Iceland’s population proves invaluable to genetic research

The journal Nature Genetics released a set of four papers based entirely on the genetic sequences of Icelanders. Their results, which range from the identification of a new Alzheimer’s-associated gene to the age of the most recent male ancestor shared by all humans, are part of a long history of genetic discoveries from deCODE, a company that has been collecting and analyzing Icelandic genomes for 18 years. Their findings will help guide medical research and the understanding of human evolution. But more important than the results themselves are where they came from—and what that origin story says about the future of genetic research.

In these latest studies, deCODE sequenced the full genomes of 2,636 Icelanders, along with less detailed genetic information from more than 100,000 others, in the form of genotyping microarrays like the ones used by 23andMe that look at every 10,000 or so of the genome’s 3 billion letters. That covers almost a third of the entire population—and Iceland’s genealogical and medical records are famously exquisite. “The Icelandic system is the perfect system to do this in,” says Lisa Brooks, director of the genetic variation program at the National Human Genome Research Institute. Established by Norsemen and Celts in 9 A.D., Iceland has a remarkably homogenous population that can trace its lineage to just a few common ancestors, according to Kári Stefánsson, deCODE’s founder and CEO. That means that there’s less genetic variation, which in turn means less background noise to interfere with the identification of meaningful gene variants. In the new papers, the tally is 20 million variants, some of which have already been linked to diseases.

Read full, original article: Why Iceland is the world’s greatest genetic laboratory