Animal Roles in Medical Discoveries

Nobel Prizes for Medicine & Physiology from 1901 to present. Research with animals must continue for similar medical advances to continue.

Year	Scientist	Animal(s) Needed	Contribution to Modern Medicine
1902	Ross	Pigeon	Understanding of malaria life cycle
1904	Pavlov	Dog	Animal responses to various stimuli
1905	Koch	Cow, Sheep	Studies of pathogenesis of tuberculosis
1906	Golgi, Cajal	Dog, Horse	Characterization of the central nervous
1907	Laveran	Bird	Role of protozoa as cause of disease
1908	Mechnikov, Ehrlich	Bird, Fish, Guinea pig	Immune reactions and functions of phagocytes
1910	Kossel	Bird	Knowledge of cell chemistry through work on proteins, including nuclear substances
1912	Carrel	Dog	Surgical advances in the suture and grafting of blood vessels
1913	Richet	Dog, Rabbit	Mechanisms of anaphylaxis
1919	Bordet	Guinea pig, Horse, Rabbit	Mechanisms of immunity
1920	Krogh	Frog	Discovery of capillary motor regulating mechanism
1922	Hill	Frog	Consumption of oxygen and lactic acid metabolism in muscle
1923	Banting, Macleod	Dog, Rabbit, Fish	Discovery of insulin and mechanism of diabetes
1924	Einthoven	Dog	Mechanism of the electrocardiogram
1928	Nicolle	Monkey, Guinea pig, Rat, Mouse	Pathogenesis of typhus
1929	Eijkman, Hopkins	Chicken	Discovery of antineuritic and growth stimulating
1932	Sherrington, Adrian	Dog, Cat	Functions of neurons
1934	Whipple, Murphy, Minot	Dog	Liver therapy for anemia
1935	Spemann	Newt, Frog	Organizer effect in embryonic development
1936	Dale, Loewi	Cat, Frog, Bird, Reptile	Chemical transmission of nerve impulses
1938	Heymans	Dog	Role of the sinus and aortic mechinisms in the regulation of respiration
1939	Domagk	Mouse, Rabbit	Antibacterial effects of prontosil
1943	Dam, Doisy	Rat, Dog, Chicken, Mouse	Discovery of function of Vitamin K
1944	Erlanger, Gasser	Cat	Specific functions of nerve cells
1945	Fleming, Chain, Florey	Mouse	Discovery of penicillin and its curative various infectious diseases
1947	Cori, Cori, Houssay	Frog, Toad, Dog	Catalytic conversion glycogen, role of pituitary in sugar metabolism
1949	Hess, Moniz	Cat	Functional organization of the brain as a coordinator of internal organs
1950	Kendall, Hench, Reichstein	Cow	Antiarthritic role of adrenal hormones
1951	Theiler	Monkey, Mouse	Development of yellow fever vaccine
1952	Waksman	Guinea Pig	Discovery of streptomycin, the first antibiotic effective against tuberculosis
1953	Krebs, Lipmann	Pigeon	Characterization of the citric acid cycle
1954	Enders, Weller, Robbins	Monkey, Mouse	Culture of poliovirus that led to development of vaccine
1955	Theorell	Horse	Nature and mode of action of oxidation enzymes
1957	Bovet	Dog, Rabbit	Production of synthetic compounds and their action on the vascular system and skeletal muscles
1960	Burnet, Medawar	Rabbit	Understanding of acquired immunological tolerance
1961	von Békésy	Guinea pig	Physical mechanism of stimulation in the cochlea
1963	Eccles, Hodgkin, Huxley	Cat, Frog, Squid, Crab	Mechanisms of control and the communication between nerve cells
1964	Block, Lynen	Rat	Regulation of cholesterol and fatty acid metabolism
1966	Rous, Huggins	Rat, Rabbit, Hen	Tumor-inducing viruses and hormonal treatment of cancer
1967	Hartline, Granit, Wald	Chicken, Rabbit, Fish, Crab	Primary physiological and chemical processes of vision
1968	Holley, Khorana, Nirenberg	Rat	Interpretation of genetic code and its role in protein synthesis
1970	Katz, von Euler, Axelrod	Cat, Rat	Mechanism of storage and release of nerve transmitters
1971	Sutherland	Mammalian liver	Mechanism of the actions of hormones
1972	Edelman, Porter	Guinea pig, Rabbit	Chemical structure of antibodies
1973	von Frisch, Lorenz, Tinbergen	Bee, Bird, Fish	Organization of social and behavior patterns in animals
1974	de Duve, Palade, Claude	Chicken, Guinea Pig, Rat	Structural and functional organization of cells
1975	Baltimore, Dulbecco, Temin	Monkey, Horse, Chicken, Mouse	Interaction between tumor viruses and genetic material
1976	Blumberg, Gajdusek	Chimpanzee	New mechanisms for the origin and dissemination of diseases
1977	Gullemin, Schally, Yalow	Sheep, Pig	Discoveries concerning the peptide hormone production of the brain
1979	Cormack, Hounsfield	Pig	Development of computer assisted tomography (CAT scan)
1980	Benacerraf, Dausset, Snell	Mouse, Guinea Pig	Identification of histocompatibility antigens and mechanism of action
1981	Sperry, Hubell, Wiesel	Cat, Monkey	Processing of visual information by the brain
1982	Bergstrom, Samuelsson, Vane	Rat, Rabbit, Guinea Pig	Discovery of prostaglandins
1984	Millstone, Kochler, Jerne	Mouse	Techniques of monoclonal antibody formation
1985	Brown, Goldstein	Rats, Mice	Discoveries concerning the regulation of cholesterol metabolism
1986	Levi-Montalcini	Mouse, Chicken, Snake	Nerve growth factor and epidermal growth factor
1987	Tonegawa	Mouse embryo	Discovery of the genetic principle for generation of antibody diversity
1988	Black, Elion	Mice, Dog, Rabbit, Monkey	Discoveries of important principles for drug treatment
1989	Varmus, Bishop	Chicken	Cellular origin of retroviral oncogenes
1990	Murray, Thomas	Dog	Organ transplantation techniques
1991	Neher, Sakmann	Frog	Chemical communication between cells
1992	Fisher, Krebs	Rat, Rabbit	Discoveries concerning reversible protein phosphorylation as a biological regulatory mechanism
1993	Roberts, Sharp	Rats, Mice	Discoveries of split genes
1994	Gilman, Rodbell	Rat, Cow, Rabbit, Turkey, Guinea Pig	Discovery of G-proteins and the role of these proteins in signal transduction in cells
1995	Lewis, Nüsslein-Volhard, Wieschaus	Fruit fly	Genetic control of early embryonic development
1996	Doherty, Zinkernagel	Mouse	Recognition of virus-infected cells by the immune system
1997	Prusiner	Mouse, Hamster	Discovery of prions, a new biological principle of infection
1998	Fuchgott, Ignarro, Murad	Rabbit	Regulation of blood pressure with nitric oxide (NO)
1999	Blobel	Mouse, Rat, Dog	Discovery that proteins have intrinsic signals that govern their transport and localization in the cell
2000	Carlsson, Greengard, Kandel	Sea slug, Mouse	Discoveries in signal transduction in the nervous system
2001	Hartwell, Hunt, Nurse	Sea urchin, Frog	Discoveries of key regulators of the cell cycle
2002	Brenner, Horvitz, Sulston	Roundworm	Genetic regulation of organ development and programmed cell death
2003	Lauterbur, Mansfield	Clam, Mouse, Dog, Rat, Chimpanzee, Pig, Rabbit, Frog	Discoveries concerning magnetic resonance imaging (MRI)
2004	Axel, Buck	Mouse, Fruit Flies	Discoveries of odorant receptors and the organization of the olfactory system
2005	Marshall, Warren	Piglet	Discovery of the bacterium Helicobacter pylori and its role in mouse, gerbil gastritis and peptic ulcer disease
2006	Fire, Mello	Roundworm	Discovery of RNA interference — gene silencing by double-stranded RNA
2007	Capecchi, Evans, Smithies	Mouse, Chick	Development of knock-out mice
2008	zur Hausen	Hamster, Mouse, Cow	Discovery of human papilloma viruses (HPV) causing cervical cancer
2008	Barre-Sinoussi, Montagnier	Monkey, Chimpanzee, Mouse	Discovery of human immunodeficiency virus (HIV)
2009	Blackburn, Greider, Szostak	Frog, Mouse	Discovery of a key mechanism in the genetic operations of cells
2010	Edwards	Rabbits, Rats, Mice, Hamsters	Development of in vitro fertilization
2011	Beutler, Hoffmann, Steinman	Mouse, Fruit Fly	Discoveries concerning adaptive and innate immunity
2012	Gurdon, Yamanaka	Frog, Mouse	Discoveries that mature cells can be reprogrammed and how mature cells can be transformed into stem cells
2013	Rothman, Schekman, Südhof	Chinese Hamster	Machinery regulating vesicle traffic, a major transport system in our cells
2014	O'Keefe, Moser, Moser	Rat	Discovery of the brain's "inner GPS"

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