Washington University in St. Louis
Office of Technology Management

TREATMENT OF CHRONIC PRURITUS THROUGH INTRANASAL OR INTRATHECAL DELIVERY OF RUXOLITINIB OR TOFACITINIB (JAK INHIBITORS)

Kim, Brian

Han, Nathan

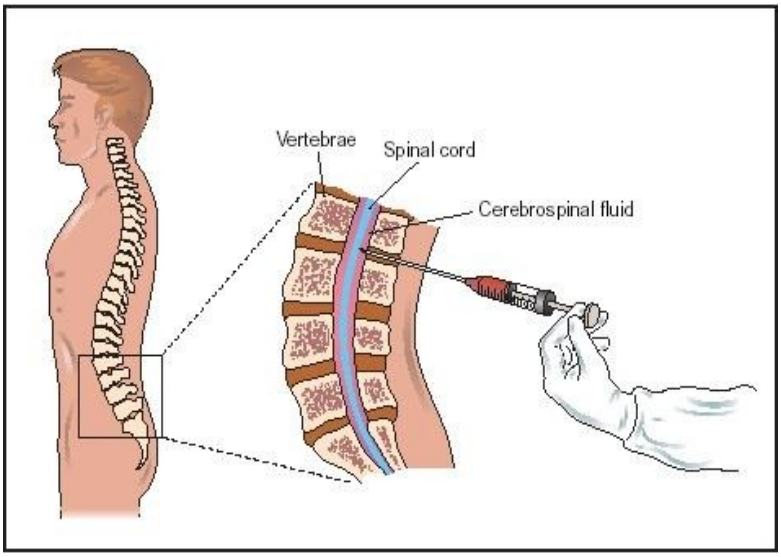
T-015992

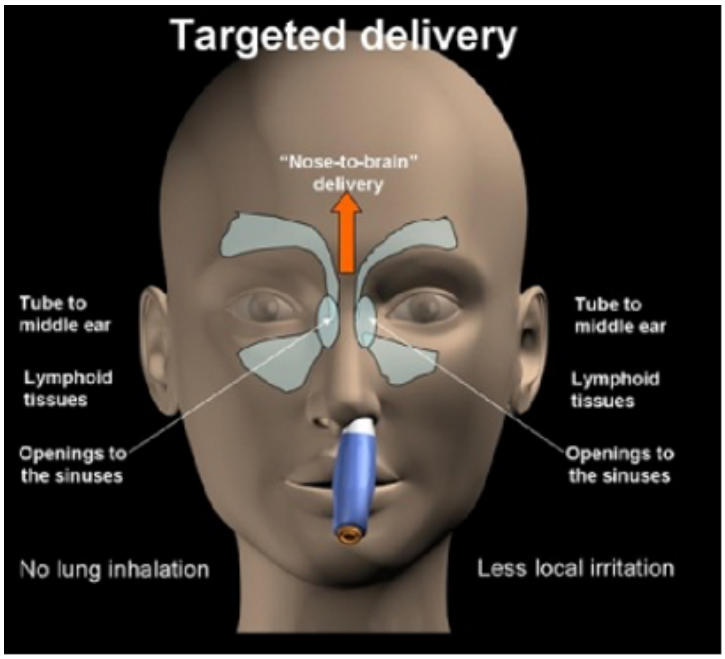
***Value proposition**: Novel approach to treat chronic itch through the intrathecal or intranasal delivery of JAK inhibitors.*

Technology Description

Researchers at Washington University in St. Louis have developed a new method for treating chronic idiopathic pruritus (CIP) in both patients and mice using Ruxolitinib or Tofacitinib (JAK inhibitors). While it has been previously shown that JAK inhibitors may be used to treat atopic dermatitis (AD) and pruritus associated with AD, JAK inhibitors have not previously been used to treat CIP. In current clinical trials, the route of administration for JAK inhibitors in the treatment of AD is as a topical ointment. Currently, there is no true standard treatment for CIP as the therapeutic target remains unknown.

This method delivers JAK inhibitors intrathecally or intranasally directly to sensory neurons to alleviate chronic itch.





Stage of Research

Preliminary studies have been conducted demonstrating that JAK inhibitors administered systemically (oral/PO) are effective in treating chronic itch in both patients and mice. Mice studies have also been done and show that intrathecal delivery of JAK inhibitors improves pruritus in mice. (The intrathecal studies suggest that intranasal administration may also be feasible and effective.)

Applications

- Treatment of chronic idiopathic pruritus

Key Advantages

- **Allows for versatile delivery directly to the brain, compared to current topical treatments**
- **Quickly and effectively treats CIP**

Patents

Issued Patent: US10973913B2

Related Web Links – Brian Kim Profile**;** Kim Lab