

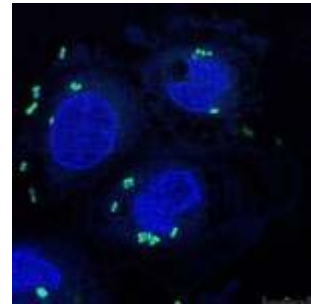
Patent: Procedure for regulating the production of heterologous proteins controlled by salicylic acid derivatives in microorganisms associated with higher-level organisms

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Description

The present invention describes a **method by which the expression of proteins of interest in microorganisms can be controlled** by means of an **expression system**, which is **regulated and inducible by the presence of salicylate derivatives**, preferably of **acetylsalicylic acid** because of its toxicological safety in cells. The system can be established in bacteria hosting or infecting cells in eukaryotic organisms, including humans. For instance, it can be used in attenuated pathogen bacteria, such as *Salmonella*, and, once hosted in the eukaryotic cell, it can be induced by means of aspirin concentrations within the range of pharmacological safety.



Need or problem solved

- This invention makes it possible to **produce efficient proteins in a long-lasting manner**; that is, a single bacterial culture can be used in order to produce large amounts of proteins during a long period of time.
- The system is **inducible** by acetylsalicylic acid, that is, **aspirin**, which has led to its application in the field of Biomedicine. This means that it could be used for the **manufacture of pharmaceuticals within animal bodies**.
- There is still research work to be done in order to produce proteins manufactured at will, within the cells of an animal and, eventually, within a human being, in the future. This will lead to **novel applications in Biomedicine**. For example, it will be applicable to the **design of live vaccines or, also, as therapeutic agents**

Innovative issues/Competitive advantages

- Bacterial cells will maintain their viability and physical condition because the expression of heterologous genes will be silenced.
- The administration of the drug would make it possible to induce the expression of the heterologous genes into the bacterium when desired.
- The tropism of some bacteria for certain tissues or organs can be used to increase the local concentration of recombinant proteins.
- The expression system can control the *in situ* production of biomolecules for research and can be used for the controlled release of biopharmaceuticals; for instance, for controlling the expression of antigens or anti-tumour proteins.

Types of interested companies

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