FRED HUTCH
CURES START HERE®

THERAPEUTIC, TARGET

Immune Modulation of DUX4 in Cancer

Brief Technology Description

DUX4 as predictive biomarker and therapeutic target to enhance the effectiveness of immunotherapies.

BUSINESS OPPORTUNITY
Exclusive licence
Non-exclusive license
Sponsored research
Startup

TECHNOLOGY TYPE
Therapeutic
Target

STAGE OF DEVELOPMENT
Preclinical *in vitro*

PATENT INFORMATION
WO2020028134

LEARN MORE
Tech ID: 18-152
partnering@fredhutch.org
206-667-4304

Technology Overview

Although immune checkpoint blockade therapies represent important treatments for cancer, most patients are non-responders or may relapse. The efficacy of these treatments relies on cytotoxic T-cell recognition of antigens presented by MHC Class I on tumor cells and can be reduced by suppression of antigen presentation or blunt tumor-immune interactions. Fred Hutch researchers have discovered that DUX4, a double homeobox transcription factor expressed normally only early in development, is a novel regulator of antigen presentation and immune modulation. They found that DUX4 is re-expressed in solid tumors, is associated with anti-tumor activity, and promotes resistance to immune checkpoint blockade. Therefore, DUX4 is useful not only as a biomarker for identifying patients that may respond to immunotherapies, but also as a target to increase the effectiveness of immunotherapies.

Applications

- Therapeutic target for cancer treatment
- Therapeutic target to upregulate MHC Class 1 for use in combination with adoptive TCR-based T cell therapies
- Predictive biomarker for immunotherapy response

Potential Advantages

- Reveals a molecular basis for DUX4 amplification in cancer cells

Market Overview: The global cancer therapeutics market was valued at USD 121 billion in 2017 and is estimated to reach USD 172.6 billion by 2022 growing at a CAGR of 7.4%. Main market drivers include increase in cancer prevalence, advances in cancer research and surge in collaboration between pharmaceutical companies.

Investigator Overview

Stephen Tapscott, MD, PhD, Human Biology and Clinical Research Divisions

Robert Bradley, PhD, Public Health Sciences, Basic Science Divisions