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GENE EDITING

What Gene Editing Can Do for Humankind

By Walter Isaacson
WSJ. MAGAZINE |

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In the spring of 2014, Jennifer Doudna had a nightmare.

The Berkeley biochemist had helped to invent a powerful new technology that made it possible to edit the human genome—an advancement that made her the recipient of a Nobel Prize and a Time cover story. She was also a mother who had spent her life working to help billions years in fight off viruses, a talent she referred to as Doudna Doudna. In their DNA, bacteria develop clustered, repeated sequences (what scientists call CRISPRs) that can recognize and then chop up invader viruses. Doudna and her colleagues had adapted the system to create a tool that can edit DNA—opening up the potential for curing genetic diseases, eliminating viruses, and even, perhaps, creating a new generation of humans to fight their ever-more-agile viruses.

But Dr. Doudna's nightmare didn't concern these happy prospects. It, she was asked to meet someone who wanted to meet Jennifer Doudna. CRISPR. When she entered for the meeting, she recalled, fitting to her dream, "I was faced with Hitler with the face of a pig." I went to understand the uses and implications of this amazing technology (we're discussed it), said.

Chinese geneticist He Jiankui, seen speaking during a November 2018 conference on human genome editing at the National Academies of Sciences, Engineering, and Medicine.
PHOTO: JONATHAN NEWTON/THE WASHINGTON POST

Four years later, Dr. Doudna, a young Chinese scientist who had attended some of Dr. Doudna's conferences, used it to create a set of twins who had been genetically altered in ways whose DNA had been edited when they were embryos to remove a gene that produces a receptor for the virus that causes AIDS, intending to make them immune to HIV and their shock. Anna Rafael, commentors criticized. After more than three billion years of the virus, the human genome had evolved to be resistant to the virus, and Dr. Doudna had made a mistake. Or, perhaps, she had made a mistake. Or, perhaps, she had made a mistake. Or, perhaps, she