

UNIVERSITY OF
PENNSYLVANIA

Abramson Cancer Center

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The Department of Microbiology
presents

The Henle Symposium on
Viral Oncogenesis

Background

Recognition of *Viruses* as causative agents or major effectors in cellular transformation

20% Human Cancers - Virus associated

Essential for the genesis of some cancers including those related to HIV or Transplant Associated Malignancies

Viruses and Human Cancer

Hepatitis B Virus

Hepatitis C Virus

Polyoma Viruses

Human Papilloma Virus

Epstein Barr Virus

Kaposi's Sarcoma Herpesvirus

HTLV-1

HTLV-2

Hepatocellular Carcinoma

Head and neck cancers

Cervical Carcinomas

Medulloblastomas

Merkel Cell Carcinomas

Hodgkin's Lymphomas

Burkitt's Lymphomas

Nasopharyngeal Carcinomas

Gastric Carcinomas

Pleural Effusion Lymphomas

Kaposi's Sarcoma

Adult T-Cell Leukemia/Lymphomas
(ATL)

Hairy cell Lymphomas

Werner and Gertrude Henle

Pioneers in Tumor Virology

1950's Denis Burkitt Studied Distribution of Cancer in Africa.

1962 Burkitt stated (Novel thought at the time) that this cancer of the jaw was probably caused by a biological agent (a virus) and it may be transmitted by a mosquito vector.

Epstein and Barr cultured cancerous B cells into permanent cell lines.

Werner and Gertrude developed an antibody test against Burkitt's Lymphoma cells w/o reactivity to normal B cells.

Most of the population had the antibody but Burkitt's patients had 10X greater titer.



EBV as the Etiological Agent of Infectious Mononucleosis

Infectious Mononucleosis - A self-limiting lymphoproliferative disease.

Transmission by oral contact - Replicates initially in the epithelial cells of the oropharynx and then infects B cells.

- Infection of B cells results in Immortalization.

Research Technician E.H. in the Henle's Laboratory at CHOP donated peripheral blood leukocytes in January 1967

- The resulting cells failed to grow out in culture

On August 10, 1967 E.H contracted Infectious Mononucleosis

On August 16, 1967 E.H. returned to work. Leukocytes taken from her was cultured as before resulting in proliferation.

Immunofluorescence analysis detected EBV nuclear antigen

Werner and Gertrude Henle

Werner Henle 1910-1987

Son of a surgeon and grandson of Jacob Henle (anatomist-histologist) was of Jewish decent.

Born in Dortmund, Germany (classified as 25% non-Aryan)

University of Munich 1929-1930

Transferred to University of Heidelberg 1930

Completing his Medical Degree in 1934.

Accepted a Position at UPenn in 1936

Gertrude Szpingier (Henle)

Born in Mannheim, Germany 1912

Completed her Medical Degree at the University of Heidelberg in 1936. Joined Werner in 1937 at UPenn.

Professional Contributions

1. Demonstrated effectiveness of an influenza vaccine (1943)
2. Development of a rapid test for diagnosing mumps
3. Collaborated with Dr. Joseph Stokes to demonstrate that gamma globulin can be utilized to inhibit the development of infectious hepatitis
4. Contributed to understanding the states of Viral Infection; Latency, Persistence and Viral Interference
5. Demonstrated the causal relationship between EBV and Infectious mononucleosis.
6. Supporting evidence linking EBV to Burkitt's lymphoma and Nasopharyngeal Carcinoma.
7. Hodgkin's Disease, X-Linked Lymphoproliferative Disease
The Henle's retired from the University of Penn faculty in 1982

Werner's died in 1987 (Gertrude concluded their work after his death).
Gertrude died in 2007 in Pennsylvania.

Honors, Awards Memberships (Werner Henle)

Member, WHO expert advisory panel on Viral Diseases.

Consultant to the Surgeon General, USPHS

Consultant to the Surgeon General, Armed Forces

Chairman, Epidemiology, Hepatitis group, US Armed Forces

Consultant, Virus Cancer Program, National Cancer Institute

Scientific Advisory Board, Leukemia Society of America

Member, National Cancer Advisory Board

Member, General Motors Awards Assembly

Bristol-Meyers Award for Distinguished Achievement in Cancer
Research

Robert Koch-Medaille (One of Germany's Highest Honors)

Scientific Award from the Philadelphia Chapter of the ACS

Children's Hospital's Gold Medal Award

Special Thanks

Abramson Cancer Center

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Department of Microbiology

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and Patsy Hooker

What Life was like before 30 years in Science



Thank you