USF Available Technologies

Technology Transfer Office

Ionic Cocrystal of Lithium

Researchers at the University of South Florida have designed, synthesized and characterized a new iconic cocrystal of lithium (LISPRO) that improves the efficacy of neuropsychiatric disorder treatments. Lithium salts have long been a popular treatment for neuropsychiatric disorders, but have been plagued by poor bioavailability and adverse effects. LISPRO exhibits improved pharmacokinetics and bioavailability compared to the currently FDA approved lithium drugs on the market. Importantly, LISPRO exhibits improved brain bioavailability, without demonstrating an initial spike in lithium concentration that is associated with negative side effects of treatment.

Our researchers were the first to report the crystal structure of LISPRO, an ionic cocrystal of lithium with an organic anion, salicylic acid and l-proline. In addition to benefits in lithium delivery, the inclusion of salicylic acid in the cocrystal may afford additional benefits in treating inflammation that is prevalent in many neuropsychiatric disorders.

In the most current effort, our researchers have established the therapeutic benefits of LISPRO in treating Fragile X syndrome, the most common known cause of inherited intellectual disability. LISPRO has demonstrated a reduction in GSK activity which is common in many neuropsychiatric disorders, including Fragile X.

LISPRO could potentially lead to a safer, and cost effective treatment for psychiatric and neurodegenerative disorders than tradition lithium formulations.

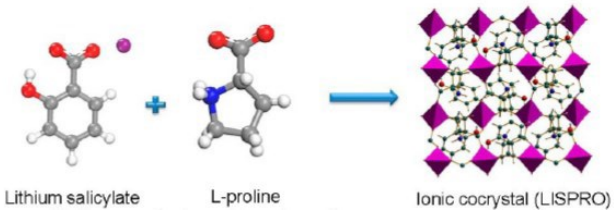
Tech ID # 15B138

ADVANTAGES:

- **Fewer regulatory hurdles**
- **A common anti-inflammatory agent**
- **Reduction in side effects**

Cost Effective Treatment

For Fragile X Syndrome



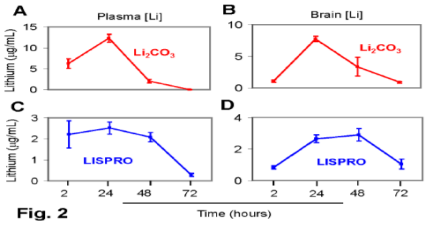


Fig. 2

CoCrystal Lithium formulation

Current Lithium vs Cocrystal Lithium

University of South Florida | Technology Transfer Office
813.974.0994 (office) | 813.974.8490 (fax)
patents@research.usf.edu
http://www.usf.edu/research-innovation/pl/