

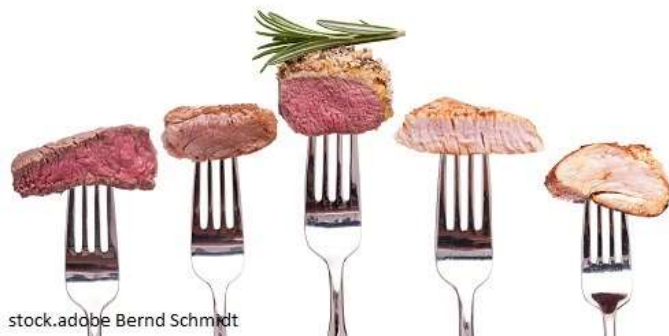
Optimisation of classical livestock farming and in-vitro-meat-production by use of tetrapeptides

Sustainable nutrition, culture meat, tissue engineering, 3D-cell-culture

DESCRIPTION OF TECHNOLOGY

In large-volume livestock farming, up to date large quantities of antibiotics are used prophylactically to support the muscle growth of the animals, although the resulting adverse effects are already generally known (especially development of resistances by pathogens).

In order to ensure a sustainable protein supply for the world's growing population, the extent to which muscle mass can be produced by "apparatus" ("cultured meat", etc.) is therefore being intensively investigated in order to decouple land consumption for livestock farming from meat production.



At the Department of Veterinary Medicine at the Justus-Liebig-Universität Gießen, upon investigation of myoblasts, i.e. precursor cells of skeletal muscle fibres, it was discovered that certain tetrapeptides promote the growth and differentiation of myoblasts, thus supporting muscle growth.

As basic mode of action the interaction of the tetrapeptides with the ZIP9 receptor on the cell surface of myoblasts was identified, i.e. the tetrapeptides only need to be used in therapeutic amounts.

AT A GLANCE ...

Application Field

- Livestock farming
- Production of culture-meat

Business

- Food industry

USP

- Remarkable reduction of use of antibiotics in livestock farming
- Natural and cost-effective growth- and differentiating-factor for manufacturing culture meat

Development Status

- Efficacy successfully proven on laboratory scale

Patent Status

Priority application, filed 23.11.2020 at the European Patent Office.

REFERENCE NO.: **TM 1095**

APPLICATION FIELDS

In the field of food technology, there are basically two independent fields of application:

By using these tetrapeptides in animal fattening, prophylactic administration of antibiotics can most likely at least be massively reduced, possibly even completely limited and restricted to real cases of disease, as muscle growth is already stimulated by the tetrapeptides - administration of antibiotics is then no longer necessary for that purpose).

In the area of artificial meat production ("culture meat"), the tetrapeptides can be used as cost-effective growth-promoting additives to nutrient media which are already effective in low concentrations.

ADVANTAGES OVER PRIOR ART

In animal fattening, the tetrapeptides enable the massive reduction of the application of antibiotics.

In artificial meat production, they are harmless, inexpensive and effective additives for the growth media, even in low concentrations. In addition to just growth, they also actively promote fibril formation of myoblasts.

STATE OF PRODUCT DEVELOPMENT

Feasibility is proven on lab-scale. There is cell culture-based evidence of efficacy on L6 myoblasts (muscle mass-forming progenitor cells) available.

MARKET POTENTIAL

Food production for a growing world population is of global importance, and a drastic reduction of the use of antibiotics in animal fattening is essential to avoid a medical emergency regarding the effectiveness of antibiotics. Therefore, a high market potential can be assumed for these tetrapeptides.

COOPERATION OPPORTUNITIES

On behalf of its shareholder Justus-Liebig-University Giessen TransMIT GmbH is looking for cooperation partners or licensees for distribution or further development in Germany, Europe, US, and Asia.

A TECHNOLOGY OF



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