Teaching Unit 2
Bacterial transformation

Key words and concepts: Bacterial transformation. DNA. Plasmid. Restriction enzymes. Protein. Ligase.

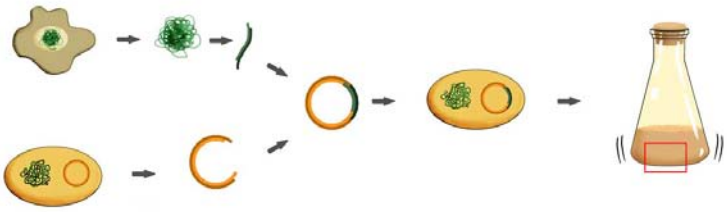
'Xplore Health related tools: Video: *New drugs against new threats*; Virtual experiment: *Produce a drug target!*

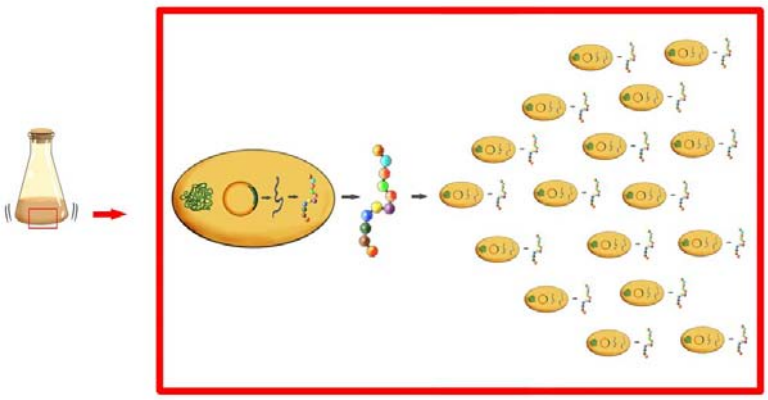
Introduction: Bacterial transformation is the process by which a DNA fragment is inserted into a bacterium. This process explains the genetic variability of bacteria and the resistance that some of these bacteria develop to antibiotics. Bacterial transformation has a wide range of applications, being a widely used technique in the laboratory.

ACTIVITY 1

a) The videotape "*New drugs against new threats*" and the virtual experiment "*Find a target for a drug*" explain the process drawn below. Please identify what process it is and write the words provided next to the corresponding drawing that represents them:

DNA;
plasmid;
bacterial cell;
human cell;
restriction enzyme;
ligase;
recombinant DNA;
bacterial culture;
messenger RNA;
protein





b) **Write a short paragraph in your own words explaining the different stages of the process being described in the drawing.**

c) **In the virtual experiment: *"Find a target for a drug!"* what is bacterial transformation used for? And, what is it used for in the videotape: *"New drugs against new threats"*?**

d) **Bacterial transformation allows us to introduce a gene into a cell, changing the cell into a transgenic organism. In groups, find information on other different ways to introduce a gene into a cell and prepare an explanation with drawings to share with your classmates.**

ACTIVITY 2

In groups, make a representation of the process of bacterial transformation. You can use clay, play dough, paper, colouring pencils, paints, recycled materials, etc. Record your work or take pictures and if you want us to upload your work onto the ´Xplore Health YouTube or Flickr accounts, please send it to: *xplorehealth@pcb.ub.cat*