

# Process Paper

My history day project is about genetically modified organisms (GMOs) and how they were developed in the 1970s. I have always taken an interest in agriculture. My family's business is ALMACO, a company that engineers equipment for seed research. Many areas of agriculture, including ALMACO, work directly with GMOs. I was researching critical moments in agriculture history when I came across Herbert Boyer and Stanley Cohen, who developed the first GMO in the 1970s. I took an interest in this topic because it connects to my family's business.

Throughout my research, I found many secondary sources, including websites, images, and videos. The majority of my website sources were used in the main story of my website and in the impact. I also discovered Food and Drug Administration websites that helped me understand the basic process of genetic modification. Not all of my sources were directly related to my website, but I gained basic knowledge about my topic from them that I can use in discussing my project.

My primary sources include podcasts, videos, newspaper articles, and scientific papers. My main primary source was a video containing an interview with Cohen and Boyer, which helped me understand the scientific side of their discovery. I also interviewed Dr. Kendall Lamkey, who has an

agriculture-related position at Iowa State University and an extensive knowledge of GMOs, and Dr. Steven Whitham, a professor who is currently working on genetic modification at ISU. In addition, I interviewed Pat Hardy and Gary Clem, two men who each have been in agriculture-related positions for over 50 years. I also reached out to Dr. Boyer and Dr. Cohen via mail, phone, and email but did not receive a response.

I chose to do a website for many reasons. I wanted to work by myself, since I knew that I would be missing school due to a trip. I wanted to ensure that I could work on it when I was gone and not lose valuable time. I developed my project with a step-by-step process. I started with my research and then moved on to creating my website. I began with the background part of the project, then created the main story about Boyer and Cohen's work, and finished with the impact pages.

There are many reasons why the discovery of recombinant DNA is a turning point in history. Boyer and Cohen's work created a gateway for many future opportunities and scientific discoveries. Their process of modifying DNA is still being used today. Many crops in the United States are grown from genetically modified seeds that have been developed using Boyer and Cohen's processes. Their discovery of recombinant DNA made it possible for Boyer to create synthetic insulin, changing the lives of

diabetics. Boyer and Cohen's breakthrough discovery was the start of a multibillion-dollar biotechnology industry that has changed the world forever. It will go down as one of the most significant turning points in the agricultural and medical industries.