



Reasoning with Ethics

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A Project of The School for Ethical Education | www.ethicsed.org

Ethics in action creates character.

Use this blog to:

1. Lead class discussions in social studies, civics, ethics or advisory classes.
2. Teach students skills to analyze cases with core ethical values.
3. Recognize skills in support of SEE's Tri-Factor Model of ethical functioning.

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Risks and Reward of Gene Editing

The 2020 Nobel Prize for Chemistry was recently awarded to Emmanuelle Charpentier and Jennifer A. Doudna. Together, they developed the gene-editing tool with the acronym of CRISPR. This technology holds tremendous promise and risks.

Doudna, working at UC Berkeley, is quoted in the Nobel announcement as saying, "What started as a curiosity-driven, fundamental discovery project has now become the breakthrough strategy...to help improve the human condition...I encourage...public discourse about the ethical uses and responsible regulation of CRISPR technology."

The possible benefits in the technology include the genetic enhancement of farm crops and animal husbandry along with medical advances to cure human diseases. Risks include unleashing genetically modified organisms into the ecosystem, which could corrupt future genomes with irreparable damage.

Similarly, the great potential to solve difficult medical challenges for humans is matched by many risks and ethically questionable possibilities that include permanently altering the human genome and creating *designer babies*. Designer babies, who might be created with enhanced abilities at great expense, opens the question of expanding the divide between the worlds' rich and poor. Wealthy people and their future generations who could afford the procedure might benefit from the birth of children with greater strength and intelligence. The ethical risks of enhancing eugenic goals are alarming to consider. Doudna acknowledges the risks in her advocacy for restricting the use of CRISPR to avoid any genome editing that could be passed to future generations.

As Doudna's ethical concerns are not internationally shared, SEE asks students to review the supplemental links on this blog's website and discuss with peers the meaning and importance of developing ethical standards with international enforcement for the use of CRISPR. Are there core ethical values that might guide and restrict the application of CRISPR? What related ethical questions arise from the use of CRISPR? What type of enforcement agency would have to be created to regulate the international use of CRISPR?

Supplemental Links

CBS News: <https://www.cbsnews.com/news/nobel-prize-emmanuelle-charpentier-jennifer-doudna-chemistry-crispr-gene-editing-tool/?intcid=CNM-00-10abd1h>

The Ethics of CRISPR with Jennifer Doudna, UC Berkeley (2015) (2:33)--
<https://www.youtube.com/watch?v=8Ijr1ccYptI>

The Ethics of Crispr: Where do we draw the line- (5:34)--
https://www.youtube.com/watch?v=A_y8eheuJ8U

CBS Video on Perils of Gene editing (6:57)-- <https://www.cbsnews.com/news/nobel-prize-emmanuelle-charpentier-jennifer-doudna-chemistry-crispr-gene-editing-tool/?intcid=CNM-00-10abd1h>

Journal of Molecular Biology, Brokowski, (1/4/19) CRISPR Ethics--
<https://www.sciencedirect.com/science/article/pii/S0022283618305862>

