

Patent: Method for differentiation of pluripotent stem cells into definitive endoderm cells

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Description

This is an induction **method for the differentiation of pluripotent stem cells into precursor cells of the tissues deriving from the endoderm**, which can be used in the **preparation of drugs and pharmaceutical compositions** for the prevention or treatment of lesions and degenerative or genetic diseases in tissues derived from the endoderm or in transplants aimed at their regeneration.



Need or problem solved

- These cells can be used in the **preparation of drugs or pharmaceutical compositions** for the **prevention or treatment** of lesions and degenerative or genetic disease in tissues derived from the endoderm (pancreas, trachea, bronchus, lungs, liver, bladder, digestive apparatus, thyroid glands, thymus, tympanic cavity, auditory canal, tonsils and parathyroids), as well as in **transplants aimed at their regeneration**.
- The cells embody the following applications: Cells handled in order to modify their immunologic, metabolic or other functional properties in their qualitative or quantitative traits; Classified, selected or handled cells further submitted to a manufacturing process in order to obtain a finished product; cells handled or combined with non-cellular components (such as matrices or biological or inert health-care products) performing the action that, in principle, is desired in the finished product; derivatives of autologous cells expressed *in Vitro* under specific cultivation conditions; and Cells modified genetically or submitted to other types of handling in order to express homologous or non-homologous expressions other than the ones expressed above

Innovative issues/Competitive advantages

- The **differentiation induction method is faster** and makes it possible to obtain **endodermal cells able to regenerate any derivative tissue**.
- The pluripotent stem cells are, **preferably, adult human cells**, although **they can also be from human embryos** so long as they are obtained using **methods that do not compromise the viability of the embryo**.
- **The administration** of the **pharmaceutical compositions** to animals, including humans, can be performed in **diverse manners** (epidural, intrastromal, intraarticular, subcutaneous, by means of transdermal patches, vaginal route, etc.)
- A **differentiation kit** of pluripotent mammal stem cells **includes all the necessary elements** for the application of the differentiation method of the present invention.

Types of interested companies

- Biomedicine laboratories
- Research centres/units
- Hospitals
- Pharmaceutical companies performing drug R&D