

# Oswald Avery

- Discovered DNA was the active agent in bacteria transformation
- Named discovery “transforming principle”

Oswald Avery's (1877-1955) greatest contribution to the field of DNA research occurred, like so many others in our DNA story, while he was trying to solve another problem. Avery and his team did not aim to discover that DNA is the active agent in genetic transformation, but their “transforming principle” opened the modern phase of DNA research.

While working on a project to find a treatment for pneumonia, Oswald Avery, Maclyn McCarty, Colin MacLeod and other scientists at the Rockefeller Institute in New York were informed that one type of pneumonia could transform into another in vivo. With this new knowledge, Avery knew that he had to identify the conditions in which transformation could happen and the agents that made these changes possible. To this end, Avery and his team began the process of identifying DNA as that agent of change in all living things.



After eliminating large cellular pieces and proteins from the bacteria, Avery's team observed the transformation still taking place. However, when all DNA was eliminated the bacteria stopped transforming. This discovery identifying DNA as the active agent in transformation was deemed the “transforming principle.” In 1944 it was announced in the *New England Journal of Medicine*.

The “transforming principle” was in direct opposition to the prevailing opinion of the day that proteins, much more complex in structure than DNA, must be the agents of such complex power and transformation. Alfred Mirsky, a renowned molecular biologist who also worked at the Rockefeller Institute, attacked Avery's claims to the point of lobbying authorities in Stockholm not to give Avery the Nobel Prize, which he never won.

In spite of these obstacles to success and recognition, Avery's work is now regarded as the start of the modern phase of DNA research.

## Resources

Bryson, B. (2003). *A Short History of Nearly Everything*. Broadway Books: New York

<http://profiles.nlm.nih.gov/CC/Views/Exhibit/narrative/biographical.html>

<http://library.thinkquest.org/20465/avery.html>

[http://wiki.cotch.net/index.php/Oswald\\_Avery](http://wiki.cotch.net/index.php/Oswald_Avery)