

GFP: Lighting Up Life

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The great American baseball player Yogi Berra once said, “You can observe a lot by watching.” Unfortunately, before the early 1990s observations in the biological sciences were usually done on dead specimens that were specially prepared and permeabilized to allow entry of reagents to stain cell components. These methods allowed a glimpse of what cells were doing, but it gave a necessarily static view of life, just a snapshot in time. GFP and other fluorescent proteins revolutionized the biological sciences because these proteins allowed scientists to look at the inner workings of living cells. GFP can be used to tell where genes are turned on, where proteins are located within tissues, and how cell activities change over time. Once a cell can be seen, it can be studied and manipulated. I will provide some examples of how having a dynamic view of life opens up new and exciting avenues of research. The discovery and development of GFP also provide a very nice example of how scientific progress is often made: through accidental discoveries, the willingness to ignore previous assumptions and take chances, and the combined efforts of many people. The story of GFP also shows the importance of basic research on non-traditional organisms.