**Scientific Communication Writing Assignment Rubric – Peer Evaluation**

**Your name:** Olivia

**Assignment reviewed:** Jenny Nguyen, “Genetic Engineering with CRISPR”

Overtime scientists are able to create and discover new technology advancements and develop new methods to help human health. One technology discovery that help change genetic engineering for scientists is CRISPR or CRISPR-Cas-9. CRISPR stands for Clustered Regularly Interspace Short Palindromic Repeats, and it’s a technology genome-editing tool that can alter gene expression bymodifying, deletion, and insertion of a particular gene. Genome-editing can be a great tool to help prevent diseases and remove mutations and insert new customized DNA. CRISPR can work on many different types of cells like microorganisms, plants, animals, and humans.4 CRISPR has a huge impact and influence to help end diseases like HIV, retroviruses and cancer, and also genetic diseases. But there are some ethical concerns that CRISPR can create “designer babies”, which is creating an embryo that is genetically modified, that will carry specific traits.2This techniquerequires two components: Guide RNA and the Cas-9 protein.1 The Cas-9 protein is an enzyme that will attach to the targeted DNA and will cut the DNA. The other important component is the guide RNA, and it will help the Cas-9 protein locate where the target DNA is. CRISPR can be known as a defense system against viruses within bacteria that are trying to alter the DNA strand. The bacteria are able to collect the viruses’ DNA in small sections call CRISPR arrays and these arrays help the bacteria remember in case it attacks again. Thanks to the CRISPR arrays, it will detect the next virus invasion and will produce RNA segments that will attach to the viruses’ DNA.3 Finally they have the Cas-9 protein which cuts the section of DNA off, which then allows the virus to unable to function. CRISPR not only can delete viruses’ DNA from bacteria but can modify and insert DNA into a cell’s DNA. First, scientists identify the sequence in the genome that is going to be altered. This sequence might need to be altered either with modifying, deletion, or insertion of new DNA due to causing a health problem and concern. Then a guide RNA will be created and will bind to the target sequence DNA. This allows the Cas-9 to recognize where the RNA is, and it will attach to the RNA and cut the targeted DNA sequence. From here there are many different altering that can happen. One alteration method is modifying, which can alter a nucleotide or sequence. Another method is deletion which removes the mutated gene, but it can be followed by an insertion, which will add a customized sequence it helps improve the cell.

Primary source: Ledford, H. CRISPR: gene editing is just the beginning. Nature 531, 156–159 (2016).

During Biology, we have been focusing on cell cycle and also gene regulation, and I wanted to focus on a tool that can alter the way cells behave. I learned about this topic during online learning due to Covid, and I had a good understanding of what CRISPR is but I wanted to jump back in and relearn this topic.

**Using the rubric below, please evaluate each of your assigned news articles in each of the areas shown, filling out a separate evaluation form for each news article. Please highlight the part of the rubric text that explains why you chose a specific assessment category. In the “General Feedback” section at the bottom of this form, please include more specific feedback, including things that you liked as well as things that you feel could be improved upon and suggestions on how to improve them.**

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| --- | --- | --- | --- |
|  | **Excellent** | **Good** | **Needs Improvement** |
| **Content:**  **Does the news article convey the writer’s understanding of a biological topic?** | The news article introduces a biological topic and clearly illustrates the writer’s understanding of the topic including what is known and not known about it and how understanding the biology associated with the topic helps us understand larger issues or concepts. | The news article introduces a biological topic and presents information about it, but the topic is not explained clearly or doesn’t distinguish between what is known vs. what is not known or doesn’t explain how understanding the biology associated with the topic helps us understand larger issues or concepts. | The news article does not illustrate the writers understanding of the topic and does not indicate what is known vs. what is not known or how understanding the biology associated with the topic helps us understand larger issues or concepts. |
| **Audience:**  **Is the writing appropriate for the target audience?** | The news article avoids jargon and clearly defines terms and ideas for a non-expert audience. | The news article defines or explains some terms, but some key terms or ideas would be challenging for a non-expert audience. | The news article lacks definitions and explanations, making the topic inaccessible to a non-expert audience. |
| **Organization:**  **Is the news article clearly organized?** | The news article is well organized and easy to follow with good transitions between the paragraphs. | The news article is generally organized and easy to follow but conceptual connections aren’t always clear. | The news article is disorganized, and the information presented doesn’t flow well. |
| **Rubric continues on next page** | | | |
|  | **Excellent** | **Good** | **Needs Improvement** |
| **Format, spelling & grammar:**  **Does the news article follow the recommended format and is it free of writing errors?** | The news article follows guidelines for paper length and format and has been carefully proofread for spelling and grammatical mistakes. | The news article is outside the recommended length or does not conform to the formatting guidelines; the news article contains a small number of spelling and/or grammatical errors. | The news article is significantly outside the recommended length and does not conform to the formatting guidelines; the news article contains numerous spelling and/or grammatical errors. |
| **Citations:**  **Are the citations presented appropriately?** | The news article contains appropriate in-text citations and a list of references for all source material. | The news article is missing either appropriate in-text citations or a list of references. | The news article is missing appropriate in-text citations and a list of references OR citations are missing for one or more sources. |
| **Rationale for choosing topic:**  **Did the writer indicate why they chose the topic?** | The rationale for choosing the topic is clearly explained. |  | No rationale for the topic’s choice is provided. |

**General feedback (5 points):**

Overall, this essay did well with formatting and introducing the biological concept, but it needs improvement. CRISPR is explained briefly at the beginning, however, I found it hard to understand how it worked since the structure did not flow well and some parts were confusing. Sentences need to be clearer and avoid explaining how it works in two different paragraphs, try to summarize into one or else it becomes repetitive and confusing for the readers—especially for a general audience with no background in biology.

**Overall assessment (excellent, good, needs improvement):** Needs improvement.