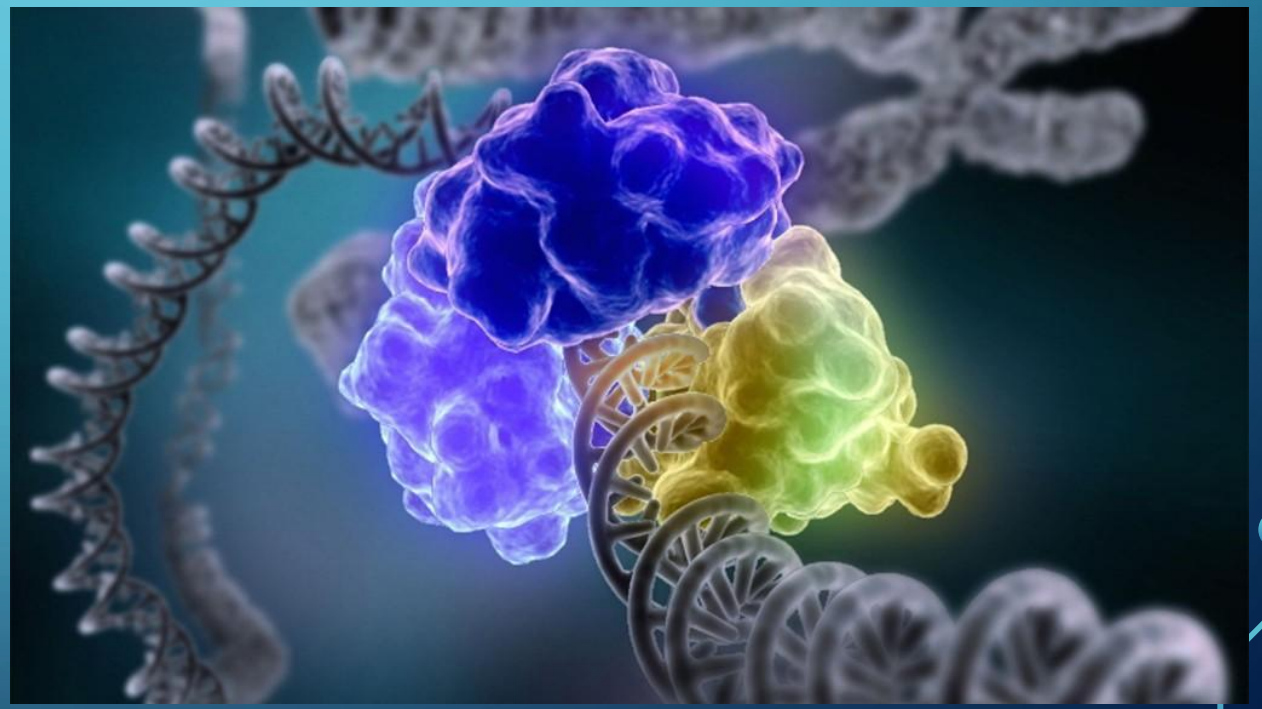
AND THE 2015 NOBEL PRIZE WINNERS IN CHEMISTRY ARE…

BY KATE ANANEVA

FOR THEIR WORK IN MAPPING HOW CELLS REPAIR DAMAGED DNA AND PROTECT GENETIC INFORMATION AT A MOLECULAR LEVEL, TOMAS LINDAHL, PAUL MODRICH AND AZIZ SANCAR WERE AWARDED THE NOBEL PRIZE IN CHEMISTRY FOR 2015

EVERY DAY, HUMAN DNA IS DAMAGED BY UV RADIATION, FREE RADICALS, AND OTHER POTENTIALLY CANCER-CAUSING AGENTS, THE NOBEL SELECTION COMMITTEE EXPLAINED IN A **STATEMENT**. HOWEVER, EVEN WITHOUT THOSE EXTERNAL FACTORS, A PERSON'S GENETIC MOLECULES ARE "INHERENTLY UNSTABLE," THEY NOTED, WITH A GENOME EXPERIENCING THOUSANDS OF RANDOM, SPONTANEOUS CHANGES ON A DAILY BASIS.

A GROUP OF MOLECULAR SYSTEMS THAT MONITOR AND REPAIR DNA IS ESSENTIALLY THE ONLY THING KEEPING OUR CELLS FROM BREAKING DOWN INTO “COMPLETE CHEMICAL CHAOS,” THE NOBEL COMMITTEE ADDED.



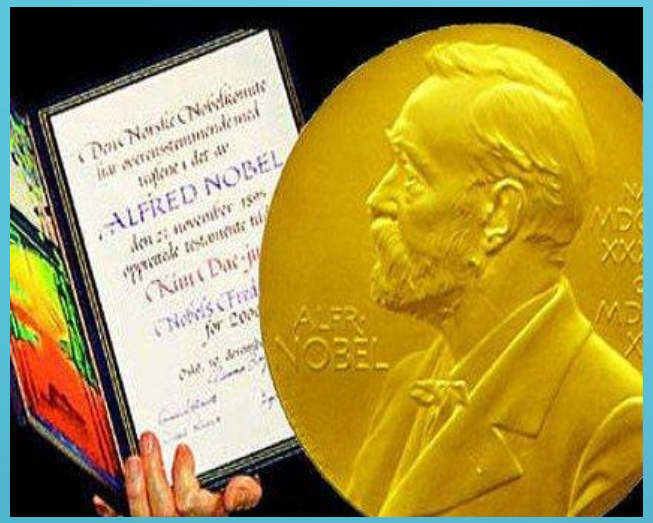
ABOUT WINNERS

- Lindahl, a former professor of medical and physiological chemistry at University of Gothenburg, demonstrated that DNA decayed at a rate that should have prevented the development of life on Earth. Because of this discovery, Lindahl went on to discover base excision repair, a mechanism that repairs genes when a nucleotide's base becomes damaged, preventing DNA collapse.

- Sancar mapped nucleotide excision repair, the mechanism used by cells to repair damage done to DNA by UV radiation, and discovered that people born with defects to this system could develop skin cancer.

- Modrich, on the other hand, demonstrated how cells correct errors that happen when DNA is replicated through cell division with a mechanism known as mismatch repair.

- According to the Academy of Sciences, the laureates did not interact with each other in their studies that involve different mechanisms of DNA repair.



- In a statement, the Royal Swedish Academy said that the research conducted by Lindahl, Sancar, and Modrich has “not only deepened our knowledge of how we function, but could also lead to the development of lifesaving treatments.” The trio of scientists will split a prize of eight million Swedish Krona, or approximately $970,000, for their efforts

INTERNET SOURCES

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- http://www.vox.com/2015/10/7/9470913/nobel-prize-2015-what-the-chemistry-winners-taught-us-about-the
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