Docket #: S19-533

Use of Small Molecule Inhibitor for Preventing Abdominal Adhesions

Researchers at Stanford have identified a novel method of use for the drug T-5224 in the prevention of abdominal adhesion. Using a mouse model of abdominal adhesions, the researchers found that local application of T-5224 inhibits adhesion formation *in vivo*, with no negative side effects observed. Today, there are essentially no available treatments to prevent adhesions, which are fibrotic scars that form between abdominal organs following surgery or infection, and cause bowel obstruction, chronic pain, or infertility. Adhesions occur post-operatively in 50- 90% of all open abdominal operations, representing an enormous clinical problem impacting hundreds of millions of patients worldwide. T-5224 is a small molecule inhibitor of the Activator Protein 1 (AP-1) transcription factor complex, and has previously been shown to decrease fibrosis in models of systemic sclerosis as well as to attenuate LPS-induced liver injury and endotoxin-induced kidney injury. The new findings suggest that T-5224 should be explored clinically as a novel agent for adhesion prevention; for example, in patients undergoing abdominal surgical operations.

Stage of Development
Research – in vivo.

Applications

- Prevention of abdominal adhesions in patients following surgical operations or intra-abdominal infection
- In the treatment of other peritoneal diseases related to fibrosis (e.g., peritoneal carcinomatosis)
- Fibrosis elsewhere in the body (e.g., prevention of pleural or pericardial fibrosis in the context of surgical procedures in the chest or prevention of adhesions after tendon repairs)

Advantages

- These findings represent a significant advancement in the prevention of abdominal adhesions
- No comparable therapy currently exists
- Potential for immense improvement in clinical care

Publications

- Foster, D.S., Marshall, C.D., Gulati, G.S. et al. "Elucidating the fundamental fibrotic processes driving abdominal adhesion formation." *Nat Commun* 11, 4061 (2020).

Patents

- Published Application: WO2021257887
- Published Application: 20230241035
- Issued: 12,673,043 (USA)

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