

## Curriculum Vitae

### Paul Ehrlich (\*1854 - †1915)

#### German medical doctor – serology and immunology

- 1915 Paul Ehrlich died after a serious illness on 20 August 1915 at Bad Homburg vor der Höhe, Germany-
- 1912 Honorary citizen of Frankfurt a.M. and his birthplace, Strehlen, Germany
- 1911 Appointed as “Real Privy Councillor” with the additional title of “Excellency” (the highest civilian honour of the Prussian state)
- 1909 Discovery of Salvarsan (also called: Dioxy-diamino-arsenobenzol-dihydrochloride or preparation "606"), the first preparation for the treatment of syphilis, in co-operation with his most important co-worker, Sahachiro Hata
- 1908 Received the Nobel Prize for “Immortal contribution to medical and biological research, particularly to the valency determination of sera preparations”, together with Elia Metschnikow, who discovered phagocytosis
- 1907 Appointed as privy senior officer of health, honorary doctorate at Oxford
- 1906 Head of the Georg-Speyer-House for Chemotherapy
- 1904 Full Honorary Professor of the University of Göttingen and honorary doctorate of the University of Chicago
- 1903 Award winner of the Great Golden Medal of Science
- 1899 Head of the “Royal Institute of Experimental Therapy” at Frankfurt am Main
- 1897 Appointed as Privy Medical Officer of Health  
Publication of his side-chain theory in an essay “On the determination of the valency of the diphtheria serum”
- 1896 Appointed as Head of the “Institute for Sera Research and Serum Testing” that had been newly established in Steglitz, near Berlin
- 1891 Appointed by Robert Koch to the newly established Institute of Infectious Diseases in Berlin (today: Robert Koch Institute). There, he worked on the extraction of diphtheria serum and the determination of its concentration and valency and developed an internationally acknowledged unit of measurement.  
First steps in chemotherapy when using methylene blue for malaria therapy at the Moabit Hospital in Berlin, followed by trials with trypan-red (both remained unsuccessful).

- 1890 - 1895 Co-operation with Emil von Behring, founder of serum therapy
- Beginning of research on immunity, development of effective immunisation protocols for the purpose of producing high-titre immune sera
- Discovery, analysis, and definition of experimentally different antibody qualities and immunoglobuline categories (at that time called antitoxins, precipitins, agglutinins, and lysins)
- Development of quantitative standardisation methods for antiserum
- During his research on the effect of the diphtheria-antitoxin, Paul Ehrlich discovered that the toxins' poisonous effects on the organism did not work in parallel with their binding capacity on the antitoxins. These observations led to the development of the theory of side-chains, which was the first consistent concept of immunology ("complementary binding reaction").
- 1890 Extraordinary Professor ("Professor extraordinarius") at Berlin
- Work in a private laboratory  
Basic work on the immunity against plant poisons
- 1888/89 Travelling south to Egypt and other countries. Reasons for his travels included recovering from pulmonary tuberculosis infection he had contracted in his laboratory.
- 1887 Associate Lecturer („Privatdozent“) for internal medicine at the University of Berlin  
Title of his post-doctoral thesis: "The oxygen requirement for the organism. A study based on colour analysis" (1885)
- 1884 Marriage to Hedwig Pincus, daughter of a Silesian industrialist.  
The Ehrlichs had two daughters – Stephanie and Marianne.  
Nomination as an extraordinary professor for his work on the oxygen requirement in the organism.
- As from 1882 Co-operation with Robert Koch  
Development of the first direct proof of mycobacteria on the basis of the acid resistance of the bacteria.  
Research on the basis of staining.  
Essential contributions on the diagnostics of blood diseases  
Vital staining with methylene blue
- 1878 - 1887 Junior doctor at the Charité at Berlin, later appointed as senior doctor by Professor Frerichs, a famous German clinician
- 1878 Academic degree of Medical Doctor at Leipzig, title of his doctoral thesis "Contributions to theory and practice of histological staining"
- 1872 - Studied medicine at the universities of Breslau, Strasbourg, Freiburg, and Leipzig,

- 1877 completed his state exam in winter 1876/1877
- 1864 - Attended grammar school at Breslau  
1872
- 1854 Paul Ehrlich was born on 14 March 1854 in Strehlen near Breslau (Silesia).  
Father: Ismail Ehrlich, owner of restaurant and lottery agency, chairman of the Jewish community  
Mother: Rosa Ehrlich, formerly Weigert

### Sources

- A. C. Hüntelmann, Paul Ehrlich, Wallstein Verlag 2011
- E. Bäumlner, Paul Ehrlich - Forscher für das Leben, Gustav Lübke Verlag 1989
- H.W. Doerr, Das Konzept der Immunabwehr von Paul Ehrlich
- Paul de Kruif, Mikrobenjäger, Ullsteinverlag
- Dr. Gerhardt Siefert, Porträt des Arztes, Professor Dr. med. Paul Ehrlich, Das Ärztliche Laboratorium, Heft 8, 1964 S. 262-263
- Albert Neisser, Biographisches zu Paul Ehrlich

Please note: These sources contain different dates for various events, e.g. the wedding year.  
Furthermore, the chemical name for Salvarsan is not identical in all sources.