BACCALAUREAT GENERAL ET TECHNOLOGIQUE
EPREUVE SPECIFIQUE MENTION
«SECTION EUROPEENNE OU DE LANGUE ORIENTALE»

Académie de Nantes - Binôme : Anglais/SVT – TOUTES SERIES

Thème 3 – Corps humain et santé

3-A- Le maintien de l'intégrité de l'organisme : quelques aspects de la réaction immunitaire

Plants 'hijacked' [1] to make polio vaccine

Question. Using the text and document 1, explain the benefits of using plants to produce vaccines.

Plants have been "hijacked" to make a polio vaccine in a breakthrough with the potential to transform vaccine manufacture, say scientists. The team at the John Innes Centre, in Norfolk, says the process is cheap, easy and quick. As well as helping eliminate polio, the scientists believe their approach could help the world react to unexpected threats such as the Zika virus or Ebola. Experts said the achievement was both impressive and important.

The vaccine is an "authentic mimic" of poliovirus called a virus-like particle. Outwardly[2] it looks almost identical to poliovirus but - like the difference between a mannequin and a person - it is empty on the inside. It has all the features needed to train the immune system, but none of the weapons to cause an infection.

The scientists hijacked a relative of the tobacco plant's metabolism to turn its leaves into polio-vaccine "factories". The virus-like particles prevented polio in animal experiments, and an analysis of their 3D structure showed they looked almost identical to poliovirus.

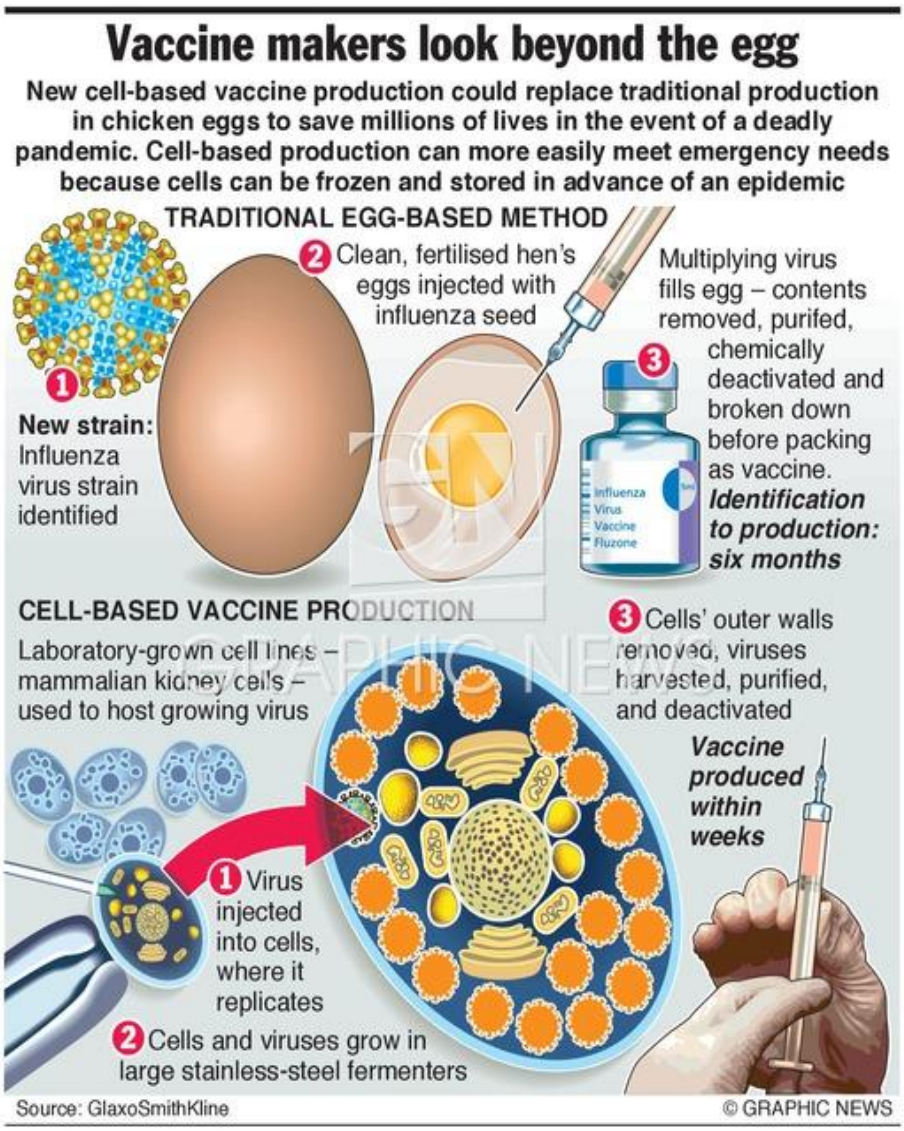
"It's a very promising technology, I would hope we get vaccines produced in plants in the not too distant future."

The research is funded by the World Health Organization, as part of efforts to find replacements for the polio vaccine. Polio - which can cause permanent paralysis - is a thing of the past for most of the world, but the infection has not been eradicated.

Adapted from James Gallagher Health, BBC News website, 2017

1. Hijacked: détourné
2. Ouwardly: seen from the outside

Document 1. Traditional and cell-based vaccine production techniques



From https://www.graphicnews.com