

Methods Of Treating Stat1 Dependent Cancer

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TECHNOLOGY DESCRIPTION

UNMET NEED: EGFR inhibitor (EGFRi) is an FDA-approved treatment for NSCLC. However, a small fraction of cells, known as persister cells, persist during EGFRi treatment, which causes cancer cells to become resistant to the drug. Uncovering the mechanisms of cancer persisters has been challenging due to their reliance on nongenetic, reversible mechanisms for survival and small subpopulation size.

TECHNOLOGY: Dr. Altschuler and Dr. Wu’s team identified the role of IFN-γ/STAT1 signaling in the development of persistence to EGFRi in NSCLC. STAT1 overexpression, resulting from IFN-γ stimulation, promotes persistence. This persistence can be eliminated by type I protein arginine methyltransferase (PRMT) inhibitor (PRMTi). Further, PRMTi can eliminate persistence cells that have a high level of STAT1, regardless of the presence of IFN-γ. Therefore, PRMTi can be a potentially effective therapy for NSCLC patients with activated STAT1 activity. High level of STAT1 can be used to stratify patients who respond to STAT1.

Competitive ADVANTAGE:

- **Precision Targeting:** Utilizes a companion diagnostic test to identify patients with STAT1-dependent cancers, ensuring tailored treatment strategies.
- **Enhanced Efficacy:** Combines type I PRMT inhibitors with interferon or anti-cancer agents to eliminate drug-tolerant cancer cells and prevent treatment resistance.
- **Novel Chemotype:** Incorporates new PRMT-targeting drug candidates with inhibitory efficacy for improved cancer treatment outcomes.
- **Innovative Biomarkers:** Introduces STAT1-related biomarkers to guide therapeutic decisions and improve stratification of responsive patient populations.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

EGFR, NSCLC, Lung

Cancer, STAT1, PRMT,

Persister cells, drug

resistance, biomarker

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Medical**
- ▶ Diagnostics
- ▶ Disease: Cancer
- ▶ Research Tools
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