

# SARAH GILBERT

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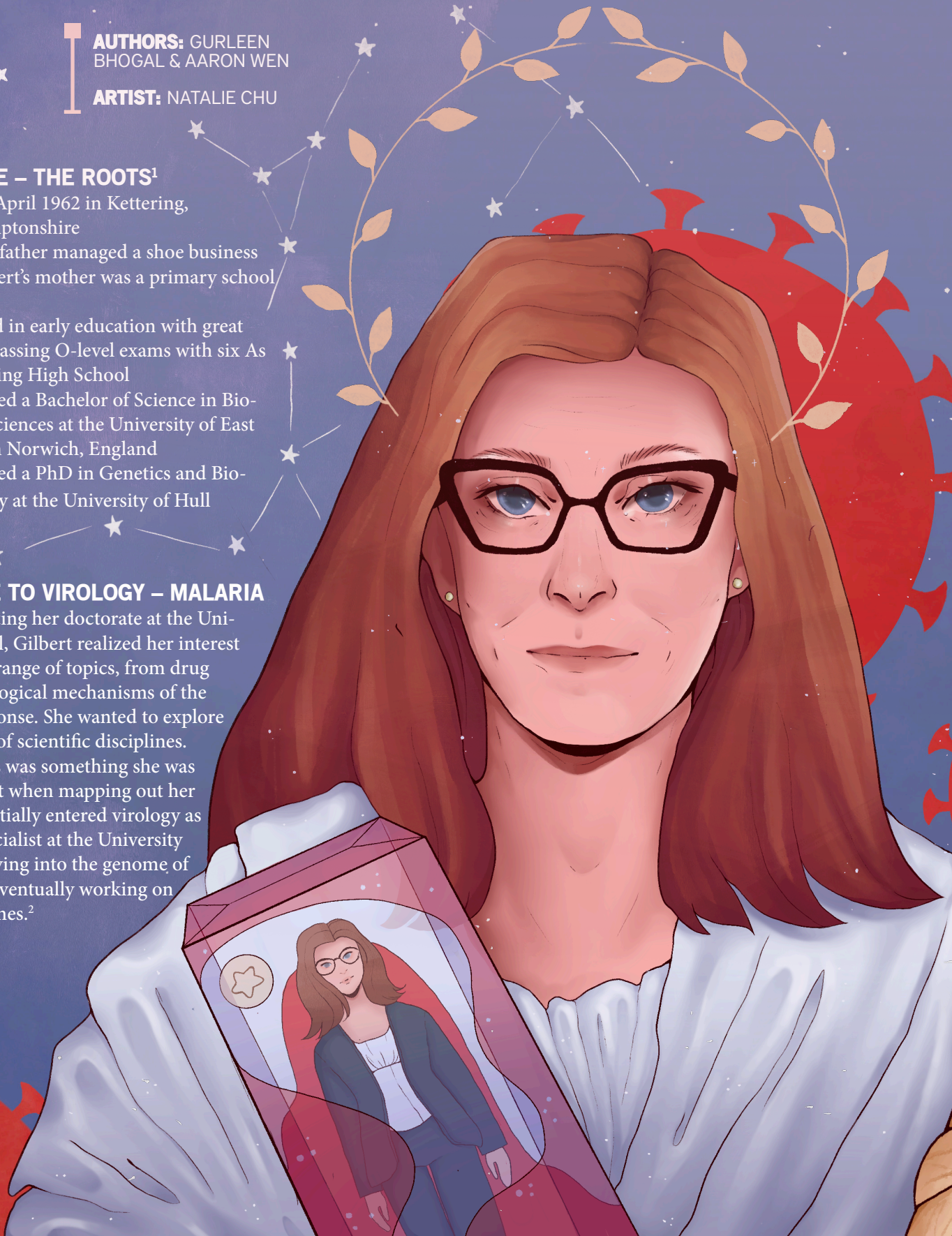
**ARTIST:** NATALIE CHU

## EARLY LIFE – THE ROOTS<sup>1</sup>

- Born in April 1962 in Kettering, Northamptonshire
- Gilbert's father managed a shoe business and Gilbert's mother was a primary school teacher
- Exceeded in early education with great grades, passing O-level exams with six As at Kettering High School
- Completed a Bachelor of Science in Biological Sciences at the University of East Anglia in Norwich, England
- Completed a PhD in Genetics and Biochemistry at the University of Hull

## ENTRANCE TO VIROLOGY – MALARIA

After completing her doctorate at the University of Hull, Gilbert realized her interest lied within a range of topics, from drug design to biological mechanisms of the immune response. She wanted to explore the interplay of scientific disciplines. Although this was something she was hesitant about when mapping out her career, she initially entered virology as a vaccine specialist at the University of Oxford, diving into the genome of malaria and eventually working on malaria vaccines.<sup>2</sup>







## THE DEVELOPMENT OF A UNIVERSAL FLU VACCINE

Prior to the race for the COVID-19 vaccine, Gilbert played a significant role in the development and testing of a universal flu vaccine. Although seasonal influenza vaccines became increasingly accessible throughout the 2000s, several challenges persisted. Vaccines against seasonal influenza were not entirely reliable, and the efficacy was reduced in older and more immunocompromised populations.<sup>3</sup> The approach to the development of this universal flu vaccine was unique. Instead of stimulating the production of antigen-specific antibodies, Gilbert's team worked on harnessing the power of T-cells, which were able to recognize and target essential viral proteins that antibodies could not identify. This created the chance of broad protection against many influenza strains. As of 2019, Gilbert's influenza vaccine was undergoing two phase II trials through Vaccitech, a company she co-founded in Oxford.<sup>4</sup>

## CONTRIBUTIONS TO THE FIGHT AGAINST COVID-19

As COVID-19 emerged in China, Gilbert's team was ready and quick to act. Prior to the novel virus arising, Gilbert's team had already contemplated the nature of a disease with global impacts. Gilbert commented, "We had recently started thinking about an appropriate response to Disease X; how could we mobilise and focus our resources to go more quickly than we had ever gone before. And then Disease X arrived."<sup>5</sup> Once the genome of SARS-CoV-2 was published, Gilbert and her team immediately got to work in the lab, creating the vaccine design within a couple of days and giving rise to the Oxford AstraZeneca vaccine. The creation of this vaccine started off highly theoretical, as it was primarily based on designs for "Disease X" —lacking specificity for SARS-CoV-2 antigens. Gilbert recognized how much work it took to develop the vaccine in a short time period, along with the immense pressure of COVID-19 cases rising and overwhelmed communities.<sup>6</sup> Now, nearly a year since the Oxford AstraZeneca vaccine was released, Gilbert's contributions remain ongoing as her team works closely with AstraZeneca to make new vaccine types against variants of SARS-CoV-2.<sup>7</sup>

## ACHIEVEMENTS

Following the 2021 Rosalind Franklin Lecture on "Racing Against the Virus," Sarah Gilbert was awarded the Humanists UK Rosalind Franklin Medal for her life-saving work on creating the Oxford AstraZeneca vaccine.<sup>8</sup> Her involvement in the creation of the vaccine also won her the Royal Society for Arts, Manufactures and Commerce Albert Medal, joining an exclusive list of award winners including Marie Curie, Alexander Graham Bell, and Stephen Hawking.<sup>9</sup> Other achievements include the Princess of Asturias Award for Technical and Scientific Research and a Gold Medal from the Royal Society of Medicine (RSM), the highest accolade that can be bestowed by the RSM.<sup>10,11</sup> Gilbert's contribution to medicine and society will surely yield further accolades and achievements in the foreseeable future.

## THE BARBIE DOLL – RECOGNIZING WOMEN IN STEM

Some interesting news appeared in early August when Mattel, the company responsible for producing the Barbie doll, created a Barbie of Sarah Gilbert in honour of her work with the Oxford AstraZeneca vaccine. Gilbert initially remarked that she felt the gesture to be "very strange," but hoped that it "would inspire young girls to work in science, technology, engineering, and mathematics." This is not the first time that Mattel has produced Barbie dolls to acknowledge certain influential women. Lisa McKnight, the senior vice-president of Mattel, explained that "to shine a light on the efforts [of those confronting the pandemic], we are sharing their stories... to inspire the next generation to take after those heroes and give back."<sup>12</sup>