The Torch
Vol. 3 (22)

A new hope being given by induced pluripotent stem cells in cancer treatment

Soumya Rupangudi

The defence system of the human body is a remarkable system on its own. A major component of this immune system is the T cells. These cells track infected cells and activate a series of beautifully scripted events including the activation of other immune cells, the production of proteins that play a role in killing activities and the regulation of the immune responses. Further, cancer researchers have been fascinated with the development of vaccines that push the immune system to fight vigorously against these invading cancer cells. However, cancer cells are known to evade the immune system, thus posing a challenge. It has come to light that tumour cells and pluripotent stem cells have similar properties. Researchers have used these pluripotent cells as vaccines against cancer cells by evoking the immune T cells. Furthermore, mature somatic cells can be engineered (to become induced pluripotent cells) to have characteristics of pluripotent cells as they exhibit proteins similar to the ones found on tumour cells. These induced pluripotent stem (iPS) cells were irradiated to prevent further proliferation and becoming tumour cells. In-vivo research results show that these iPS cells had a considerable reduction in tumour progression when compared to the mice that were not vaccinated. Cancer recurrence even after surgically removing the tumour is a common observation. Researchers went on to test if iPS cells could elicit an immune response after surgery. They vaccinated the mice model after removing the tumour. The findings proved to be promising as the iPS cells evoke an immune response resulting in fewer recurrences. The preliminary results of iPS cells in making a vaccine against the tumour, by triggering one’s immune cells, provide hope to researchers and paves the path for numerous studies and research. A universal treatment for cancer might just be achieved after generations of struggle.

Keywords: Immune cells, Induced pluripotent stem cells, Pluripotent, T cells, Cancer, Vaccine

Citation:
Soumya Rupangudi. A new hope being given by induced pluripotent stem cells in cancer treatment . The Torch. 2022. 3(22).
Available from:
https://www.styvalley.com/pub/magazines/torch/read/a-new-hope-being-given-by-induced-pluripotent-stem-cells-in-cancer-treatment.