

**press release**

*Episode Descriptions*

*DNA*

Series Producer: **David Dugan**

Executive Producer: **Beth Hoppe**

*The Secret of Life (Part One)*

Producer/Director: **David Glover**

*Episode Descriptions*

The discovery 50 years ago of the double helix structure of deoxyribonucleic acid (DNA) by James D. Watson and Francis Crick has been called the single most important discovery of all time. The story behind the discovery has all the elements of high drama – brilliant minds, big egos, bitter rivalries, secrets, and betrayals. In this film, the scientists who took part in the race to discover “the secret of life” remember those exciting, heady years, which marked the birth of DNA science. Watson returns to Cambridge University in London to reveal how his remarkable discovery, at age 23, began with cardboard models in the back of a physics lab. As the double helix is explained in the film, its remarkable structure is illustrated in detail through the use of state-of-the-art computer animation and graphics. The film also recounts the story of Rosalind Franklin, whose data Watson has been accused by many of having stolen. Also featured is the forgotten third man of the DNA story – Maurice Wilkins, Franklin’s colleague, the man who some say betrayed her. The film culminates with rare footage in which the reclusive Crick explains how DNA makes living things.

*Playing God (Part Two)*

Producer/Director: **Carlo Massarella**



In 1973, two scientists, Herb Boyer and Stan Cohen, became the first genetic engineers when they transferred the DNA from one species to another. Their experiment triggered a wave of controversy about the dangers of genetic manipulation, but it also generated a multi-billion dollar industry. Was altering the genetic makeup of plants and animals a threat to humanity or the key to alleviating a host of health problems? Biologists, along with lawyers and journalists from all over the world, were called to a meeting in California to decide the future of DNA research. To quell public fears and pre-empt government regulation, the scientists drew up a strict set of guidelines, which everyone agreed to follow. The panic subsided and the stage was set for a biotechnology bonanza. A race began between Herb Boyer and his new company, Genentech, and a brilliant Harvard professor, Walter Gilbert, to produce genetically engineered insulin, which today saves millions of lives. Later, Rob Horsch, a young researcher who worked for the chemical giant Monsanto, produced the first genetically engineered plant, spawning a research effort that would herald the biggest revolution in agriculture since the industrialization of farming. In this film, scientifically accurate computer animations render DNA visible and help explain some of the challenges researchers faced. The pioneers who carried out the first genetic engineering experiments discuss their groundbreaking experiments and how they have changed the world.

### *The Human Race (Part Three)*

Producer/Director: **Carlo Massarella**

The race to discover the structure of DNA was eclipsed by another race – to catalogue three billion letters of code that make up human DNA. The practical applications and profit potential of mapping the human genome, a virtual instruction manual of the human being, were extensive, from DNA fingerprinting to fighting cancer. In an exclusive interview for this film, President Bill Clinton discusses his involvement in the historic race, which ultimately became a battle. The story began in 1990 when the public Human Genome Project was launched. To show just how complex and colossal a task it was, the film features a real-time simulation of what the human genome looks like – a long strand of DNA coiled up like molecular spaghetti in each cell of the human body. Eight years into the project, a rival, privately-funded bid was announced by Celera's Craig Venter with the goal of being the first to sequence the human genome. A personal feud erupted between Venter and Sir John Sulston, who oversaw Britain's share of the public Human Genome Project. James Watson, co-discoverer of the DNA double helix, had been instrumental in convincing Congress to fund the public project and was incensed by Venter's action. President Clinton recalls his frustrations with the two groups and his concerns that their

fighting would jeopardize one of the greatest scientific efforts of all time. Over pizza and beer in a basement, a go-between met with the rivals and an agreement was made to announce their draft results together in a joint celebration hosted by the White House. On June 26th, 2000, the announcement was made that the human genome had been mapped, an epic endeavor compared in the film by one participating scientist to Lewis and Clark's exploration of the American continent.

#### *Curing Cancer* (Part Four)

Producer : **Tom Alkin**

Director: **Carlo Massarella**

In 1994, Bud Romine was diagnosed with an incurable type of cancer, chronic myeloid leukemia (CML). He was given three years to live. In 1996, a newspaper article caught his eye. It described how a local doctor and researcher, Brian Druker, was looking to test a new kind of cancer drug that targets the damaged gene responsible for CML. In 1997, months away from death, Romine became the first patient ever to take a drug called Gleevec. Within 17 days his leukemia had completely disappeared. Using specially designed molecular graphics to reveal exactly how the Gleevec attacks the cancer, its secrets and those of new drugs like it are revealed. This program tells the stories of several scientists who spend their careers working to trace different types of cancer back to their origins – their DNA. It recounts the race between two scientific groups headed by Drs. Mary Clare King and Mark Skolnick to find the gene that indicates hereditary breast cancer in young women, and tells the emotional story of two sisters who benefited from the outcome of that research.

#### *Pandora's Box* (Part Five)

Producer/Director: **David Glover**

In this program, James Watson gives a tour of the future of DNA science. He believes it should be used to change the human race. His views are both extraordinary and extremely controversial. Watson argues for a new kind of eugenics – where parents are allowed to choose the DNA of their children – to make them healthier, more intelligent, even better looking. This film is his journey through the subject, from a gas chamber in Germany where the mentally ill were murdered by the Nazis to labs today where scientists have found ways to create new strands of DNA. In the program, Dr. Kay Jamison, a renowned neuroscientist who is manic depressive, and the parents of a child with Down's Syndrome make a case for the value of

differences among people in society. Watson talks about his own son, something he rarely does publicly, who is mentally ill. He calls the illness, which was likely caused by a fault in his DNA, a “genetic injustice.” This film, likely to provoke strong disagreement and even outrage, is a journey into the future – a look into Pandora’s box with the person who opened it.

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