**Securing wire connectors within a headstage for chronic recording applications**

 Strain gages have been employed in various studies for recording gastric contractions 2, 3, 6. While our principal use in in anesthetized preparations 7, 8, the following is a brief overview of a potential procedure for implanting the strain gages using a modification of techniques previously employed by the corresponding author 4, 5.

 Survival surgical procedures should follow current Animal Care and Use guidelines for sterile, aseptic surgery and post-operative recovery1. To this end, it is recommended that strain gages and associated hardware for the headstage be gas-sterilized rather than heat- or chemical-sterilized (Anprolene AN74i, Andersen Products Haw River, NC).

1. **Anesthetics:**

Isoflurane is recommended for chronic strain gage implantation which requires recovery from surgical procedures. Again, the rat should be prepared for aseptic surgery as dictated by the experimental design and approved IACUC guidelines including sterilized surgical tools, shaving and disinfecting all surgical sites. Additionally, administering antibiotics (eg., Baytril, 2.5mg/kg sc) and analgesics (eg., buprenorphine 0.01mg/kg, sc or carprofen 5mg/kg, sc) prior to any surgical incision is also recommended.

1. **Preparation of the skull for securing headstage:**

Placing the animal in a stereotaxic frame to provide stability of the skull surface is recommended. The skull surface is exposed through a midline incision (1-1.5cm) followed by removal of any underlying fascia that permits visualization of bregma and lambda. Bleeding is easily controlled by gentle application of pressure with a sterile cotton swab. Using care to avoid drilling holes for anchoring screws along any skull suture lines, use a high speed dental drill with a sterile dental burr in order to open 3-4 holes suitable for securely anchoring stainless steel machine screws 2mm in length adjacent to the footprint of the MS363 electrode pedestal.

1. **Subcutaneous passage of terminal wires**

With the aid of a stainless steel trocar (TRO108, Fisher Scientific) pass the wire strands through the left rectus muscle, along the back and exit at the wound margin along the skull. Once clear of the skin, the wires can be cut to a suitable length, stripped of insulation, tinned and soldered into the gold socket connectors as described in the main document.

1. **Cementing headstage and closing surgical site**

Once the gold socket connectors are arranged within the electrode pedestal, the base of the electrode pedestal and sockets can be potted in quick-setting silicone adhesive (Kwik-Sil, World Precision Instruments) in order to reduce the likelihood of short-circuits as well as the inadvertent dislodging of the sockets within the electrode pedestal. Secure the electrode pedestal to the indwelling machine screws on the skull surface with dental acrylic cement (DentsPly Kit).

1. **Post-operative Recovery and Care**

Recovery procedures, including a warmed environment and careful monitoring until animals are ambulatory, should be initiated as dictated by the experimental design and approved IACUC guidelines. Continued administration of antibiotics (eg., Baytril, 2.5mg/kg sc) and analgesics (eg., buprenorphine 0.01mg/kg, sc or carprofen 5mg/kg, sc) should be continued for at least 48hr following surgery.

Reference List

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 7. **Swartz EM, Browning KN, Travagli RA and Holmes GM**. Ghrelin increases vagally-mediated gastric activity by central sites of action. *Neurogastroenterol Motil* 125: 2-22, 2014.

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