

Transport lactate in living cells

Summary

Profile type

Technology offer

Company's country

Spain

POD reference

TOES20230829003

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement****Commercial agreement with
technical assistance**

Targeted countries

• World

Contact Person

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Term of validity

29 Aug 2023**28 Aug 2024**

Last update

29 Aug 2023

General Information

Short summary

A Spanish research group has patented a family of molecules able to transport lactate in living cells. The ability to alter the lactate concentration in cells can have a significant impact on cancer therapy, as high levels of lactate in the tumour microenvironment is associated with progression and treatment resistance in some cancer cases. This technology represents a new advancement in the search for therapeutic strategies against cancer. Seeking a commercial or cooperation agreement.

Full description

This Spanish research group has achieved remarkable successes in the realm of molecular transport, designing innovative systems that enable the interaction and movement of specific molecules. They have now successfully developed a method for transporting lactate into living cells.

This pioneering research has achieved an innovative discovery by identifying and developing the first molecules capable of effectively transporting lactate across biological membranes.

The described molecules can interact through hydrogen bonding with lactate anions, forming a supramolecular complex that can diffuse through lipid membranes. In this way, it is possible to facilitate the passage of lactate across cell membranes independently of the cellular mechanisms responsible for this process which are transmembrane

proteins.

This synergistic activity opens the door to exploring the utility of these molecules in the development of new therapies for cancer treatment.

The university is interested in contact with different partners. Commercial agreements are sought and partners for research cooperation agreements are welcome as well.

Advantages and innovations

- It is the first family of molecules capable of facilitating the transport of lactate across biological membranes.
- These molecules transport lactate independently of the cell's own transport mechanisms, such as monocarboxylate transporters (MCTs).
- The molecule AS37 can alter intracellular and extracellular lactate concentrations in the presence of an MCT inhibitor.
- The ability of this compound to act synergistically with widely used chemotherapy agents such as cisplatin has been demonstrated in in vitro experiments with tumour cells.

The molecule has the capability of altering intracellular and extracellular lactate concentrations. This mechanism can be demonstrated by using an inhibitor of this type of MCT protein, such as syrosingopine.

In the presence of syrosingopine, the molecules are capable of altering the intracellular and extracellular lactate concentration in cancer cells according to the obtained in vitro results.

It has been demonstrated in this in vitro model that this strategy sensitizes tumour cells to chemotherapy agents such as cisplatin.

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR applied but not yet granted

Sustainable Development goals

- **Goal 3: Good Health and Well-being**

Partner Sought

Expected role of the partner

The described compound allows for the alteration of lactate permeability and homeostasis in vitro. As lactate is a therapeutic target in cancer treatment, the possibility of developing compounds with therapeutic application for the treatment of this disease arises.

The mentioned compounds can serve as tools for biochemical and cellular biology research in this context, either alone or in combination with MCT inhibitors.

In addition, they are looking for a research groups and research institutions to collaborate to transfer and bring the technology to the next level and, additionally, apply for European funds.

Type of partnership

Research and development cooperation agreement

Commercial agreement with technical assistance

Type and size of the partner

- **Other**
- **University**
- **R&D Institution**
- **SME <=10**
- **SME 11-49**
- **SME 50 - 249**
- **Big company**

Dissemination

Technology keywords

- **06001003 - Cytology, Cancerology, Oncology**
- **06002002 - Cellular and Molecular Biology**
- **06001002 - Clinical Research, Trials**

Targeted countries

- **World**

Market keywords

- **04006 - Cellular and Molecular Biology**
- **04009 - In vitro Testing, Trials**
- **05005014 - Oncology**

Sector groups involved

- **Health**