2012

The Many Pharmaceutical Discoveries of Gertrude B. Elion

Alayna Bonse

Parkland College

Recommended Citation
https://spark.parkland.edu/nsps/36

Open access to this Poster is brought to you by Parkland College's institutional repository, SPARK: Scholarship at Parkland. For more information, please contact spark@parkland.edu.
The Many Pharmaceutical Discoveries of Gertrude B. Elion

By Alayna Bonse
Parkland College

Background
- Graduated from Hunter College of the City University of New York in 1937.
- Graduated from New York University with a master's degree in chemistry in 1943.
- After college she worked at Wyeth Research Laboratory as a junior assistant to Dr. George Hitchings.
- Started a PhD at Brooklyn Polytechnic Institute; was unable to complete it due to work complications.
- Awarded honorary degrees from George Washington University, Brown University and the University of Michigan.

6-Mercaptopurine (6-MP)
- First drug synthesized by Elion and her team.
- Corrinds purine usage during DNA synthesis.
- First drug found to produce complete remission in the majority of childhood leukemia patients.
- FDA approved in 1953.
- Still in use today, but may harm patients with a genetic flaw on chromosome 4.
- Outside-panel reviewing drug for the FDA currently.

Azathioprine (AZA)
- Converted to 6-MP when taken but has a different effect.
- Prevents the rejection of foreign tissue especially effective in kidney transplants.
- Use started in 1968.
- Still used today for kidney transplants and as a treatment for rheumatoid arthritis and ulcerative colitis.
- Rejection rate in kidney transplants only 13% through the use of AZA.
- Increased effect in people taking allopurinol.

Allapurinol
- Blocks uric acid from forming.
- Uric acid is formed from purines as waste product during cellular respiration.
- Buildup of uric acid can be from kidney disease, some chemotherapy drugs, eating foods rich in purines, and a deficiency in the enzyme hypoxanthine guanine phosphoribosyltransferase (HGPRTase).
- Used in the treatment of gout - arthritic painful joints often with harden lumps of uric acid crystals.

Acyctyluril
- Antiviral drug used to fight herpes and shingles.
- Does not cure the disease offers symptom relief and/or reduction.
- Reduces pain experienced and the length of herpes or shingles outbreaks.
- Treatment has to be kept at first signs of an outbreak in order to be the hase effect.

Conclusion
Gertrude B. Elion achieved a variety of things in her brilliant scientific career which was very unusual for a woman born in 1918. She and her fellow researchers pioneered exploration into many areas of pharmaceutical development. Her groundbreaking research into purines led to the development of treatments for childhood leukemia and gout as well as a medication that would prevent the rejection of kidney transplants. From her purple research, she then branched into antiviral research which led to a drug that is used to treat herpes, shingles and chicken pox. She also inspired a new generation of researchers who went on to discover even more revolutionary drugs such as azithromycin (AZT). Many of these drugs they developed and still used today.

References