et al. (2016). Archaelhodopsin Selectively and Reversibly Silences Synaptic Transmission through Altered pH. *Cell Reports*, volume 16.
- Adamantidis et al. (2015). Establishing a Fiber-Optic-Based Optical Neural Interface. *Cold Spring Harb Protoc*; doi:10.1101/pdb.top086330.
- Borg et al. (2015). Localization of Metal Electrodes in the Intact Rat Brain Using Registration of 3D Microcomputed Tomography Images to a Magnetic Resonance Histology Atlas. *eNeuro*. vol 2(4). doi: 10.1523/ENEURO.0017-15.2015.
- Danskin et al. (2015). Optogenetics in Mice Performing a Visual Discrimination Task: Measurement and Suppression of Retinal Activation and the Resulting Behavioral Artifact. *PLOS ONE*. DOI:10.1371/journal.pone.0144760.
- Goldey et al. (2014). Long-term imaging in awake mice using removable cranial windows. *Nature Protocols*, volume 9, pages 2515–2538.
- William et al. (2012). Synaptic Plasticity Defect Following Visual Deprivation in Alzheimer's Disease Model Transgenic Mice. *Journal of Neuroscience*, 32 (23) 8004-8011; <https://doi.org/10.1523/JNEUROSCI.5369-11.2012>.
- Chamber et al. (2011). Sound-Evoked Olivocochlear Activation in Unanesthetized Mice. *JARO* 13, 209–217 (2012). <https://doi.org/10.1007/s10162-011-0306-z>.