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HSA TIMES

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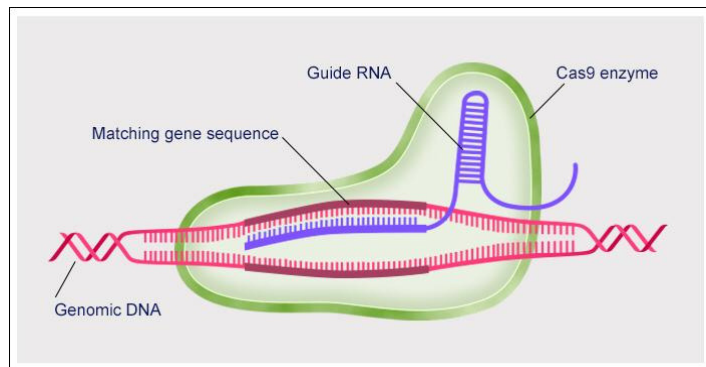
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CRISPR: The Gene Editing Tool of Tomorrow



Isabella Panagiotou &
Courtney Price | Grade 12



What if we lived in a world where we could change how tall we were, decide the color of our children's eyes, or even cure disease? All this may seem like something straight out of a science fiction novel, but recent scientific revolutions have made these concepts seem closer to reality than fantasy. Due to the discoveries of Jennifer Doudna and other researchers, genetic engineering has been introduced to the power of CRISPR: Clustered Regularly-Interspaced Short Palindromic Repeats.

CRISPR was first identified as a bacterial defense mechanism against viruses. Bacteria use the CRISPR sequence, along with various protein complexes called Cas, in order to destroy the DNA of invading viruses and prevent infection. Jennifer Doudna discovered a way to harness this natural technology and edit the genomes of other cells with this bacterial defense. CRISPR acts as "a molecular pair of scissors," not only able to chop up and destroy the DNA of viruses, but also able to make precise cuts in other strands of non-viral DNA ("Biologist Explains One Concept in 5 Levels of Difficulty"). Researchers are attempting to apply this technology to gene therapy for inherited diseases, such as cancer, blood disorders, and cystic fibrosis (Fernandez). This can be done by cutting out genes that cause these types of illnesses and inserting healthy genes in their place. CRISPR can also be used to "activate gene expression instead of cutting the DNA," which could be used to cure other diseases that involve faulty expression of genes rather than errors with the genome itself ("Questions and Answers About CRISPR"). There are also possibilities of editing the DNA of sperm and egg cells, as well as the editing of fetuses still in development, which would carry any genetic changes down to future generations.

However, there are many ethical issues that are raised with the use of CRISPR. One main consideration is that editing sperm and egg cells “raises the possibility of unintended consequences for future generations,” meaning that any errors made during gene editing with CRISPR would affect and even harm more than just one individual (Vidyasagar). In addition, embryos cannot possibly consent to such editing. There are also concerns that the price of such technology would be limiting and even cause it to be unavailable to many people who need it simply because of their economic status (“Biologist Explains One Concept in 5 Levels of Difficulty”). Despite these concerns, CRISPR could prove to be an excellent tool for gene therapy.

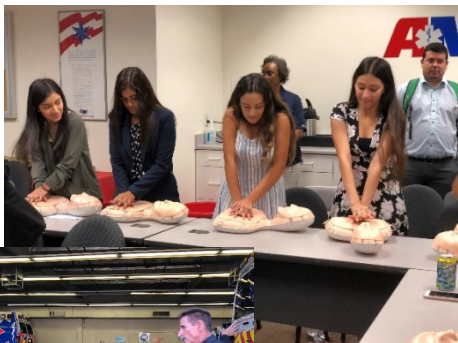
American Medical Response: Experienced in a Heartbeat



Safi Saleem | Grade 9



From the moment I stepped into the AMR center in Rancho Cucamonga and after leaving, I have found the trip to be eye-opening and memorable. Going into the trip I had little expectations for learning or experiencing anything new. Instead, I got to know each person's unique story and experiences with their careers. Along with other HSA students, we watched a presentation showcasing the company's accomplishment over the past years. We learned the center was responsible for emergency transport and non-emergency transports to hospitals. We were then separated into groups and toured the whole facility. One of the places that gripped my attention was the 9-11 call center. Walking into the room, one of the things that stood out was the huge TV monitors showcasing the location of the San Bernadino city. Looking around were heavily focused people with headphones on responding to emergencies. Their sheer determination was felt by everyone looking at them as they calmly worked on answering people's call. Then, I got to meet an EMT who told a story where he had a huge dilemma with one of his coworkers who came to the job drunk. His coworker had pleaded with him that he was sober and even gave him evidence by walking in a straight path. Though, he had a choice to say nothing or tell someone, he decided that for the safety of patients he forced the coworker to take the day off. Ultimately, he said that if anyone found out he would've lost his job. Nevertheless, I wasn't the only one who experienced something memorable.



Anuthmi Waas (9th grade) was able to get a special tour inside a baby ambulance. She described it as “the most memorable part of the trip was looking at the baby's incubator and oxygen tank.” The American Medical Response provided all of us a hands-on experience of each part of the center. Noemi Ruvalcaua (9th grade) was able to learn how to do CPR hands-on and described the work environment as, “A very close and tight bond between people.” After completing the trip, it has given me better knowledge on what working in the medical field was like and exposed me to new experiences I would never forget.

Photographed by Safi Saleem

Proposition 8

Regulating the amount that Outpatient Kidney Dialysis Clinics charge for Dialysis Treatment

Supporting

Shreya Arcot | Grade 10



Dialysis is a life-changing process that patients with kidney failure must undergo, unless they get a kidney transplant. It is a process in which a patient's blood is taken out, put into a machine to get rid of wastes, something that their kidneys cannot do, and put back into their bodies. This must be performed around three times a week. Without dialysis, these patients can die due to large amounts of toxin build up in the body. Dialysis patients mainly undergo this process in dialysis clinics. However, some of these clinics are unsanitary, as the "employees...failed to wash their hands properly, disinfect equipment or change gloves between patients, [and there was] blood on treatment chairs," according to the New York Times.



With conditions like these, performing dialysis can be very dangerous for patients. In addition to that, dialysis patients are charged "...as much as 350% above the actual costs of providing care, or as much as \$150,000 per year," based on the CA General Election Voter Guide. Thus, they must pay high prices for poor treatment. The solution? Proposition 8. With this proposition, dialysis centers would report all their costs/revenue to the state government. Then, they would be capped at 15% profit. This means that 15% of the clinics' profit would be used as profit and pay for managers. The remaining 85% would be directed towards more quality patient care and service. Also, clinics can only charge patients 115% of the actual cost, versus 350%. If patients are charged over 115%, then that extra money must be refunded to the patient's insurance.

Some people might say that Prop. 8 will close dialysis clinics, which puts dialysis patients' lives in risk. However, their lives are already in danger due to the filthy conditions in the clinics. If sterile conditions are not provided for patients, they can acquire a deadly disease or infection. In addition, it is unfair that dialysis patients must pay so much money for their treatment, only for it to be dangerous and unhealthy. With this proposition, clinics would spend more time and money improving the conditions for dialysis patients. Furthermore, not only do high dialysis costs affect the patients, but they also affect all Californians. The Voter Guide states that since dialysis prices are so high, "insurance companies are forced to pass those costs on to policyholders, driving up healthcare costs for all Californians." If Prop. 8 does not pass, dialysis costs will remain very expensive, and Californians will ultimately have to help pay for dialysis for. Thus, Proposition 8, supported by many organizations, like the Service Employees International Union California, is a valuable tool for putting patients and their well-being first and dialysis profit after. Vote yes for Prop. 8.

Opposing

Ayesha Karim | Grade 11



Proposition 8: Regulates amounts outpatient kidney dialysis clinics charge for dialysis treatment. Sounds great, right? Well...not exactly. While some may argue that this proposition will bring lower prices for dialysis patients and benefit them, we need to look at the big picture. Patients on dialysis have kidney failure and are very sick. They require dialysis three days a week, four hours at a time to do the job of their kidneys to remove toxins from the body. These patients cannot survive without regular treatments.

Proposition 8

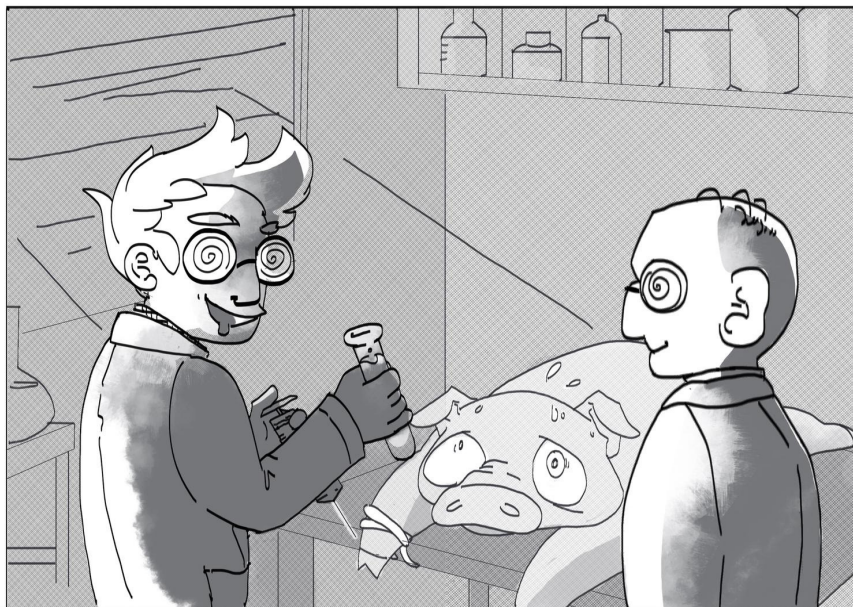
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Prop. 8 dangerously reduces access to care and places vulnerable patients at serious risk. Proposition 8 severely limits what insurance companies are required to pay for dialysis care. These arbitrary limits will not cover the actual cost of providing care. In fact, an independent analysis conducted by California's former Legislative Analyst concluded Prop. 8 will result in 83% of dialysis clinics operating at a loss. That will force hundreds of clinics to reduce operations or close, endangering patients. Without access to community clinics, patients will have to travel long distances, miss treatments or end up in the emergency room. Patients may have to currently pay more, but at least they have somewhere to pay to. Without these hundreds of clinics, it will be harder for patients to even reach their appointments. Missing even one appointment can be fatal for dialysis patients.



By limiting access to dialysis care, this proposition jeopardizes patient lives. "As emergency physicians, we regularly treat dialysis patients who end up in the ER due to missed appointments or complications from kidney failure. This proposition will increase the risk of life-threatening complications for these very vulnerable patients," announced Dr. Aimee Moulin, President of the American College of Emergency Physicians. Additionally, California dialysis clinics are already highly regulated by federal and state regulators that provide quality reports on every facility. According to the federal Centers for Medicare & Medicaid Services, California clinics outperform other states in clinical quality and patient

satisfaction. So if our clinics are so good, why are we trying to fix something that isn't broken? Furthermore, supporters of this plan may argue that the proposition will lower health care costs, using less taxpayer money, but this is actually completely untrue. When clinics close, dialysis patients end up in the ER where care is more expensive. According to the former Legislative Analyst, this measure will increase taxpayer costs by nearly \$300 million annually. For these reasons, doctors and nurses state wide have said no to this proposition, and you should too.



CRISPR

Janice Wu | Grade 11

"If we genetically edit the pig, we can make the bacon CRISPR."

CHHS Blood Drive

November 29, 2018



Photographed by Giselle Orozco

For Chris



Ryan Lo | Grade 10



Chris was one of ours, and as a part of the HSA class of 2021, he would've graduated and walked with us into adulthood two years from now. However, he lost that opportunity on October 12, 2018 when he passed away. When the news broke, many of us reacted in different ways. However, we were all aware of the empty seat in the back of the room that would never be filled. Needless to say, we thank the dedicated Chino Hills counselors for being there for us. From now on, graduation, field trips, labs and internships are always going to have one less participant. Chris was quiet, but he didn't need many words to make his voice heard. He was a diligent student, loved by his teachers and well-liked by his friends. To some of us, he was a hard-working classmate we could count on to help get assignments done. To others, he was always that shoulder we could lean on when times were tough.

We, at HSA, send our best wishes to his family and pray for their wellness in this trying time. However, we must not lose sight of the bigger picture. We must remind ourselves that we are a family dedicated to helping others and that Chris's death was not in vain. We will be able to honor Chris's memory by helping others in life in a way that he didn't get to. We lost one life today, we'll save three tomorrow. We'll never ever stop loving, caring and striving to be the best we can be. After all, it's what he would've wanted. So, Chris, thank you for being a part of our family. We will miss you a lot.

Internship: Pomona Valley Hospital Medical Center



Najia Saleem | Grade 11

There are many noteworthy internships that HSA students can apply for that allow students to discern the career pathway that is right for them or figure out what they definitely do not like to do, a tremendous save in time and energy. When 11th grader Alyssa Tejeda went on a field trip to Pomona Valley Hospital Medical Center (PVHMC), she learned of their junior volunteer program and was enticed by the friendly staff and the opportunity to get hands-on experience in a hospital setting. Thus, Alyssa applied to the program, was invited for an interview, attended orientation, took an exam on hospital ethics and procedure and has been working there ever since. For Alyssa, the internship has taught her so much, and she especially emphasizes learning, "... the basics of patient care and how to properly interact with patients, their families, nurses, and other health care professionals."



She works every week at PVHMC from 4 pm to 7 pm on MedSurg 4, a floor where patients wait for surgery and recover after surgery. In this department, Alyssa helps discharge patients, sanitize medical equipment and stock isolation room carts with gloves, masks, hand sanitizer, and isolation gowns. For her, the best part is checking up on all of the patients because it has allowed her to become more comfortable with interacting with patients with sensitivity to their situation. Alyssa says that, "Volunteering at the hospital has further solidified my desire to work in a hospital when I go into my career [neonatologist]." By taking an internship next semester, perhaps you will learn to care for patients like Alyssa has, find the career that you have a passion for like Alyssa or at the very least you'll learn what you don't want to do. Either way, internships are immensely valuable for work experience, and these programs, like PVHMC's junior volunteer program, will benefit you.

WORD SEARCH

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F	U	A	X	I	L	M	E	G	N	U	K	L	E	V	J	S	F	A	H
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R	R	C	S	A	S	H	R	H	U	Z	I	I	S	C	I	H	T	E	D

CLINICS

HOSPITALS

PATIENTS

CRISPR

HSA

PHYSICIANS

DIALYSIS

INSURANCE

PROFESSIONALS

DNA

INTERNSHIP

PROPOSITION

EMERGENCY

NEONATOLOGIST

PVHMC

ETHICS

OPERATIONS

TECHNOLOGY

GENE

OPPORTUNITY

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