

Dormancy of cells and organisms – strategies for survival and preservation

Sleeping Beauty

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SLEEPING BEAUTY

Revealing the secrets of dormancy

http://europa.eu.int/comm/research/fp6/nest/press_en.html

Dormancy is a strategy used by many organisms to **survive adverse conditions**.

The **SLEEPING BEAUTY** project aims to enhance our knowledge of dormancy so as to assess the feasibility of **inducing** cells or organisms into **reversible dormant stages**.

Innovative techniques are being used to **identify** the **molecular and cellular processes** that enable five model organisms to enter and be revived from dormancy.

The findings will facilitate the development of **novel concepts** and methods for **cell preservation**.

The model organisms

- Akinetes – Cyanobacteria (*Ora Hadas & Assaf Sukenik – KLL, IOLR, Israel*)
- Yeast – spores (*Stefan Hohmann - Göteborg University, Sweden*)
- Rotifer – resting eggs (*Esther Lubzens – NIO, IOLR, Israel*)
- Insect – the Arctic springtail (*Melody Clark & Roger Worland - NERC-BAS, UK*)
- Killifish – eggs (*Joan Cerdà – IRTA –CSIC unit, Spain*)

Common denominator??



Dormancy...

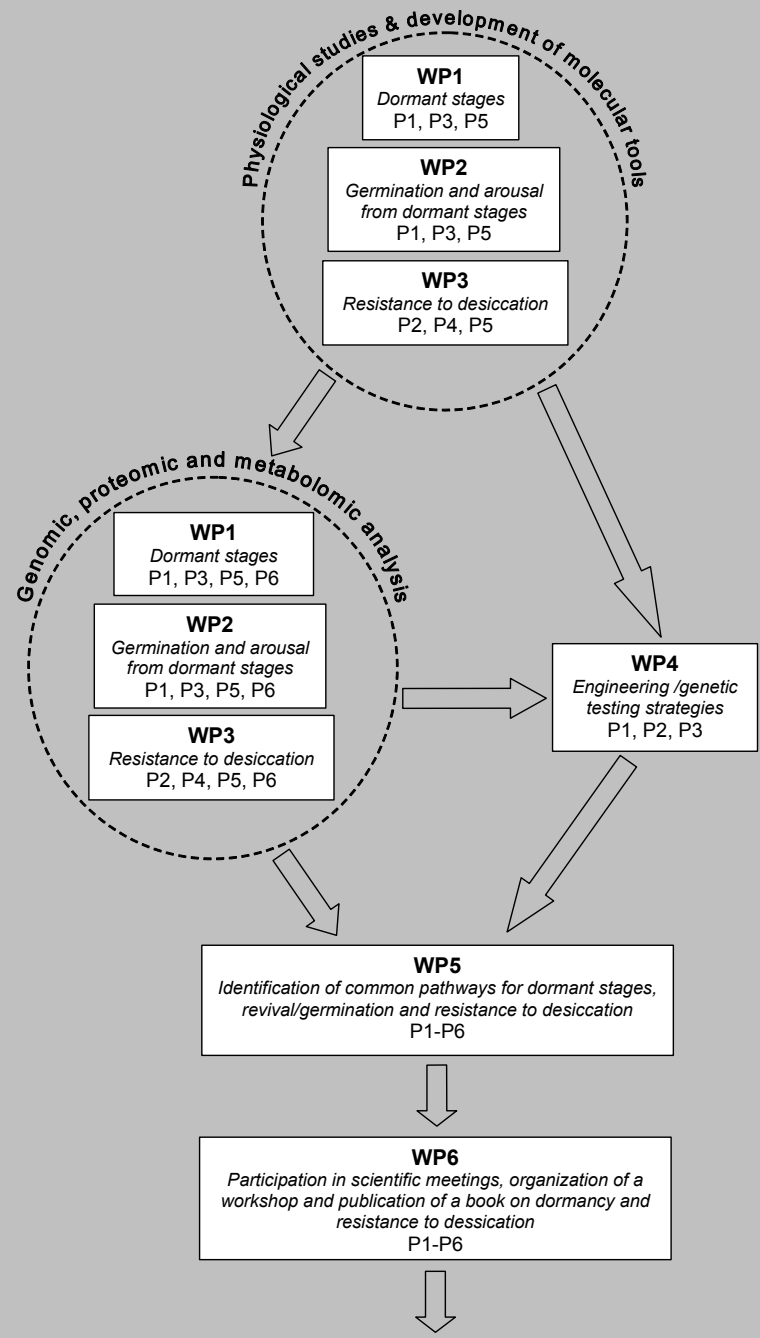
Project objectives and expected achievements

- Understanding the **process of establishing** the metabolically inactive, dormant stage.
- Revealing the **cascade of events** leading to germination or **revival** from the metabolically inactive stage.
- Discerning the **processes** associated with **desiccation** as a survival strategy.
- Confirming the **role of specific genes** in tolerance to desiccation or **dormancy** by **genetic analyses** and **genetic engineering** experimentation.

Project objectives and expected achievements

- Discovering **common and divergent strategies** associated with resistance to desiccation and/or dormancy, through the **synthesis** of the genomic, proteomic and metabolomic data obtained from taxonomically **diverse organisms**.
- One of the **final** aims of the project will be to draw the **attention of scientific and industrial communities** to the achievements of SLEEPING BEAUTY.

*Taken together, this project will **identify common and divergent strategies** whereby cells can tolerate desiccation and remain metabolically inactive for long periods of time.*



Towards novel concepts and methods for cell preservation