**Patent: Control of gene expression by means of a transcription attenuator**

**Inventors:** Eduardo Santero Santurino, Ángel Cebolla Ramírez, and José Luís Royo Sánchez-Palencia

**Holder:** Universidad Pablo de Olavide

**Description**

This deals with a system making it possible to control, in bacteria and by means of acetylsalicylic acid, the induced expression of external genes having a function of interest. In addition to making it possible to establish the time of large-scale production of the codified proteins by the genes of interest by adding aspirin, the attenuator incorporated by this invention can reduce the production of proteins to a minimum when it is not desired, thus avoiding their possible deleterious effects upon the cell.

**Need or problem solved**

- The patent makes it possible to increase the expression capacity in genes for the large-scale production of proteins of interest, in a single bacterial culture and for a long period of time, by using just aspirin.
- Furthermore, the invention makes it possible to maintain extremely low levels of production in the absence of aspirin, thanks to an "attenuator", avoiding a possible deleterious effect upon the host cell without compromising the original capacity for producing maximum levels of expression with aspirin.

**Innovative issues/Competitive advantages**

- Since the system of expression is inducible by acetylsalicylic acid, its application could be derived to the field of biomedicine. That is, it could be used for the **manufacture of pharmaceuticals within animal bodies by means of bacteria.**
- 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
- The expression system can control the production ***in situ*** 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**

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