



TUMOR MICROENVIRONMENT

Novel Method Targeting the Tumor Microenvironment as Therapeutic Treatments for Metastatic Cancers

Brief Description of Technology

Disruption of microlumen to slow tumor growth, reduce metastasis, and increases treatment efficacy.

BUSINESS OPPORTUNITY

Non-exclusive license
Exclusive license
Sponsored research

TECHNOLOGY TYPE

Immuno-oncology
Therapeutic
Research tool

STAGE OF DEVELOPMENT

Preclinical *in vivo*

PATENT INFORMATION

Patent pending

INVESTIGATOR

Kevin Cheung, MD

Public Health Sciences Division
Human Biology Division

LEARN MORE

Tech ID: 19-151
partnering@fredhutch.org
206-667-4304

Technology Overview

Solid tumors and tumor cell clusters form intercellular cavities called Microlumen. These microlumen are enclosed pockets between two or more cancer cells that are bound by cell-cell junctions and separated from surrounding extracellular spaces. Cancer cells use the unique architecture of these Microlumen to restrict protein diffusion and aggregate growth factors. These mitogen reservoirs support tumor growth, promote metastasis, and elevate therapeutic resistance making cancer more difficult to treat. To overcome these obstacles, researchers at Fred Hutch have devised a method to identify and disrupt tumor cells' Microlumen. Through targeted RNA interference (RNAi), pharmacological inhibition, and immunotherapy, Dr. Cheung and his research team can disrupt microlumen integrity and deprive tumor cells of growth sustaining signals. Microluminal targeting creates a whole new approach in amplifying therapeutic efficacy (e.g., adoptive cell therapy) and improving prognosis for a wide spectrum of cancers.

Applications

- Inhibit cluster-dependent tumor proliferation and suppress metastatic outgrowth of tumor cell clusters
- Reduce growth factor signaling and increase susceptibility of tumor cells to other therapies

Advantages

- Slows tumor growth and improves outcomes in combination therapy with growth factor inhibitors
- Cluster-dependent tumor profiling facilitates precision therapy

Market Overview

The metastatic cancer treatment market was estimated \$54 billion in 2017 and is expected to reach \$98 billion by 2025 with a CAGR of 7.7%. Biologicals and biosimilars are a key component of this rapidly expanding market due to ascending approval from regulatory bodies and increasing adoption rates.