

# Novel Bipolar EMG Electrode for Small Animals

## Accurate Placement with Superior Reliability in Data Collection for Obstructive Sleep Apnea Research & Development

### Background:

The American Academy of Sleep Medicine reports that Obstructive Sleep Apnea (OSA) affects more than 25% of US adults over the age of 30 and OSA diagnoses are predicted to increase by 5-10% in the next decade. Researchers looking to develop new treatments for OSA rely on animal models in the early development stages which requires a means to make stable and reliable measurements of muscle activity in the animal's tongue to determine effectiveness of treatment.

Traditionally used wire electrodes implanted in the genioglossus muscle of mice often result in extended surgery time for placement, potential damage to the surrounding tissue, and produce unreliable data due to incorrect positioning and a relatively short lifetime of signal quality due to movements of the tongue.



Source: <https://stock.adobe.com/search?k=electrode>

### Technology:

Scientists at Albany Medical College have developed a novel bipolar electrode suitable for short and long-term implantation in mice to record activity of superficial muscles (e.g., genioglossus and diaphragm). This bipolar electrode records data in a stable and reliable manner and is well tolerated by the mice for short and long-term use. It has several benefits over standard methods:

- **Decreases implantation surgery time** by over 75%
  - **Minimal damage** to surrounding tissue
- **Increases accuracy** of electrode placement up to 100% (from 30% with traditional methods)
  - Reduction of variability between individual mice and **high stability** in recording site, remaining in place for over a month and a half

### Technology Readiness:

Available for licensing

### Intellectual Property:

Provisional filed November 2024

#### Advantages:

- Decreased surgery time
- Increased placement accuracy
- Stable for long term use
- Reliable data collection

#### Applications:

- Use in small animal models on superficial muscles
- Short and long-term implantation

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