

Partnering Opportunity

Profile Status: Published

Technology Offer

Italian University is offering the construction of stable mammalian cell lines hyper-producing recombinant proteins to pharmaceutical companies, universities and research centres

Summary

Biology and biotechnology department of an Italian University developed an efficient system to produce recombinant proteins in mammalian cells in culture to be used as drugs or for structural biology studies. The company is looking for pharmaceutical companies, universities and research centers, under a technical cooperation and service agreement.

Creation Date 21 May 2019
Expiration Date 29 May 2020
Reference TOIT20190521001

Details

Description

Italian university department of biology and biotechnology is offering the construction of cell lines for the production of recombinant proteins in mammalian cells to be used for structural biology studies.

Recombinant proteins are particularly relevant in various fields, from drug production and diagnosis to basic research. The expiration of patents for therapeutic protein drugs opens up opportunities for biosimilars to enter the market since pharmaceutical companies are willing to obtain their own expression systems. The production in mammalian cells, although expensive, is necessary for many proteins whose function is dependent on post-translational modifications. We developed a mammalian vector-host cell system which allows high production efficiency, thereby decreasing production costs. We offer to the market the construction of stable mammalian cell lines (human or hamster) constitutively expressing any protein of interest. The system is already working very well and has been used successfully for the construction of

human and Chinese hamster cell lines hyper-expressing different proteins such as hydroxylase 3 (LH3) and human erythropoietin.

The service includes protein characterization through mass spectrometry (MALDI - TOF/TOF), western blotting, quantitative analysis of RNA by RT-PCR, cellular characterization by fluorescent in situ hybridization (FISH) and several additional molecular and cellular biology methods.

The company is looking for international partners such as companies, active in the pharmaceutical field, universities and research centers. The types of partnership considered are technical agreement, in order to explore innovative application and research and development solution on recombinant protein and service agreement addressed to pharma companies needing recombinant proteins in mammalian cells in culture to produce specific drugs.

Advantages and Innovations

Through this system the university can deliver cell lines producing high-quality recombinant proteins for industrial applications (production of protein-based drugs, development of new drugs) and for basic research (structural and biochemical studies on human proteins). In particular, their system can be used to produce “biosimilar drugs”, that gained great interest after the expiration of important international patents.

The activity includes protein characterization through mass spectrometry (MALDI - TOF/TOF), western blotting, quantitative analysis of RNA by RT-PCR and cellular characterization by fluorescent in situ hybridization (FISH).

Main advantages:

- Production of recombinant proteins in mammalian cell in culture. The use of mammalian cells is essential for proteins whose functionality relies on post-translational modifications.
- Production of higher concentrations of recombinant proteins (up to 200 mg per liter) compared to traditional methods, allowing experiments needing high protein amounts such as crystallography.
- Construction of stable cells line, which can be used in several experiments and for long term protein production. In principle any protein, that is not toxic for mammalian cells, can be produced at high yields.
- The system allows reduction of costs through the production of high protein yields and can also include protein and cell line characterization.

Stage of Development

Already on the market

Comments Regarding Stage of Development

The system has been successfully tested in several projects and is ready to be used for new projects. Cell lines hyperproducing biosimilar drugs have been constructed and sold to pharma companies. Cell lines hyperproducing Human Lysyl hydroxylase 3 (LH3) have been used for structural studies. The production and characterization of cell lines hyperproducing other proteins is under way.

IPR Status

Other

Profile Origin

Other

Network Contact

Issuing Partner

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Open for EOI : **Yes**

Dissemination

Relevant Sector Groups

Bio Chem Tech
Healthcare

Client

Type and Size of Organisation Behind the Profile

University

Year Established

1361

Already Engaged in Trans-National Cooperation

Yes

Ref: TOIT20190521001

Languages Spoken

English
Italian

Client Country

Italy

Partner Sought

Type and Role of Partner Sought

Big companies, small and medium enterprises active in the pharmaceutical sector developing biosimilar drugs or any other product for whom recombinant protein are needed both in EU and extra EU.

University and research centres developing structural biology studies needing recombinant proteins in mammalian cells.

The types of partnership considered technical agreement, in order to explore innovative application and research and development solution on recombinant protein and service agreement addressed to pharma company.

Type and Size of Partner Sought

SME 11-50, SME <10, >500 MNE, 251-500, SME 51-250, >500

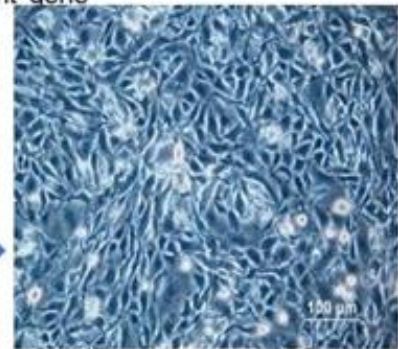
Type of Partnership Considered

Technical cooperation agreement
Research cooperation agreement

Attachments



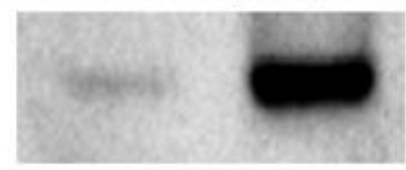
Transfection of mammalian cells with the plasmid containing the recombinant gene



Gene amplification



Expression of the recombinant protein, concentration up to 250 mg/l



Attachment