Gertrude B. Elion

Kelli N. Brost
Parkland College

Recommended Citation
Brost, Kelli N., "Gertrude B. Elion" (2014). Natural Sciences Poster Sessions. 73.
https://spark.parkland.edu/nsps/73

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.
GERTRUDE B. ELION:
The woman who described scientific research as organized play for adults.

CONTRIBUTIONS

ANTICANCER (1945):
- Elion worked on an immunosuppressant called 6-mercaptopurine (6-MP). Brand name, Purinethol.
- It is a purine analog.
- The original use was for acute lymphoblastic leukemia.
- Now it is used for leukemia, non-Hodgkin’s lymphoma, psoriatic arthritis, inflammatory bowel disease, among other things.
- The drug inhibits nucleotide synthesis, or the making of new DNA and RNA.

ORGAN TRANSPLANT (1967):
- Another drug Elion worked on is Azathioprine.
- It is also a purine analog, and a prodrug of 6-MP.
- Its original use was to aid in organ transplant.
- Today Azathioprine is also used for autoimmune diseases.
- This drug affects the T cells and B cells of the immune system by inhibiting the enzyme they need to synthesize their DNA.

WHY CHEMISTRY (1967, 1995):
- She was driven by the death of her grandmother from stomach cancer. At that point had decided she wanted help with the fight against cancer.
- “I had no specific bent toward science until my grandfather died of stomach cancer. I decided that nobody should suffer that much.”
- She had an aversion to animal dissection, so chemistry seemed like a logical field for what she wanted to accomplish.
- During her time a NYU, Elion’s fiancé died suddenly. After that loss she never got married.

ANTIVIRALS (1975):
- Elion primarily worked with acyclovir (Zovirax, Imavir, Zoldar).
- It was originally used for the treatment of Herpes Simplex Virus (HSV).
- Now it is used for HSV, chicken pox and shingles (Herpes Zoster Virus-HZV), and has shown to slow disease progression HIV patients.
- Acyclovir is converted by viral thymidine kinase to a monophosphate form. That is then converted to a di- and finally a triphosphate form that inhibits the synthesis of the viral DNA.
- Acyclovir is a very specific drug, and does not harm normal cells.


In 1988, Gertrude Elion, George H. Hitchings and Sir James W. Black were awarded for their work in using purines to treat diseases chemotherapeutically with a Nobel Prize in Medicine.

CONCLUSION

In 1988, Gertrude Elion, George H. Hitchings and Sir James W. Black were awarded for their work in using purines to treat diseases chemotherapeutically with a Nobel Prize in Medicine.

NOBEL PRIZE

AWARDS, TITLES AND MEMBERSHIPS:

- The Gavison Medal from the American Chemical Society in 1958
- The Stein-Kettering Institute Award 1983
- The American Association of Cancer Research Award and the American Chemical Society Distinguished Chemist Award in 1985
- The American Cancer Society Medal of Honor in 1990
- The National Medal of Science in 1991
- Member of the National Academy of Sciences and the arts and sciences of the American Chemical Society
- Member of the American Association of Cancer Research, as well as the president from 1983-1984
- Board member of the National Cancer Institute
- Board member for the American Cancer Society
- Board member for the Multiple Sclerosis Society
- Recipient of the National Medal of Science
- First woman to be inducted into the National Inventor's Hall of Fame in 1991
- Earned the Lemelson-MIT Lifetime Achievement Award in 1997
- Received twenty honorary doctoral degrees