A primary research article is an original document or report of new research findings or data. These articles describe new, original research and experiments performed by the authors. Primary articles often include an introduction, methods, results, discussions, and references sections. Specifically in the methods, authors will provide descriptions and details of the materials and methods used during their experiments to allow for possible replication. In the results section, the authors will present experimental data including graphs, tables, charts, etc. Oftentimes, primary articles are peer-reviewed before publication and/or published in peer-reviewed journals. This allows experts in the field to examine and evaluate the article and its contents before publication.

A review article is a comprehensive summary and analysis of research on a specific topic. Unlike primary research articles, which report on original research findings, review articles synthesize and integrate pre-existing research to provide a broad overview of a particular subject. Review articles allow readers to grasp an understanding of a specific topic through key concepts and developments in the field. These articles are especially helpful to readers who do not have a good understanding of a specific topic. Review articles do not provide all of the information or existing research on a particular topic but rather a compiled summary of information to provide an outline of important concepts and trends.

The scientific peer review process is a rigorous step-by-step process to ensure and validate a research article prior to its publication. First, an author will acquire their research and findings and compose a draft research article which they will then submit for publication in a scholarly journal. The editor of the journal will perform an initial review to decide whether the article is relevant and adheres to standards. If so, the article will be sent to a group of experts in the field to evaluate the quality of the research, also known as peer review. The experts will then

ask questions about the research to determine its relevance, originality, and overall quality while evaluating the methodology and conclusions. The reviewers will then decide if the article is worthy of being published in the scholarly journal and give feedback and recommendations to the journal editor. From here, the article will either be approved or rejected. Oftentimes, the author will need to revise their research article based on feedback and recommendations from the reviewers and then resubmit the article for a final decision from the journal editor. The scientific peer review process from start to finish can take months or even years. Even so, most scientific journals are prestigious and often have high rejection rates for their submissions.

Based on the definitions and descriptions of primary research articles and review articles, I believe that the article, *"Base editing of hematopoietic stem cells rescues sickle cell disease in mice,"* is a primary research article. This article contains original experiments and research, a detailed methods section of the techniques and procedures used to conduct these experiments, a results section outlining the outcomes, and a discussion section where the authors interpret their results, the significance of their research, and the future implications of their research. All of these features indicate it is a primary article as they detail original research and is also evident in their use of words. For example, the authors wrote "We used a custom adenine base editor," indicating that they performed the experiments. On the other hand, I believe that the article, *"Hematopoietic Stem Cell Gene-Addition/Editing Therapy in Sickle Cell Disease,"* is a review article. This article does not contain any original research or experiments and does not have a methods or results section. The article does not mention any experiments or research they performed but rather summarizes the work of other articles. They simply provided a comprehensive overview of the current knowledge on this subject. The abstract also did not present any indications of original research or experiments performed and even stated "In this

review, we discuss HSC-targeted gene therapy in SCD with gene addition as well as gene editing," indicating it is a review article and that they only discussed the current knowledge on this particular topic.

.