

IMMORTAL CANCER CELLS

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(7) Though HeLa cells are useful, they can also be tricky to use. Since they grow so well in culture and are immortal, they can easily contaminate non-HeLa cell cultures. Contamination of other cells by HeLa cells is a widely acknowledged problem and it has led to some research being invalidated once the contamination was discovered.

(8) HeLa cells were the first cells to be successfully cultured. George Gey freely donated these cells and the information needed to culture the cells to any scientist who asked for them. He saw the benefits for medical research and for humanity. Though

they have been extremely useful there is a controversy around the use of HeLa cells. Henrietta Lacks never gave permission to have her cells collected or used in this way. In 1951, it wasn't customary to acquire permission from patients to harvest their cells. Even now harvested cells or body parts obtained from surgical procedures remain the property of the physician or hospital. The case of HeLa cells has raised a lot of ethical issues. Many individuals and corporations have become rich from creating different strains of HeLa cells and selling them, while the descendants of Henrietta Lacks are not provided with any financial compensation.

Article Questions

- 1) What was George Gey trying to accomplish with his research?
He was trying to grow cells in culture that would survive for more than just several days.(2)
- 2) What makes HeLa cells different from other cells?
They can continue to divide indefinitely (making them immortal cells).(2)
- 3) What is the Hayflick limit?
It is the limit in which cells can divide before they stop dividing and die. It is anywhere from around 40-70 cell divisions.(3)
- 4) What happens when a cell reaches senescence?
It stops dividing and reaches cellular "old age" and eventually dies.(4)
- 5) What are telomeres and what happens to them during DNA replication?
Telomerase are sections of DNA found at either ends of DNA strands. They don't code for any genetic traits. When DNA replicates, the telomeres get shorter.(4)
- 6) Why does the presence of telomerase allow a cell to divide beyond the Hayflick limit?
Telomerase adds DNA to telomeres which prevents them from shortening between cell divisions. This allows cells to divide longer and go beyond the Hayflick limit.(5)
- 7) Name three things that have been developed or tested using HeLa cells?
Various answers: polio vaccine, treatments for cancers and AIDS, cosmetics, cleaners, radiation, toxins etc.(6)
- 8) What is one concern about using HeLa cells in research labs?
HeLa cells can easily contaminate other cell samples making the research invalid.(7)
- 9) What is one ethical problem with how HeLa cells have been obtained and used over the last few decades?
HeLa cells were obtained without Henrietta Lacks' permission and are now sold for profit by various companies while none of the money goes to Henrietta Lacks' family.(8)