



THE UNIVERSITY *of* EDINBURGH

News Release

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Hi-tech system aids gene scientists' bid to meet global challenges

Scientists in Scotland have gained access to the most up-to-date gene sequencing technology, aiding research to better understand human and animal diseases.

The technology – acquired by the University of Edinburgh – will enable studies into the genetics of virtually any species, including bacteria and viruses as well as plants.

Experts at the University's Edinburgh Genomics facility say the new system from Illumina – called the NovaSeq™ 6000 – offers the greatest flexibility yet. It will allow researchers to complete projects faster and more economically than ever before

The machine can process three times as many samples as its predecessor and will cut the time taken to complete an analysis by a third.

Researchers can use this technology to rapidly decode the entire DNA of an organism, known as whole genome sequencing.

The new system also has the ability to analyse specific regions of the genome that are of interest – an approach called targeted resequencing, which is less data intensive.

Scientists can tailor results according to their study's needs, within their time and budget constraints.

Edinburgh Genomics will be the first site in Scotland to deploy NovaSeq technology since its launch earlier in the year by Illumina, a global leader in sequencing and genomics.

The acquisition adds to the broad range of cost-effective, high quality sequencing services offered by the facility.

Edinburgh Genomics already has a portfolio of instruments specialised for high-throughput sequencing of human and non-human genomes. These include the HiSeq X system for large volume whole genome sequencing projects.

The facility is also able to decode another type of genetic material called RNA, which is produced by cells when DNA is translated into the proteins and molecules that make up tissues. Using a technology called RNA-seq, the team can analyse the total RNA in a sample, revealing a snapshot of the genes that are being expressed at that time.

Ranked among the top universities in the world

Additionally, scientists have expertise in a technique called ChIP-seq, which allows researchers to analyse DNA interactions with protein molecules in a sample.

Joel Fearnley, Edinburgh Genomics' Chief Operating Officer, said: "We have worked with four generations of Illumina sequencing technologies and acquiring the NovaSeq 6000 underscores our long-standing relationship with Illumina and our ambition to continue delivering the most competitively priced sequencing services and the highest quality data."

Professor Bruce Whitelaw, Chair of Edinburgh Genomics at the University of Edinburgh, said: "Gaining our first NovaSeq demonstrates Edinburgh Genomics' commitment to continue leading the provision of sequencing services for those academic, agritech and medical groups who aspire to deliver genomic data-driven innovation within their research."

Professor John Hickey, Chair of Animal Breeding at The Roslin Institute, commented; "Having partnered with Edinburgh Genomics for several largescale animal breeding projects, I believe that the new NovaSeq system could be a game-changer for low coverage Whole Genome Sequencing."

Paula Dowdy, Senior Vice President and General Manager of Illumina, Europe, Middle East, and Africa, said: "Illumina is delighted to have Edinburgh Genomics adopt the NovaSeq 6000. We believe our most advanced sequencer will play a crucial role in Edinburgh Genomics' future strategy."

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