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Mini Review

Inspiring Medical Professionals[$$] Imp-2- Maurice Hilleman

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Conspectus:

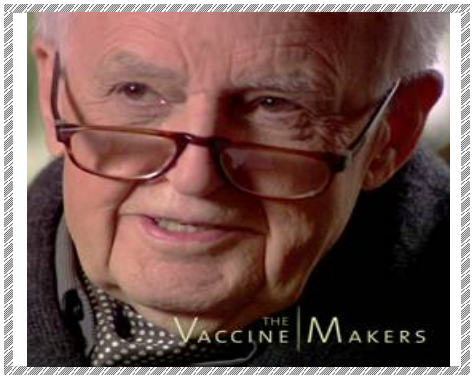
Birth and Childhood: Maurice Hilleman was the eighth child of poor peasants (Gustave Hilleman and Anna Uelsmann) in Miles city. His twin-sister was still-born and mother died two days after his birth on 30th August of 1919. Maurice's paternal uncle and his wife who were childless graciously adopted him. The

Livelihood of those depending on farms was treacherous during those great depression days. They sent Maurice at the age four to local market for selling strawberries (unsuccessfully). Later he was involved for long hours of hard work in all types of farm chores. He also helped in family business of selling all farm products.

Educational profile: After high school graduation in 1937, he joined at the J.C. Penney co in a career-track job. Since childhood, he has a bent to hear radio programs in science and was inspired by Charles Darwin's book "Origin of Species" Luckily, he got a fellowship in Montana State college and so could pursue graduation in chemistry and micro-biology. He came out with first rank in his class in 1941. Medical education was beyond his financial status, and so made up his mind to do Ph.D. He joined University of Chicago to pursue research career in microbiology with full scholarship. Yet, he lived on single meal a day. After a doctoral degree in 1944, he had a strong mind set of pursuing medical applications of science for society to at least partially pay back the support with gratitude. He proved that Chlamydia was bacterial disease against a popular belief that it was viral. This revolutionized treatment of this common STD easily with antibiotics.

Employment and Vaccine development: In 1947 at E.R. Squibb pharmaceutical company, Hilleman developed a vaccine which saved U.S. soldiers from Japanese encephalitis who were fighting in World War II. This was Maurice's first vaccine. As chief of the Department at Walter Reed Army Institute of Research during 1949 to 1957, Hilleman discovered the antigenic shift and antigenic drift in influenza (respiratory) viruses. This necessitates a yearly flu vaccination. On the last day of 1957, Dr. Maurice took charge as head of Merck's new virus and cell biology research department. His role was an Overall command of development/research of vaccines. He formally retired in 1985 at

the age of 65 as vice-president of Merck research lab. But he was reinstated as full-time consultant and contributed significant knowledge and products till his death in 2005. Hilleman developed around forty vaccines over long and productive career of 45 years.



Awards, honours and appreciations: In 1988, Ronald Reagan, President of United States of America presented National Medal of Science (America's highest award for science) to Dr. Hilleman. MSU awarded an honorary doctorate in 1966. 'The MSU Hilleman Scholars Program' created by MSU President Waded Cruzado was to bring 50 low-income Montana high school graduates to campus each year. A Chair in Vaccinology in the name of Maurice R. Hilleman was created in March 2005 by the University of Pennsylvania School of Medicine's Department of Pediatrics, Children's Hospital of Philadelphia and The Merck Company Foundation. In 2008, Merck named its centre in Durham, North Carolina as "Maurice Hilleman Center for Vaccine Manufacturing". Dr. Anthony Fauci, the director of the National Institute of Allergy and Infectious Diseases, told Maurice Hilleman has the irreverent, no-nonsense, let's-get-it-done attitude,

Keywords: Prediction of pandemic; antigenic shift and antigenic drift; Vaccines for viral infections; Japanese encephalitis; MMR (measles, mumps and rubella); MMRV (MMR, and varicella chickenpox); bacterial meningitis; flu; hepatitis B

Abstract in one sentence (AIOS): Maurice Hilleman, Ph. D (in microbiology and virology for award-winning study on the chlamydia infections) worked hard in Merck & Co for 48 years with a proliferating output of development of around 40 viral vaccines (among which eight out of fourteen widely used ones in US to prevent disastrous infections in children) saving tens of millions of children from permanent disabilities and death since nineteen sixties.

$$: Invited contribution

Layout

Highlights:

- ✓ Maurice Ralph Hilleman (1919-2005) was a microbiologist with vaccinology specialization from Montana State University.
- ✓ Discovered shift and antigenic drift in virus mutations.
- ✓ Discovered cold-producing adenoviruses, the hepatitis viruses, and potentially cancer-causing SV40 virus.
- ✓ Unparalleled record of productivity-developed more than 40 vaccines
- ✓ Hilleman did not have in his mandate to stop, relax and enjoy success whenever he figured out one vaccine or vaccine was licensed
- ✓ He started to tackle the next virus in the list on the paper he prepared and carried in his pocket always.
- ✓ Of the 14 vaccines in use in U S , he developed eight: those for measles, mumps, hepatitis A, hepatitis B, chickenpox, meningitis, pneumonia and Haemophilus influenzae bacteria
- ✓ He is credited with saving more lives than any other medical scientist of the 20th century.
- ✓ Recipient of National Medal of Science (America's highest award for science) in 1988, Ronald Reagan, President of United States of America presented it to Dr. Hilleman.