Guinea pig monoclonal antibodies: a promising new tool for the immunoassays market

Summary

A monoclonal antibody manufacturing centre, spin-off from a Belgian university has unique expertise in providing and generating hybridomas/monoclonal antibodies to the research, biopharmaceutical and in vitro diagnostic markets. This center has opted to develop guinea pig monoclonal antibodies. The center is looking for technical cooperation.

Expiration Date 28 June 2017
Reference TOBE20160616001

Details

Description

A spin-off from a Belgian university is involved in the production of innovative monoclonal antibodies. The spin-off has a unique expertise in providing and generating rat, mouse monoclonal antibodies as well as rat polyclonals for the research and in vitro diagnostics.
The spin-off offers now guinea pig monoclonal antibodies (mAbs) complementing its unique Rat mAbs expertise.
For technical reasons related to the fusion, cell lines used to obtain hybridomas producing an antibody continuously, the development of monoclonal antibodies has been limited for a long time to only two species: mice and rats. The mouse technology was developed some 40 years ago , whereas the rat technology was developed a few years later However, the immune systems of mice and rats are not the most suitable in terms of humoral response to certain antigens, such as human antigens like glucagon, the protein sequence of which is the same in mice and rats. This is also the case for some small-molecule antigens that are not very immunogenic, such as antibiotics or toxins. This is why some companies have recently developed fusion cell lines to develop monoclonal antibodies in other species. For instance, companies now offer rabbit monoclonal antibodies and others offer sheep monoclonal antibodies. However, these two tools are not totally satisfactory whether in terms of cost or productivity.
Meanwhile the spin-off has developed guinea pig monoclonal antibodies.
Generating monoclonal antibodies from the guinea pig is a breakthrough. Moreover this cutting edge technology could rapidly take the market share of the disappointing rabbit monoclonals, featuring sometimes good affinity but often very poor productivity and being unstable.
On the contrary, guinea pig Mabs are the best of both worlds, offering stability together with a non-murine immune repertoire (outbreed). The Guinea pig model should be used when the target is :
- highly conserved between mouse/rat/rabbit/human
- a glycemic hormone, proven to be different in the guinea pig
- an aflavirus antigen, the guinea pig being used as a preclinical model
The spin-off is currently focusing the research on improving methods for immunising guinea pigs, whose immune response seems closer to that of rabbits than mice or rats. Their development work is focused on antigens for which it is difficult to obtain murine antibodies.

Their areas of research and development are essentially infectious diseases and human glucoregulatory hormones, areas in which the spin-off is open to technical cooperation.

Advantages and Innovations

The guinea pigs have some distinct advantages:
- guinea pigs are phylogenetically distant from other rodents (rats, mice). Based on genetic studies, many publications have shown that the guinea pig separated from the rodent phylogenetic tree at a very early stage of evolution (ref. 3). This difference means that the amino acid sequence homologies of many human proteins are much weaker with guinea pigs than they are with those of the other animals currently used to develop monoclonal antibodies.
- it has been observed on many occasions that the humoral response to a particular antigen was on average at least two times higher in guinea pigs than in rats or mice.
- guinea pigs are used as the animal model to study many infectious diseases, such as tuberculosis, Legionnaires' disease, brucellosis and even cytomegalovirus (CMV).
It would therefore be very interesting to be able to develop monoclonal antibodies from these experimental models so that we can better study the regions of the pathogen potentially recognised by neutralising antibodies in order to develop therapeutic antibodies.
- guinea pigs are very docile animals, they are easy to manipulate and are similar in size to rats. In addition, they are significantly cheaper to use in laboratories than rabbits or sheep. Their size means that it is also easier to get access to the secondary lymphoid organs (i.e. lymph nodes) to prepare the cells to immortalise.

Stage of Development

Already on the market

Comments Regarding Stage of Development

Further developments needed :
> Characterization
> Humanization
> Applications to immunoassays eg insulin, glucagon,...

IPR Status

Secret Know-how

Profile Origin

Private (in-house) research

Keywords

Technology

06001005	Diagnostics, Diagnosis
06001013	Medical Technology / Biomedical Engineering
06002002	Cellular and Molecular Biology
06002007	In vitro Testing, Trials

Market

04002	Monoclonal Antibodies and Hybridomas

04009	In vitro Testing, Trials
05001002	In-vitro diagnostics

NACE

Q.86.9.0	Other human health activities

Open for EOI : Yes

Dissemination

Send to Sector Group

Bio Chem Tech

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
French

Client Country

Belgium

Partner Sought

Type and Role of Partner Sought

Type of partners sought: Research laboratories, companies.
specific area of the activity partner: In vitro diagnostics and biotechnology companies.
task to be performed: technical cooperation for the research and development in infectious diseases and human glucoregulatory hormones

Type of Partnership Considered

Technical cooperation agreement

Attachments