

25 new genomes to celebrate 25 years of the Sanger Institute

November 6 2017



Credit: CC0 Public Domain

To commemorate the Wellcome Trust Sanger Institute turning 25 in 2018, the Institute and its collaborators are sequencing 25 new genomes. From the blackberry to the robin, bush cricket to brown trout, the 25 species all reside in the UK and represent the richness of species in this country. Twenty species have already been decided, and the remaining five will be voted for by the public and school children as part of 'I'm a

Scientist, Get Me Out of Here'.

The results will be made publically available and will lead to future studies to understand the biodiversity of the UK and aid the conservation and understanding of these species.

The Sanger Institute was founded in 1993 by Professor Sir John Sulston as part of the Human Genome Project. The Institute made the largest single contribution to the gold-standard sequence of the first [human genome](#), which was published in 2003.

A [genome](#) is an organism's complete set of genetic instructions written in DNA. Each genome contains all of the information needed to build that organism and allow it to grow and develop.

Since the landmark completion of the human genome, the Sanger Institute has become a globally recognised leader in the field of genomics. Many more important reference genomes have already been sequenced - from the mouse and zebrafish genomes to the pig, gorilla, mosquito and many others. Beyond animal species, infectious diseases and bacteria also feature prominently on the list of reference genomes, from salmonella and MRSA to chlamydia and malaria. All of these have offered up important insights about these species in health and disease.

Now, the Sanger Institute and its partners are comprehensively sequencing 25 species from the UK. This project is a small contribution to a much larger undertaking, where scientists from around the world are coming together to form a plan to sequence all life on Earth.

The high-quality genomes will open the door for scientists to use this information, and researchers could discover how UK species are responding to environmental pressures, and what secrets they hold in their genetics that enables them to flourish, or flounder.

Professor Sir Mike Stratton, Director of the Wellcome Trust Sanger Institute, said: "Twenty five years ago the field of genomics was a budding idea and its implications only dreamed of. Today the reality of genomics and biodata is that it is transforming our understanding, diagnosis, and treatment of diseases, ranging from cancer and heart disease to malaria and infections. The science and technology that is driving this era of discovery is accelerating our understanding of the human body, but also of the world around us.

This project has come after many thoughtful conversations around the world with regard to how many of the species on our planet could be sequenced in the coming decades - in principle, all of them. We are embarking on our contribution to sequencing all life on Earth."

Dr Julia Wilson, Associate Director of the Wellcome Trust Sanger Institute, said: "Through sequencing these 25 genomes, scientists will gain a better understanding of UK species, how they arrived here, their evolution, and how different species are adapting to a changing environment. The results could reveal hidden truths in these species, and will enable the scientific community to understand how our world is constantly changing and evolving around us. We want to celebrate the 25th anniversary of the Sanger Institute in a special 'Sanger' way, and I am excited to see how the 25 Genomes Project unfolds."

This project has been made possible by PacBio long-read sequencing technology, which generates high-quality genomes for assembly. The Institute is partnering with PacBio and other leaders in the technology sector, 10x Genomics and Illumina, to create the most comprehensive view of these genomes.

The 25 species are divided into five categories depending on the qualities they share: Flourishing, species on the up in the UK; Floundering, endangered and declining species; Dangerous, invasive and

harmful species; Iconic, quintessentially British species that we all recognise; Cryptic, species that are out of sight or indistinguishable from others based on looks alone.

Tim Littlewood, Head of Life Sciences at The Natural History Museum said: "The Natural History Museum is proud to be collaborating with the Sanger Institute to celebrate their 25th birthday and also to celebrate the advances that molecular techniques such as genome sequencing can bring to the study of UK wildlife. The 80 million specimens we care for, from around the world, hold a wealth of genetic information that enables us to conduct innovative research, addressing global challenges. A focus on UK biodiversity with cutting edge technology is particularly welcome."

So far, twenty of the 25 species have been decided, and the remaining 'big five' will be voted for by school children and the public as part of 'I'm a Scientist, Get Me Out of Here,' from 6th November to 8th December 2017. Scientists and teams from the Sanger Institute, wider Wellcome Genome Campus, Natural History Museum, and other institutions will champion a species and go head to head to face the public vote. The final five standing will complete the set of species to send to the sequencers.

Lucy Robinson, Citizen Science Programme Manager at the Natural History Museum said: "It's fantastic to be putting school students and the people of the UK in charge of the direction of our scientific research. Through chatting with scientists and voting using the online platform, they can steer this genomic research towards the [species](#) and issues they really care about."

Provided by Wellcome Trust Sanger Institute

Citation: 25 new genomes to celebrate 25 years of the Sanger Institute (2017, November 6)
retrieved 2 May 2024 from <https://phys.org/news/2017-11-genomes-celebrate-years-sanger.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.