

1. During the 1930's and 40's, George Gey, like many medical researchers, was
2. hunting for a cure for cancer. He became convinced the key to sustaining an
3. effective research program lay in finding and propagating a type of human cell
4. that would reproduce indefinitely in the laboratory. This would make possible a
5. wide range of experiments that could not be conducted on cells in living
6. subjects. Every attempt, however, ended in failure. Then in February 1951, a
7. woman named Henrietta Lacks went to The John Hopkins Hospital in
8. Baltimore, Maryland, complaining of pain and bleeding. She was diagnosed
9. with cervical cancer, and some of her cancerous cells were removed and sent to
10. Gey, who was now head of tissue research at the hospital. When Gey placed
11. these cells in a solution, they behaved like no cells he had seen before. They
12. grew prolifically. Gey had finally found the cell line for which he had been

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25. areas of medical search that did not involve cancer.
26. 4. They helped him conduct safe experiments on patients in order to test
27. possible cues for several well-known fatal diseases.

Further Questions

28. 1) What did George Gey feel was the key to sustaining an effective research
29. program for a cure for cancer?

30. *He felt the key to sustaining an effective research program lay in finding and*
31. *propagating a type of human cell that would reproduce indefinitely in the*
32. *laboratory.*

33. 2) How were Henrietta Lack's cancerous cells different from other cells?

34. *When Gey placed these cells in a solution, they behaved like no cell he had seen*
35. *before. They grew prolifically.*

36. Gey's dream of finding a cure for cancer remained just that. Nevertheless, the
37. HeLa cell line thrived and went on to contribute to many medical advances.

38. Gey shared his miraculous new cell line with other researchers, and soon it was
39. being used in many different fields of research, including infertility treatment,
40. cloning and AIDS. The most notable use of HeLa cells was in development of a
41. polio vaccine. Since the 19th century, the polio virus had left many thousands of
42. people, especially children, paralyzed. In 1954, HeLa cells were used in
43. procedures that allowed scientists to identify and grow the polio virus strain
44. that caused paralysis. Medical researcher Jonas Salk then used this
45. information to develop a vaccine, which was subsequently tested on HeLa cells
46. before being made available to the public. The cells also became important in
47. industry, where they were used to test cosmetics and other materials as well as
48. genetic research. All the while, Henrietta's children knew nothing of this. In
49. fact, it was not until 1974 that they learned, by chance, of the amazing fate of
50. their mother's cells. The wife of one of Henrietta's sons happened to meet a
51. scientist at a party, who asked her whether she was related to Henrietta Lacks.
52. When she said she was, the scientist revealed that her mother-in-law's cells

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65. Q) What was the most notable use of HeLa cells

66. *The most notable use of HeLa cells was in development of a polio vaccine.*

67. 4) How did Henrietta's children learn about the fate of their mother's cells?

68. *The wife of one of Henrietta's sons met a scientist at a party and he revealed*
69. *that her mother-in-law's cells were now ubiquitous in scientific laboratories.*

70. By pure coincidence, researchers were already seeking Henrietta's surviving
71. relatives. It was suspected that HeLa cells, which were difficult to keep isolated
72. due to their resilience and prolific rate of reproduction, were contaminating
73. other supposedly independent cell lines used in research. Many researchers
74. believed the only way to determine the true extent of this contamination was to
75. get detailed information about the source of HeLa cells, which meant obtaining
76. blood samples from relatives of Henrietta. Under the pretense of concern about
77. whether members of the family were at risk of developing cancer, researchers
78. persuaded Henrietta's children to allow them to take blood samples. Once the
79. samples had been taken, the family heard nothing more. For Ruth Faden,

80. professor of biomedical ethics and John Hopkins University, the case of HeLa
81. cells raises two issues: “One is the question of consent, and the other is what, if
82. anything, is morally or legally due to a person or their heirs if something of
83. commercial value is developed from their cells.”

84. (40) Researchers at The John Hopkins Hospital were trying to contact
85. Henrietta’s relatives because they
86. 1. had been accused of unethical practices in their use of HeLa cells, and were
87. pressured to obtain approval for further research from Henrietta’s family.
88. 2. wanted to be certain no members of Henrietta’s family was at risk of
89. developing the same type of cancer that killed her.
90. 3. needed to start a new line of HeLa cells as Henrietta’s original cells had
91. changed over time and become less suitable for use in medical research.
92. 4. required cell samples from Henrietta’s family to help them understand the
93. degree to which HeLa cells had invaded other cell lines.

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106. as research progresses. In the case of Henrietta, the samples were originally
107. taken for purposes quite different from those that ultimately turned out to be
108. important. It is the latter of the issues raised by Faden about which Henrietta’s
109. family expressed the most concern. Desperately poor, they were shocked to
110. learn that Henrietta’s cells had become the basis of a billion-dollar industry, in
111. which they were sold to researchers for large sums of money. Many of the legal
112. issues have yet to be settled, but some argue that donors of body tissue and
113. genetic material are not due compensation because they inevitably benefit from
114. the common public good brought by new medicines. Yet, in the case of
115. Henrietta’s family—some of whom could not even afford medical
116. insurance—this argument is hardly persuasive. As long as medical research
117. disproportionately benefits the wealthy, it is hard to justify using the body
118. tissues of poor people without offering payment.

119. (41) According to the author of the passage, what is one reason “informed
120. consent” is such a complex issue?

121. 1. It may be impossible for scientists to foresee all of the uses to which a
122. particular tissue sample taken from a patient will be put.
123. 2. Attempts to explain medical information can indirectly harm patients as a
124. lack of understanding may discourage them from seeking further treatment.
125. 3. Over the past 50 years, there had been an increase in cases where tissue
126. samples have been taken from patients in a way that damages their health.
127. 4. Some patients in need of money may take advantage of the principle in order
128. to profit from allowing researchers to take and use their body tissues.

Further Questions



129. 7) What principle was not recognized in the 1950s, but is recognized today?
130. *The principle of "informed consent" has become widely recognized.*
131. 8) Why is the argument that donors of body tissues and genetic material not
132. due compensation because they benefit from the common good?
133. *Henrietta's family is so poor that many cannot even afford medical insurance.*

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