Since its discovery in 1951, Hela cells have led to some of the most important breakthroughs in medical research.

Hela cells were used in the research on the telomere by Dr. Elizabeth Blackburn, Dr. Greider and Dr. Szostak, who in 2009, were awarded the Nobel Prize in Medicine. Cells have a biological clock which prevents them to divide indefinitely. After reaching the Hayflick limit, they stop dividing causing health problems. They discovered that the enzyme telomerase slows down this clock by reversing telomere shortening. Telomerase has its own RNA molecules which it uses to bind to the last telomere sequence on the chromosome, add a new telomere repeat sequence, realign the telomere with the template and this process is eventually reproduced. There have been various studies to use CRISPR/cas9 technology to study telomere shortening and lengthening in some cancers, telomere and telomerase editing. However, it seems research is facing many difficulties as longer telomeres have been observed in some cancers and telomerase activity is a very controlled process which disruption can cause diseases.

The above story could be considered as “old news”, however recently it was found that the COVID-19 virus could not infect the HeLa cells. Research then, showed that some forms of the virus use the ACE2 receptor to infect the cells. After engineering HeLa cells with ACE2 molecules, the SARS-Cov-2019 particles were able to enter these cells.

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