



The extraordinary story of the life after death of Henrietta Lacks

Henrietta Lacks died of cervical cancer at the Johns Hopkins Hospital in Baltimore, Maryland, on 4 October 1951 at the age of 31. Some 25 years later, her husband received a jaw-dropping call from Dr Susan Hsu, an immigrant Chinese genetics researcher in Baltimore. 'We've got your wife. She's alive in a laboratory. We've been doing research on her for the last 25 years. And now we have to test your kids to see if they have cancer.' At least that is how Day Lacks, an indigent black tobacco farmer from Virginia with only a third-grade education, recalled the conversation. But he had only grasped half the story. The other half was lost in the scientific jargon of cells and cell culture, the halting English of the researcher, and Day's deep-Southern black vernacular.

The extraordinary legacy for science of Henrietta Lacks' illness and death, and the parallel story of her impoverished family, are vividly and evocatively narrated in a fast-paced bestseller, *The Immortal Life of Henrietta Lacks* by Rebecca Skloot (New York: Crown Publishers, 2010). Nearly five months after the birth of her fifth child at the age of 29, Henrietta experienced abnormal vaginal bleeding. When she performed a pelvic self-examination, she felt a lump like a marble high up in her vagina. For more than a year she had known that something was wrong with her. She had palpated a mass in her lower abdomen, and had confided in her closest friends that 'I got a knot inside me ... When that man [her husband] want to get with me, Sweet Jesus – aren't them but some pains!' Now additionally concerned about the bleeding, she presented herself to the 'coloured section' of the gynaecology clinic at Johns Hopkins and was seen by the legendary Dr Howard Jones Jr, who promptly took a biopsy specimen and scheduled her for radium treatments.

The biopsy specimen was received in the Hopkins tissue culture research laboratory, headed by the indomitable Dr George Gey. Gey had spent three decades of his professional life trying in vain to grow human cancer cells outside the body in an effort to better understand malignant pathophysiology. There was a widespread belief that understanding how and why cancer cells multiplied out of control would lead to a cure. Unfortunately, malignant cells grew hardly at all *in vitro*, and mostly died quickly. Moreover, researchers were faced with two challenges – contamination, and lack of a suitable culture medium. Gey tried a wide assortment of concoctions, including the use of blood freshly aspirated from the hearts of live chickens. Henrietta's biopsy was treated in the routine manner – placed in test tubes, laced with culture medium and placed in incubators.

On conducting her routine checks two days later, the lab assistant was astounded by what she saw. Henrietta's cells, labelled HeLa cells from the first two letters of her first and second names, were growing 'with mythical intensity'. It soon became necessary to decant them regularly to cope with the exploding volume. Soon scientists around the world learned of the miracle tissue, and demand saw samples

of HeLa cells being shipped to researchers in New York, India and Amsterdam, and even riding 'into the mountains of Chile in the saddlebags of pack mules'.

In the early 1950s, the world experienced the biggest polio pandemic in history. Jonas Salk devised the world's first polio vaccine, but testing it would require huge supplies of live cells that, at the time, would have involved the sacrifice of thousands of monkeys. HeLa cells proved to be technically more suitable for testing, and much less expensive and messy, than using monkeys. Moreover, HeLa cells grew virtually anywhere and on any surface, including while floating on liquid. A HeLa mass production and distribution centre was therefore established at the Tuskegee Institute, ironically at exactly the same time that the infamous Tuskegee syphilis study on black subjects was being carried out. Soon HeLa cells were to enable the first disaggregation of chromosomes, numerous discoveries from genetic and viral studies, the first-ever cloning of a cell, gene mapping, *in vitro* fertilisation and much, much more. HeLa cells have been irradiated, bombarded with chemicals, and studied in space. Sixty years after Henrietta's death, 50 million metric tonnes of her cells have been grown and continue to populate countless laboratories in countries all around the globe. Yet for decades, until the day that Day Lacks received that confusing call, her family had remained largely unaware of her contribution to medical science, and exactly what her tissue was used for. The story raises ethical, racial and socio-economic issues, some of which have received attention in the years since the 1950s when Henrietta died.

But here's the rub. Driven by unrelenting demand, HeLa cells became the first human biological material to be bought and sold, and trading in Henrietta's cell line became big business worth billions of dollars. Meanwhile, Henrietta's descendants of three generations remain mired in dire poverty, even struggling to access health insurance. Understandably, the family became consumed by a desire to get some of the money, but this proved fruitless. It all seems unjust, notwithstanding the California Supreme Court ruling in a similar but unrelated case that 'when tissues are removed from your body, any claim you might have had to owning them vanishes. When you leave tissues in a doctor's laboratory, you abandon them as waste, and anyone can take your garbage and sell it'.

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