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Vaccines, Vaccines, Vaccines

by Heather Doran, Science Editor

The theme of this issue is one that has dominated our lives over the past 6 months. It's a good news story that is giving the world a way of tackling COVID-19 but there's an interesting history and stories to tell beyond the pandemic.

The word 'vaccine' originated with the treatment of smallpox by Edward Jenner and it is derived from the Latin *vacca* for 'cow'. The first vaccination was a clear triumph leading to the first and only complete eradication of a disease around the world. The vaccines that followed have provided protection for billions of people from various diseases – although complete eradication hasn't been achieved. In this issue you will find articles discussing some of the potential and the limitations of old and new vaccines. The most surprising might be the developments you read about potential vaccines for cancer.

Vaccines are a fascinating topic, from their design, their delivery, to their production, and I am really pleased that this issue offers discussion on all these stages.

There are several articles that discuss the different types of COVID-19 vaccine. These new vaccines have not only provided an answer to an immediate problem but have also opened the door for treatment of other diseases. RNA vaccines have shown a lot of promise and I was particularly excited to learn more about them from scientists working in those areas. The rapid upscaling of manufacture of the COVID-19 vaccine has also been a lesson in how to scale up from lab to levels that are supporting vaccination on a global scale.

In this issue I am also pleased to share a beginner's guide to another very hot topic for biology, CRISPR. The timing of this issue is somewhat sensitive: the COVID-19 pandemic is not over but progress is being made. There are opportunities to learn and discover more about what has been developed so far and hint at what might come next from the discoveries during this time. The crisis mode that the world has been operating in for the past 18 months has fast-tracked some scientific developments that have been making progress in the background over previous years. Most issues of *The Biochemist* highlight the benefits that fundamental research in the biosciences can have on a broader scale but this issue, and the topic of vaccines, really emphasizes the global benefits that come directly from these scientific discoveries.

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