

BIOTECHNOLOGY

Embryo editing gets green light

UK decision sets precedent for research on editing genomes of human embryos.

BY EWEN CALLAWAY

A team of scientists in London is preparing to edit the genomes of human embryos for research. The UK Human Fertilisation and Embryology Authority (HFEA) approved the work on 1 February in the world's first such endorsement. "It's an important first," says George Daley, a stem-cell biologist at Boston Children's Hospital in Massachusetts. "This establishes a strong precedent for allowing this type of research."

The successful applicant is developmental biologist Kathy Niakan, at the Francis Crick Institute in London. Her team plans to use the CRISPR-Cas9 technique in healthy human embryos to alter genes that are active just after fertilization. The researchers will stop the experiments after seven days, when the embryos will be destroyed.

The genetic modifications could lead to treatments for infertility, but will not themselves form the basis of a therapy.

Robin Lovell-Badge, a developmental biologist at the Crick institute, says that the HFEA's decision will embolden other researchers. He has heard from other UK scientists who are interested in pursuing embryo-editing research, he says, and expects more applications to follow. Researchers also expect the decision to reverberate beyond the United Kingdom. "I think this will be a good example to countries who are considering their approach to regulating this technology," says bioethicist Sarah Chan at the University of Edinburgh, UK. "We can have a well-regulated system that is able to make that distinction between research and reproduction."

It remains illegal to alter the genomes of embryos used to conceive a child in the United Kingdom. But Tetsuya Ishii, a bioethicist at Hokkaido University in Sapporo, Japan, says that the HFEA decision could also stimulate debate over deploying embryo gene editing in clinical settings.

At a press briefing last month, Niakan said that her team could begin work within "months" of the HFEA approving the application. First,

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however, a local research ethics board (similar to an US institutional review board) must approve the work. ■



Ludwig Maximilian University of Munich is part of a government-backed 'cluster of excellence'.

GERMANY

Science hubs win in major revamp

Research clusters emerge as the big success of Germany's Excellence Initiative — despite its focus on elite institutes.

BY QUIRIN SCHIERMEIER

For many, Munich's fame rests on the Oktoberfest beer festival. But for astrophysicist Stephan Paul, what makes the Bavarian capital so charming is its universities' rise to stardom in studies on the origin and structure of the Universe.

The region has long been a national hub for physics, but its appeal to theorists and particle physicists has soared in recent years thanks to a well-funded research programme that brings together the city's two large universities — the Technical University of Munich (TUM) and Ludwig Maximilian University (LMU) — and several Max Planck institutes in nearby Garching.

"The research infrastructure here is top-notch and the concentration of expertise is quite unique," says Paul, a physicist at the TUM who coordinates the programme.

The programme is one of 43 'clusters of excellence' launched in 2011 as part of Germany's €4.6-billion (US\$5-billion) Excellence Initiative. The clusters are among the ten-year-old initiative's most tangible

successes, according to a major report released on 29 January by an independent, international panel (see go.nature.com/qxo768).

The hubs bring together research groups — either within a university or across different institutes in the same region — that previously had little contact, so that they can pool their facilities and build on each other's successes. "We were surprised to find out how much good science there was just around the corner," says Paul.

The report, commissioned by Germany's federal government and its 16 state governments, strongly recommends that they continue the excellence initiative, in particular the highly successful clusters. The report is less conclusive on the initiative's success in achieving its much higher-profile goal: to produce a top-ranked research powerhouse akin to Harvard University or the universities of Oxford or Cambridge.

"The high quality of science produced at the clusters of excellence is particularly impressive," says Dieter Imboden, a Swiss environmental physicist and long-time science manager who chaired the evaluation panel.

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CORRECTION

The dollar conversion of €4.6 billion in the News story 'Science hubs win in major revamp' (*Nature* **530**, 18–19; 2016) should have been US\$5 billion not \$5 million.