**Docket #:** S13-362

# New Anesthetic Agents based on a Novel Chemical Core

General anesthesia has been administered for over 160 years, however, the medical literature shows that all currently used intravenous anesthetic agents are associated with an entire spectrum of undesirable side effects, most notably cardiovascular instabilities. These side effects are poorly tolerated in all surgical patients without human intervention, but especially in very young children who possess immature physiologic compensatory mechanisms, as well as in the elderly with confounding comorbidities and otherwise exhausted compensatory mechanisms. In light of this, Stanford investigators, Edward Bertaccini, MD and Frances Davies, PhD, have pursued the development of new lead compounds to produce the next generation of safer anesthetic agents, especially for the very young and very old who now utilize an ever increasing share of healthcare dollars. Their methodologies of in silico screening and prediction of compounds which bind to a validated model of the gamma amino butyric acid receptor (GABAR) have now identified a class of lead compounds which demonstrate overt anesthetic activity in animals. Preliminary electrophysiology analyses are consistent with a GABAR mechanism. These compounds are derived from novel chemical structures not previously associated with or known to produce significant anesthetic effects. The investigators are refining these lead compounds with additional sophisticated in silico molecular modeling, in vitro ion channel and brain slice electrophysiology, as well as extended behavioral and physiologic analyses in mammals so as to design the next generation of safer anesthetic agents.

## Applications

- In anesthesiology, for use in the spectrum of consciousness modulation from light sedation to general anesthesia.
- In other procedural settings not involving anesthesiologists but which require various amounts of sedation.

## Advantages

- New chemical scaffold never before known to possess general anesthetic potency.
- Readily amenable to chemical modification.
- Core structures readily available in larger quantities.

## Patents

- Published Application: WO2016061538
- Published Application: 20180022698
- Published Application: 20190106387
- Issued: 10,513,494 (USA)

## Innovators

- Edward Bertaccini
- M Frances Davies

## Licensing Contact


### Mona Wan

Senior Licensing Manager for Special Projects

Email