

Cancer vaccine

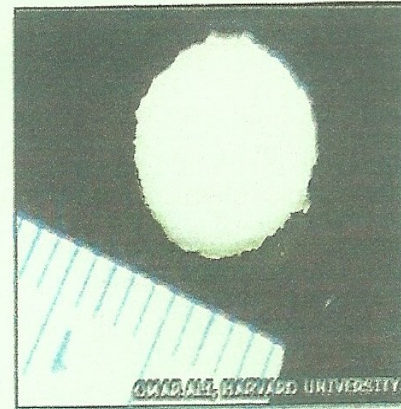
Adapted from BBC news
Thursday, 26 November 2009

An implant placed under the skin can instruct the immune system to attack and kill cancer cells, at least in mice, say researchers.

It is the first "cancer vaccine" delivered in the form of a plastic implant that can destroy tumours, say the Harvard University team. It works by attracting certain immune cells and showing them what the tumour in question looks like.

Cancer Research UK said that vaccine research was showing "real promise".

Cancer cells are good at evading the immune system because the body does not recognise them as "foreign".



The implant is placed under the skin

The idea of a vaccine to create an immune attack against a tumour is not a new one and there are versions currently in clinical trials. But most other studies have looked at removing immune cells from the body, reprogramming them to recognise the individual's cancer and then returning them.

In the latest study, researchers developed an 8 mm plastic disc that releases chemicals that attract a specific type of immune cell called a dendritic cell. Immune cells can access the disc, which is implanted just under the skin. Once inside, these cells are exposed to antigens specific to the type of tumour being targeted. The dendritic cells then report to nearby lymph nodes, where they direct the immune system T cells to hunt down and kill tumour cells.

In mice with skin cancer, the implant was shown to successfully eliminate the tumours, the journal *Science Translational Medicine* reported. "This study provides some useful insights into how we can effectively train the immune system to recognise and destroy cancer cells" says Dr Joanna Owens, Cancer Research UK.

Use the text and your scientific culture to explain how a vaccine against cancer is possible. Then, compare this method with the usual process of vaccination.

You may use the following key words:

Attenuated pathogen – T8 cells – cytotoxicity

