All Nobel Laureates in Physiology or Medicine "for his work on serum therapy, especially its application against diphtheria, by which Germany **1901** Emil A. von Behring he has opened a new road in the domain of medical science and thereby placed in the hands of the physician a victorious weapon against illness and deaths" **1902** Sir Ronald Ross **Great Britain** "for his work on malaria, by which he has shown how it enters the organism and thereby has laid the foundation for successful research on this disease and methods of combating it" "in recognition of his contribution to the treatment of diseases, especially lupus **1903** Niels R. Finsen Denmark vulgaris, with concentrated light radiation, whereby he has opened a new avenue for medical science" "in recognition of his work on the physiology of digestion, through which knowledge Russia **1904** Ivan P. Pavlov on vital aspects of the subject has been transformed and enlarged" "for his investigations and discoveries in relation to tuberculosis" 1905 Robert Koch Germany **1906** Camillo Golgi "in recognition of their work on the structure of the nervous system" Italy Santiago Ramon y Cajal Spain "in recognition of his work on the role played by protozoa in causing diseases" **1907** Charles L. A. Laveran France "in recognition of their work on immunity" 1908 Paul Ehrlich Germany Elie Metchnikoff France **1909** Emil Theodor Kocher Switzerland "for his work on the physiology, pathology and surgery of the thyroid gland" "in recognition of the contributions to our knowledge of cell chemistry made through **1910** Albrecht Kossel Germany his work on proteins, including the nucleic substances" 1911 Allvar Gullstrand Sweden "for his work on the dioptrics of the eye" **1912** Alexis Carrel "in recognition of his work on vascular suture and the transplantation of blood vessels France and organs" "in recognition of his work on anaphylaxis" **1913** Charles R. Richet France Robert Barany Austria "for his work on the physiology and pathology of the vestibular apparatus" 1915 1916 No Nobel Prize was awarded this year. The prize money was allocated to the Special Fund of this prize section. 1917 1918 Jules Bordet Belgium "for his discoveries relating to immunity" Schack A. S. Krogh Demmark 1920 "for his discovery of the capillary motor regulating mechanism" 1921 No Nobel Prize was awarded this year. The prize money was allocated to the Special Fund of this prize section. Archibald V. Hill **Great Britain** "for his discovery relating to the production of heat in the muscle" "for his discovery of the fixed relationship between the consumption of oxygen and the Otto F. Meyerhof Germany metabolism of lactic acid in the muscle" Frederick G. Banting Canada "for the discovery of insulin" John J. R. Macleod Scotland Willem Einthoven Netherlands "for his discovery of the mechanism of the electrocardiogram" 1925 No Nobel Prize was awarded this year. The prize money was allocated to the Special Fund of this prize section. **1926** Johannes A. G. Fibiger Danmark "for his discovery of the Spiroptera carcinoma" "for his discovery of the therapeutic value of malaria inoculation in the treatment of Julius Wagner-Jauregg Austria France "for his work on typhus" **1928** Charles J. H. Nicolle Christiaan Eijkman 1929 **Netherlands** "for his discovery of the antineuritic vitamin" "for his discovery of the growth-stimulating vitamins" Sir Frederick G. Hopkins **Great Britain** Karl Landsteiner **United States** 1930 "for his discovery of human blood groups" **1931** Otto H. Warburg "for his discovery of the nature and mode of action of the respiratory enzyme" Germany "for their discoveries regarding the functions of neurons" **1932** Edgar D. Adrian **Great Britain** Sir Charles S. Sherrington **Great Britain United States** "for his discoveries concerning the role played by the chromosome in heredity" Thomas H. Morgan George R. Minot **United States** 1934 "for their discoveries concerning liver therapy in cases of anaemia" William P. Murphy **United States** G. H. Whipple **United States** 1935 Hans Spemann Germany "for his discovery of the organizer effect in embryonic development" "for their discoveries relating to chemical transmission of nerve impulses" Sir Henry H. Dale **Great Britain** Otto Loewi **United States** Albert Szent-Gyorgyi Hungary - US "for his discoveries in connection with the biological combustion processes, with special reference to vitamin C and the catalysis of fumaric acid" "for the discovery of the role played by the sinus and aortic mechanisms in the Corneille J. F. Heymans Belgium regulation of respiration" **Gerhard Domagk** Germany "for the discovery of the antibacterial effects of prontosil" 1939 1940 No Nobel Prize was awarded this year. The prize money was with 1/3 allocated to the Main Fund and with 2/3 1941 to the Special Fund of this prize section. 1942 1943 Henrik C. P. Dam Denmark "for his discovery of vitamin K" "for his discovery of the chemical nature of vitamin K" Edward A. Doisy **United States** "for their discoveries relating to the highly differentiated functions of single nerve Joseph Erlanger **United States** Herbert S. Gasser **United States** 1945 Ernst B. Chain **Great Britain** "for the discovery of penicillin and its curative effect in various infectious diseases" Sir Alexander Fleming **Great Britain** Sir Howard W. Florey **Great Britain** Hermann J. Muller **United States** "for the discovery of the production of mutations by means of X-ray irradiation" **United States 1947** Carl F. Cori "for their discovery of the course of the catalytic conversion of glycogen" **United States** Gerty T. Cori "for his discovery of the part played by the hormone of the anterior pituitary lobe in Bernardo A. Houssay Argentina the metabolism of sugar" Paul H. Müller Switzerland "for his discovery of the high efficiency of DDT as a contact poison against several 1948 arthropods" "for his discovery of the functional organization of the interbrain as a coordinator of Switzerland 1949 Walter R. Hess the activities of the internal organs" "for his discovery of the therapeutic value of leucotomy in certain psychoses" Antonio Moniz Portugal Philip S. Hench 1950 **United States** "for their discoveries relating to the hormones of the adrenal cortex, their structure and biological effects" Edward C. Kendall **United States** Switzerland **Tadeus Reichstein 1951** Max Theiler "for his discoveries concerning yellow fever and how to combat it" **United States** "for his discovery of streptomycin, the first antibiotic effective against tuberculosis" **United States 1952** Selman A. Waksman **1953** Sir Hans A. Krebs **Great Britain** "for his discovery of the citric acid cycle" "for his discovery of co-enzyme A and its importance for intermediary metabolism" Fritz A. Lipmann **United States** John F. Enders "for their discovery of the ability of poliomyelitis viruses to grow in cultures of various **United States** types of tissue" Frederick C. Robbins **United States** Thomas H. Weller **United States 1955** Alex H. T. Theorell "for his discoveries concerning the nature and mode of action of oxidation enzymes" Sweden "for their discoveries concerning heart catheterization and pathological changes in 1956 André F. Cournand **United States** the circulatory system" Dickinson W. Richards, Jr. **United States** Werner Forssmann Germany **Daniel Bovet** Italy "for his discoveries relating to synthetic compounds that inhibit the action of certain body substances, and especially their action on the vascular system and the skeletal muscles" George W. Beadle **United States** 1958 "for their discovery that genes act by regulating definite chemical events" Edward L. Tatum **United States** Joshua Lederberg **United States** "for his discoveries concerning genetic recombination and the organization of the genetic material of bacteria" **Arthur Kornberg** "for their discovery of the mechanisms in the biological synthesis of ribonucleic acid 1959 **United States** and deoxyribonucleic acid" Severo Ochoa **United States** "for discovery of acquired immunological tolerance" Sir F. MacFarlane Burnet 1960 Australia Peter B. Medawar **Great Britain** Georg von Békésy **United States** "for his discoveries of the physical mechanism of stimulation within the cochlea" 1961 **Great Britain** "for their discoveries concerning the molecular structure of nucleic acids and its 1962 Francis H. C. Crick significance for information transfer in living material" Maurice H. F. Wilkins **Great Britain** James D. Watson **United States** "for their discoveries concerning the ionic mechanisms involved in excitation and 1963 Sir John C. Eccles Australia inhibition in the peripheral and central portions of the nerve cell membrane" Alan L. Hodgkin **Great Britain** Andrew F. Huxley **Great Britain** 1964 Konrad E. Bloch **United States** "for their discoveries concerning the mechanism and regulation of the cholesterol and fatty acid metabolism" Feodor Lynen Germany Francois Jacob 1965 France "for their discoveries concerning genetic control of enzyme and virus synthesis" André Lwoff France Jacques Monod France Charles B. Huggins **United States** 1966 "for his discoveries concerning hormonal treatment of prostatic cancer" "for his discovery of tumour-inducing viruses" Francis Peyton Rous **United States** 1967 Ragnar Granit Sweden "for their discoveries concerning the primary physiological and chemical visual processes in the eye" Haldan Keffer Hartline **United States** George Wald **United States** 1968 Robert W. Holley **United States** "for their interpretation of the genetic code and its function in protein synthesis" H. Gobind Khorana **United States** Marshall W. Nirenberg **United States** Max Delbrück "for their discoveries concerning the replication mechanism and the genetic structure 1969 **United States** of viruses" Alfred D. Hershey **United States** Salvador Luria **United States** 1970 Julius Axelrod **United States** "for their discoveries concerning the humoral transmittors in the nerve terminals and the mechanism for their storage, release and inactivation" Sir Bernard Katz **Great Britain** Ulf von Euler Sweden Earl W. Sutherland, Jr. **United States** "for his discoveries concerning the mechanisms of the action of hormones" **1972** Gerald M. Edelman **United States** "for their discoveries concerning the chemical structure of antibodies" Rodney R. Porter **Great Britain** "for their discoveries concerning organization and elicitation of individual and social 1973 Karl von Frisch Germany behaviour patterns" **Konrad Lorenz** Germany - Austria Nikolaas Tinbergen **Great Britain** "for their discoveries concerning the structural and functional organization of the cell" 1974 **Albert Claude** Luxembourg - US Romania - US George Emil Palade Christian Rene de Duve Belgium 1975 **David Baltimore United States** "for their discoveries concerning the interaction between tumour viruses and the genetic material of the cell" **Howard Temin United States** Renato Dulbecco Italy - US Baruch S. Blumberg **United States** "for their discoveries concerning new mechanisms for the origin and dissemination of 1976 infectious diseases" Daniel Carleton Gajdusek **United States** 1977 Rosalyn S. Yalow **United States** "for the development of radioimmunoassays of peptide hormones" Roger C. L. Guillemin **United States** "for their discoveries concerning the peptide hormone production of the brain" Andrew V. Schally **United States** 1978 **Daniel Nathans United States** "for the discovery of restriction enzymes and their application to problems of molecular genetics" Hamilton O. Smith **United States** Werner Arber Switzerland 1979 Allan M. Cormack **United States** "for the development of computer assisted tomography" Godfrey N. Hounsfield **Great Britain** 1980 Baruj Benacerraf **United States** "for their discoveries concerning genetically determined structures on the cell surface that regulate immunological reactions" George Snell **United States** Jean Dausset France "for his discoveries concerning the functional specialization of the cerebral hemisphe-1981 Roger W. Sperry **United States** res" David H. Hubel **United States** "for their discoveries concerning information processing in the visual system" Tosten N. Wiesel **United States** "for their discoveries concerning prostaglandins and related biologically active **1982** Sune Bergström Sweden substances" Bengt Samuelsson Sweden **Great Britain** John R. Vane Barbara McClintock **United States** "for her discovery of mobile genetic elements" 1983 1984 César Milstein GB - Argentina "for theories concerning the specificity in development and control of the immune system and the discovery of the principle for production of monoclonal antibodies" Georges J. F. Köhler Germany Niels K. Jerne GB - Denmark 1985 Michael S. Brown **United States** "for their discoveries concerning the regulation of cholesterol metabolism" Joseph L. Goldstein **United States** Italy - US 1986 Rita Levi-Montalcini "for their discoveries of growth factors" Stanley Cohen **United States** 1987 Susumu Tonegawa Japan "for his discovery of the genetic principle for generation of antibody diversity" "for their discoveries of important principles for drug treatment" 1988 Gertrude B. Elion **United States** George H. Hitchings **United States** Sir James Black **Great Britain** J. Michael Bishop **United States** "for their discovery of the cellular origin of retroviral oncogenes" 1989 Harold E. Varmus **United States** 1990 Joseph E. Murray **United States** "for their discoveries concerning organ and cell transplantation in the treatment of human disease" E. Donnall Thomas **United States** 1991 **Edwin Neher** Germany "for their discoveries concerning the function of single ion channels in cells" Bert Sakmann Germany Edmond H. Fisher **United States** "for their discoveries concerning reversible protein phosphorylation as a biological regulatory mechanism" Edwin G. Krebs **United States** 1993 Phillip A. Sharp **United States** "for their discoveries of split genes" Richard J. Roberts **Great Britain** Alfred G. Gilman "for their discovery of G-proteins and the role of these proteins in signal transduction 1994 **United States** Martin Rodbell **United States** 1995 Edward B. Lewis **United States** "for their discoveries concerning the genetic control of early embryonic development" Eric F. Wieschaus **United States** Christiane Nüsslein-Volhard Germany 1996 Peter C. Doherty Australia "for their discoveries concerning the specificity of the cell mediated immune defence" Rolf M. Zinkernagel **Switzerland United States** Stanley B. Prusiner "for his discovery of Prions - a new biological principle of infection" 1998 Robert F. Furchgott **United States** "for their discoveries concerning nitric oxide as a signalling molecule in the cardiovascular system" Louis J. Ignarro **United States** Ferid Murad **United States** Günter Blobel "for the discovery that proteins have intrinsic signals that govern their transport and **United States** localization in the cell" 2000 **Arvid Carlsson** Sweden "for their discoveries concerning signal transduction in the nervous system" Paul Greengard **United States** Eric Kandel **United States** "for their discoveries of key regulators of the cell cycle" 2001 Leland H. Hartwell **United States** Tim Hunt **United Kingdom** Sir Paul M. Nurse **United Kingdom United Kingdom** "for their discoveries concerning genetic regulation of organ development and **Sydney Brenner** 2002 programmed cell death" H. Robert Horvitz **United States** John E. Sulston **United Kingdom** 2003 Paul C. Lauterbur **United States** "for their discoveries concerning magnetic resonance imaging" Sir Peter Mansfield United Kingdom 2004 Richard Axel **United States** "for their discoveries of odorant receptors and the organization of the olfactory system" **United States** Linda B. Buck "for their discovery of the bacterium Helicobacter pylori and its role in gastritis and Barry J. Marshall 2005 Australia peptic ulcer disease" J. Robin Warren Australia 2006 Andrew Z. Fire **United States** "for their discovery of RNA interference - gene silencing by double-stranded RNA" Craig C. Mello **United States United States** 2007 Mario R. Capecchi "for their discoveries of principles for introducing specific gene modifications in mice by the use of embryonic stem cells" Sir Martin J. Evans **United Kingdom** Oliver Smithies **United States** 2008 Harald zur Hausen Germany "for his discovery of human papilloma viruses causing cervical cancer" Françoise Barré-Sinoussi France "for their discovery of human immunodeficiency virus" Luc Montagnier France 2009 Elizabeth H. Blackburn **United States** "for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase" Carol W. Greider **United States United States** Jack W. Szostak Robert G. Edwards 2010 **Great Britain** "for the development of in vitro fertilization" 2011 Bruce A. Beutler **United States** "for their discoveries concerning the activation of innate immunity" Luxembourg Jules A. Hoffmann Ralph M. Steinman Canada "for his discovery of the dendritic cell and its role in adaptive immunity" 2012 Sir John B. Gurdon **United Kingdom** "for the discovery that mature cells can be reprogrammed to become pluripotent" Shinya Yamanaka Japan **2013** James E. Rothman United states "for their discoveries of machinery regulating vesicle traffic, a major transport system in our cells" Randy W. Schekman **United States** Thomas C. Südhof Germany John O'Keefe United Kingdom "for their discoveries of cells that constitute a positioning system in the brain" May-Britt Moser Norway Edvard I. Moser Norway **2015** William C. Campbell United states "for their discoveries concerning a novel therapy against infections caused by roundworm parasites" and the other half to Youyou Tu "for her discoveries concerning a novel therapy against Malaria" Satoshi Ōmura Japan Youyou Tu China Nobelförsamlingen The Nobel Assembly at Karolinska Institutet