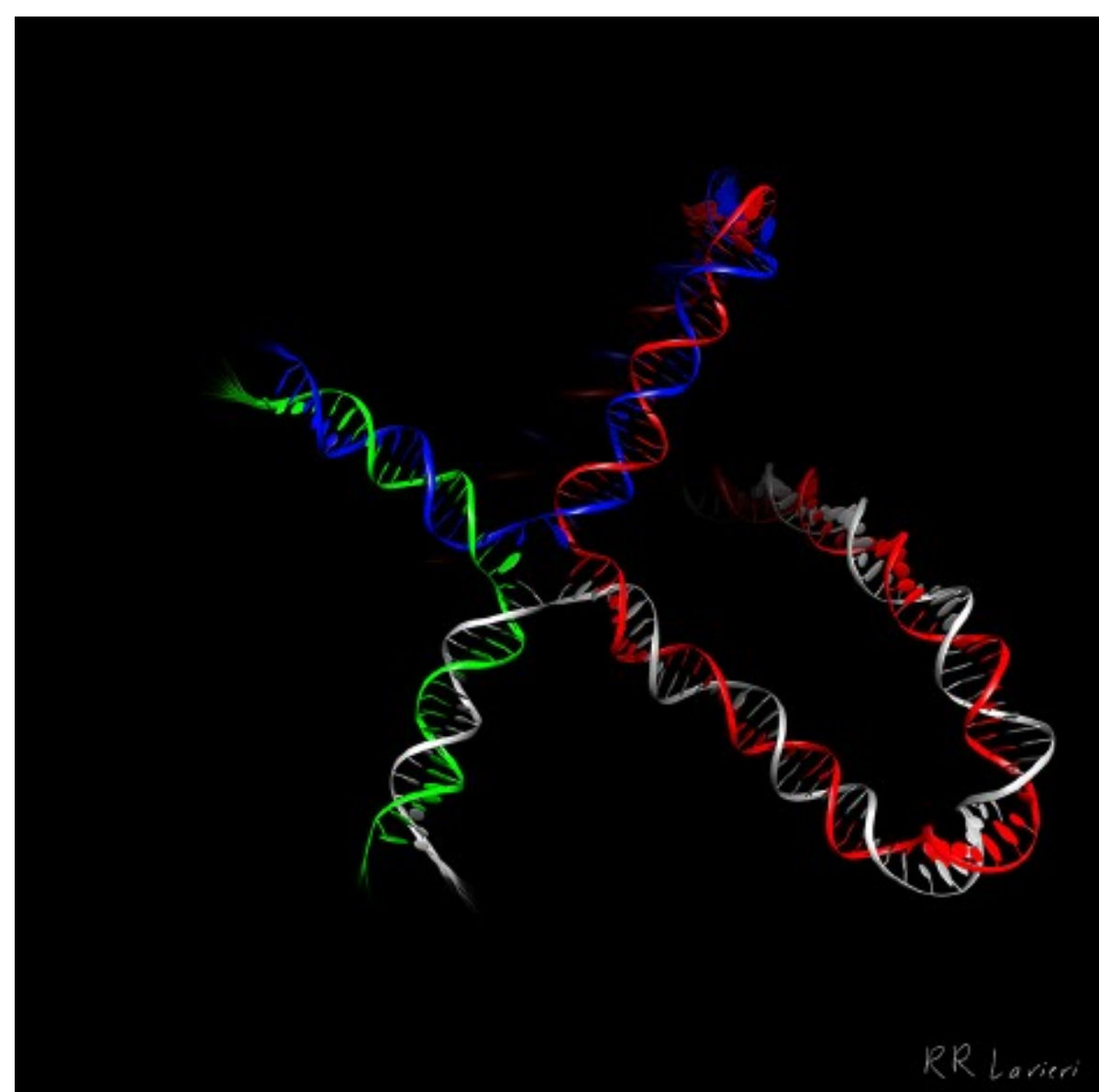


# the WOND'RY

## Vanderbilt's Nobel Laureates: A Visual Tribute to Discovery and Innovation

Six Nobel Laureates are affiliated with Vanderbilt. My goal in this series is to honor each of them with a single piece that represents the theme of an entire lifetime of work. Despite working in different fields, the common thread these people all share is innovation! None of them were afraid to fail, and they ultimately made discoveries or took actions that went far beyond an incremental advancement in a given field. Many of them also bridged the perceived gaps between different fields as part of their work. I hope that my work will cause people to slow down, stop, take a breath and think. Think about the incredible, life-altering effects that many scientists have had on billions of human lives. How easy is it to take for granted clean water or the eradication of polio? The only thing that really advances humanity is innovation, which by definition, requires creativity. Creativity is most often associated with art, and yet the actual execution or implementation of just about any new idea requires math, science and engineering. -Robert R. Lavieri, Ph.D.



In honor of Max Delbrück

1906 - 1981

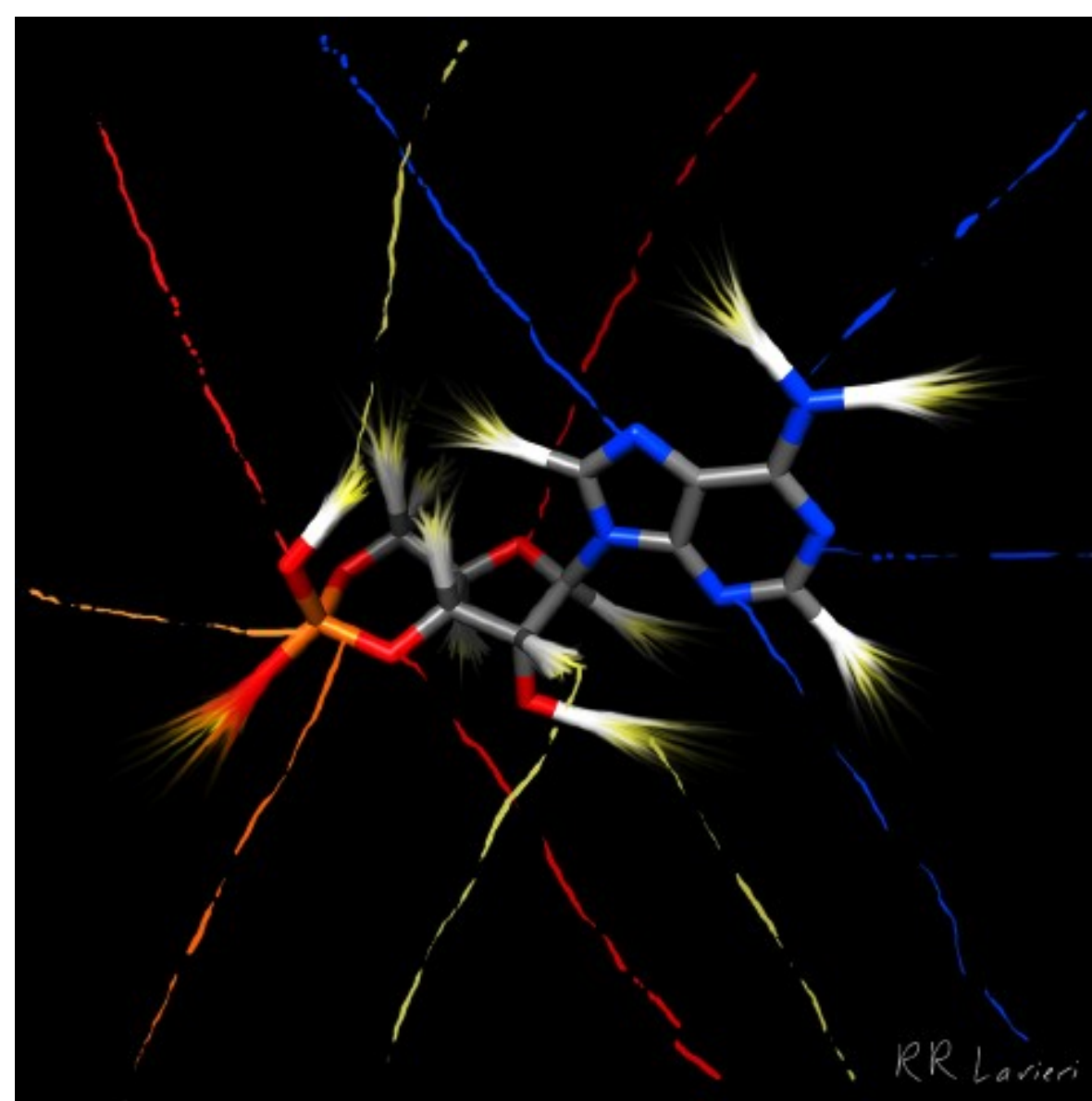
Along with Salvador Luria and Alfred Hershey, Max Delbrück was awarded the Nobel Prize in Physiology or Medicine in 1969 for discoveries concerning the replication mechanism and the genetic structure of viruses. Delbrück taught physics at Vanderbilt University from 1940 to 1947, and had his laboratory in the biology department.

While the general structure of DNA may be familiar to many people, this image depicts a Holliday junction, which is actually formed by combining two double helices. There is evidence of Holliday junctions being used by viruses.

**4-Way Stop, 2017**

Pigment on canvas

5J0N, initial image rendered with UCSF Chimera



In honor of Earl W. Sutherland, Jr.

1915 - 1974

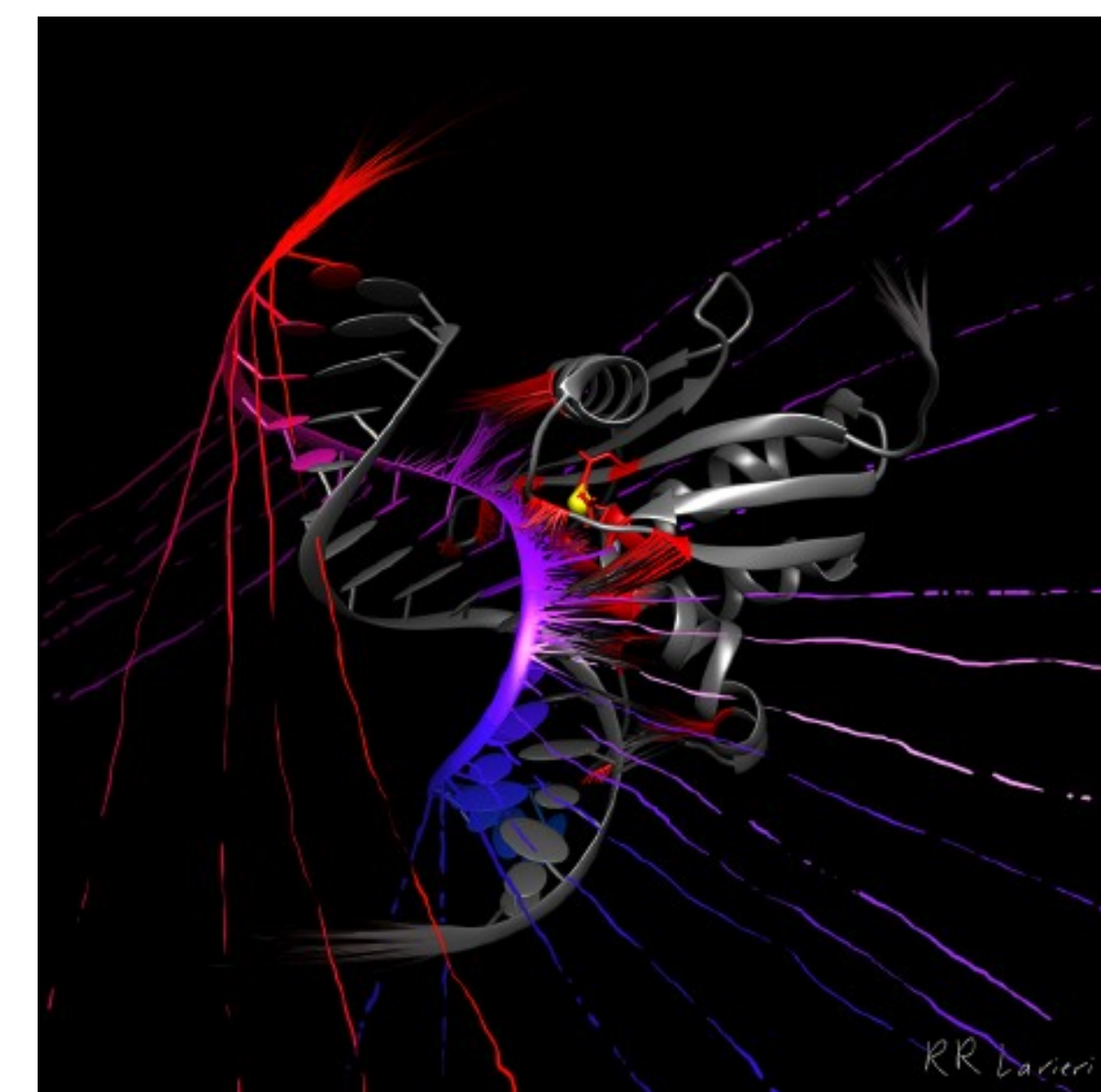
Earl Sutherland Jr. received a Nobel Prize in Physiology or Medicine in 1971 for "his discoveries concerning the mechanisms of the action of hormones. Sutherland was a professor of physiology at Vanderbilt University Medical Center from 1963 to 1973.

In this piece, I focused entirely on the cyclic AMP molecule, because the discovery that small molecules (not only hormones) could regulate human physiology completely revolutionized our understanding of pharmacology and physiology.

**Cyclic AMP, 2017**

Pigment on canvas

6076 CID, initial image rendered with UCSF Chimera



In honor of Stanford Moore

1913 - 1982

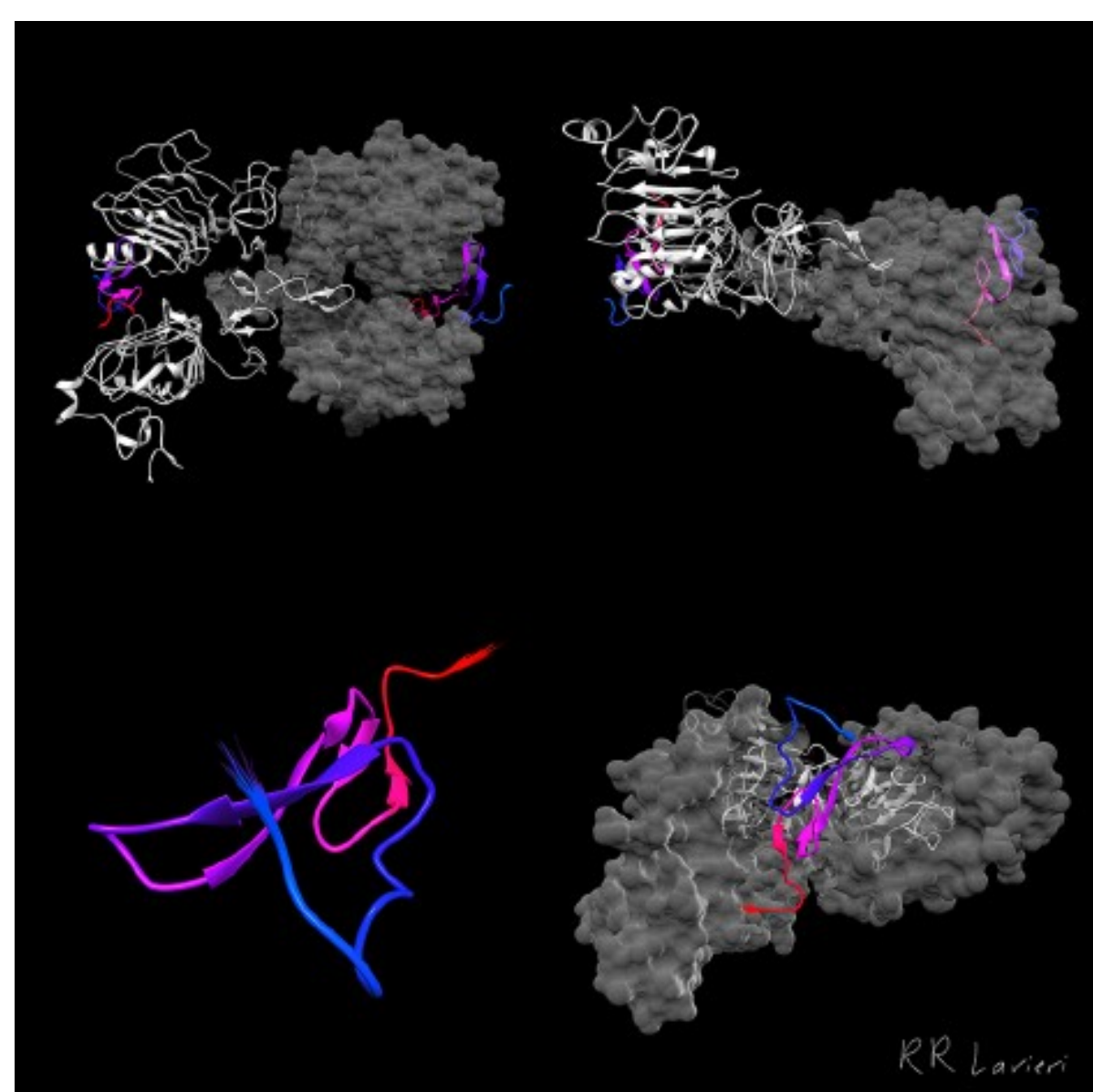
Along with Christian Anfinsen and William H. Stein, Stanford Moore was awarded the Nobel Prize in Chemistry in 1972 for contribution to the understanding of the connection between chemical structure and catalytic activity of the active center of the ribonuclease molecule. Moore graduated from Vanderbilt (B.A. 1935, summa cum laude) with a major in chemistry. In 1968, Moore returned to Vanderbilt as a visiting professor of health sciences.

This piece shows the structure of a human ribonuclease enzyme bound to an RNA/DNA Hybrid. Specifically, the RNA is colored as a rainbow, the DNA is gray, the important parts of the enzyme are colored red and the brushstrokes are meant to show areas of contact between the enzyme and the RNA.

**Ribonuclease with RNA, 2017**

Pigment on canvas

2QK9, initial image rendered with UCSF Chimera



In honor of Stanley Cohen

1922 -

Along with Rita Levi-Montalcini, Stanley Cohen was awarded the Nobel Prize in Physiology or Medicine in 1986 for "discoveries of growth factors." Cohen joined the Vanderbilt University School of Medicine faculty in 1959 and holds the title of Distinguished Professor of Biochemistry, Emeritus.

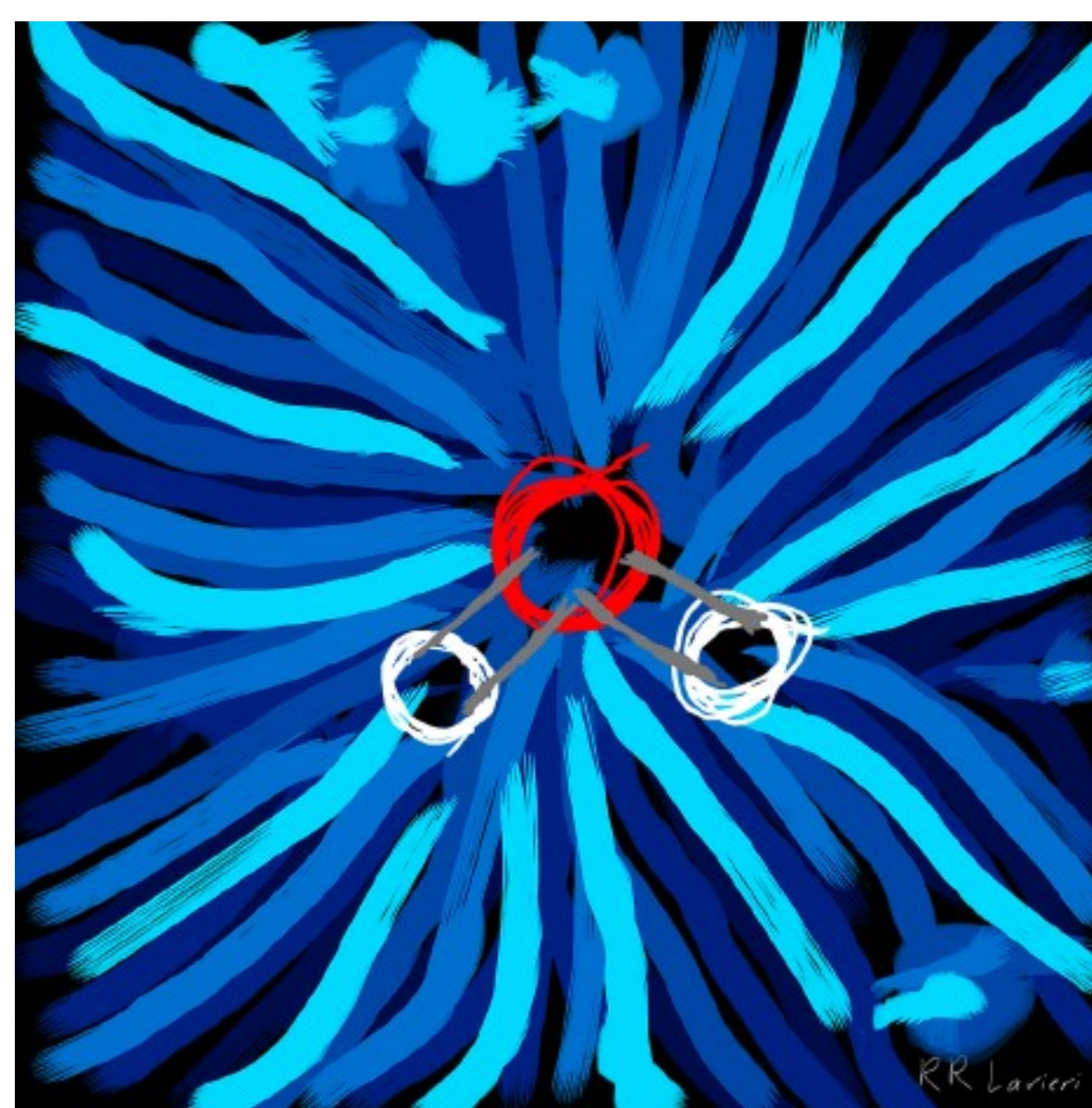
Human Epidermal Growth Factor is depicted in the rainbow color scheme, and the extracellular domains of the Epidermal Growth Factor receptor are shown in gray.

I have shown the complex from above, the front, and the side, and the growth factor protein alone without the receptor surrounding it (bottom left).

**Epidermal Growth Factor and Receptor, 2017**

Pigment on canvas

1IVO, initial images rendered with UCSF Chimera



In honor of Muhammad Yunus

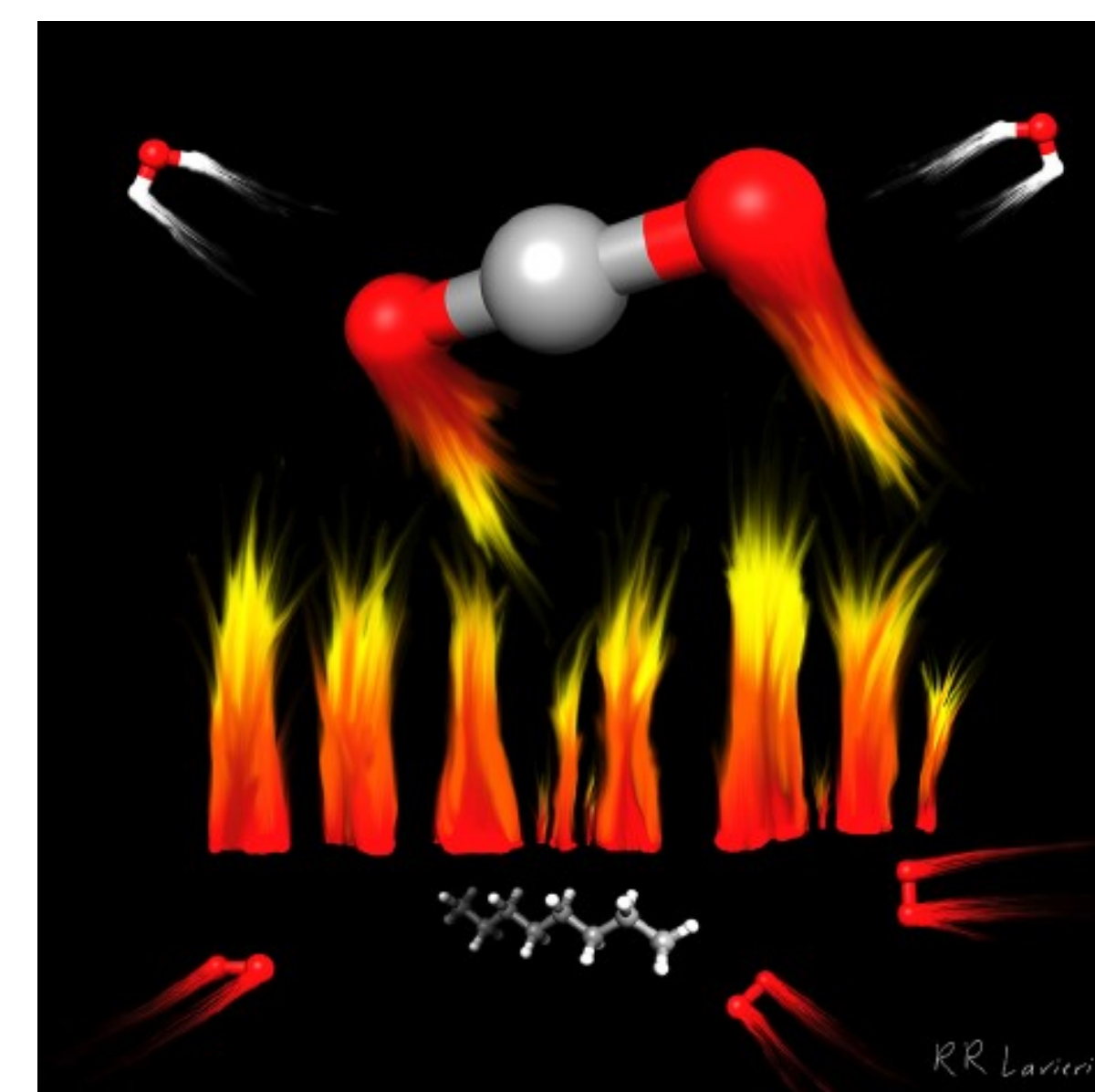
1940 -

Along with the Grameen Bank, Muhammad Yunus was awarded the Nobel Peace Prize in 2006 for efforts to create economic and social development from below. Yunus received his Ph.D. in economics from Vanderbilt in 1969.

The famine of 1974 inspired Yunus to become involved with poverty reduction. Extensive flooding was one of the main causes of this famine. This piece depicts a sketch of the chemical structure of water in the middle with various shades of blue flooding out from the middle. Water plays a critical role in nearly everything.

**The Flood, 2017**

Pigment on canvas



In honor of Al Gore

1948 -

Along with the Intergovernmental Panel on Climate Change, Al Gore was awarded the Nobel Peace Prize in 2007 for efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.

Gore took classes at the Vanderbilt Divinity School and at Vanderbilt Law School in the 1970s.

This piece loosely depicts the combustion reaction of a hydrocarbon reacting with oxygen to form water and carbon dioxide (the largest object in the middle).

**Combustion, 2017**

Pigment on canvas

356, 977, 280, 962 CIDs, initial images rendered with UCSF Chimera



I blend art and science to create visual art intended to honor the many talented scientists, clinicians, leaders and people from all walks of life who work relentlessly to make our world a better place. My art provides all of us the ability to view and appreciate wonders in nature that can't be seen with the naked eye.

My work is guided by education and experience spanning modernist architecture, jazz music, philosophy, chemistry, biochemistry and pharmacology. I am influenced by people such as Frank Lloyd Wright, Ludwig Mies van der Rohe, Jackson Pollock, Dale Chihuly, Valentino Rossi and Steve Jobs.

I am truly grateful to the Wond'ry for their support for this project and allowing me to share my passion for translating scientific discoveries into works of art.