The Gene Code

If our genes can tell us where we came from, can they tell us where we are going?

Programme running: 2 x 60 mins Production: BBC HD available

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The Book of Life

The last ten years have been incredible. Since we cracked the genetic make- up of humans in 2001, we've gone on to unravel the code of hundreds of other species. We have decoded the DNA of creatures on nearly every branch of the tree of life. It's an amazing story we've uncovered. Our DNA can help us discover our past and find out and how we got here... and perhaps what our future holds...

As scientists began to explore the chemical structure of our genome, they found a collection of stories, tales of the successes and failures of our human and non human ancestors as they struggled for existence over the last three or four billion years. Hidden within the letters of everybody's genome is an eye witness account, first hand testimony of events that happened hundreds of millions of years ago.

Meet the scientists trying to answer one of the most basic questions: how did the incredible journey that led to a human begin? The genes we share with all other living things hold a clue as to why, around 2 billion years ago, life quite suddenly evolved from simple cells like bacteria to the complex cells like the ones we are made of.

It's a crucial event in evolution. Yet scientists can't agree whether evolution happens by jerks or by creeps. Did humans arrive in a dizzying leap of evolution or did this new form of life take its time? The evidence is not what the scientists might expect.

Unlocking Our Code

It took 13 years to read what has been called The Book of Life. President Clinton claimed that the discovery meant we were "learning the language in which God created life". Unlocking the hidden code within our double helix has changed the world, but not always as we expected.

How does this microscopic code render four chemical letters into flesh and blood? It influences what we look like, how smart we are, our personal qualities and how long we might live. Can tracking down specific mutated genes help us to address devastating diseases?

This episode meets the scientist who, with a little help from a lab and a home testing kit, read his own daughter's genetic code. When doctors were left baffled by her unknown and unique medical condition, he discovered the key to her muscle development condition, offering insights unimaginable ten years ago.

Images: double helix © Andrew Johnson, scientist © Eva Serrabassa.

Distributed by The Open University, Walton Hall, Milton Keynes, UK, MK7 6AA
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