

Notable and Anniversary Dates in Biochemistry for 2006

N. P. Voskresenskaya and E. N. Bylinsky, Compilers

*Department of History of Medicine and Public Health, National Institute of Social Health,
Russian Academy of Medical Sciences, Moscow, Russia*

DOI: 10.1134/S0006297906020179

- 350th anniversary of the artificial preparation of glauher salt (I. Glauber, 1656).
- 250th anniversary of the discovery and experimental justification of the law of substance weight conservation in chemical reactions (M. V. Lomonosov, 1756).
- 200th anniversary of the isolation from opium of a pure alkaloid morphine and establishment of its properties (F. Serturmer, 1806).
- 200th anniversary of the isolation of aspartic acid, the first amino acid prepared from a natural source, asparagus juice (L. Vauquelin, P. Robiquet, 1806).
- 150th anniversary of the preparation of fuchsin (Ya. Natanson, 1856).
- 150th anniversary of the proposal of a reagent for quantitative determination of nitrogen and urea after its enzymatic hydrolysis (Nessler's reagent) (J. Nessler, 1856).
- 100th anniversary of the isolation of the first crystalline enzyme, oxidase (A. Rosenfeld, 1906).
- 100th anniversary of the discovery of the linkage of characters (and the corresponding inherited factors, genes) (W. Bateson, E. Saunders, R. Punnet, 1906).
- 100th anniversary of the discovery of erythropoietin, the peptide hormone regulating erythropoiesis (P. Carnot, C. Deflandre, 1906).
- 75th anniversary of the discovery of oxidative phosphorylation (V. A. Engelhardt, 1931).

January 10 – 90th anniversary of the birth of S. Bergstrom (1916), Swedish biochemist, Academician, Rector of the Karolinska Institute (1969-1977), Foreign Member of the USSR Academy of Sciences (1976) and USSR Academy of Medical Sciences (1982), Chairman of the Nobel Foundation Board of Directors (1975). He contributed to studies on the structure and biological effects of prostaglandins, hormonal substances from animal tissues, and established the complete structure of the most important of them. He also studied biosynthesis and

metabolism of bile acids and cholesterol, autooxidation, and biochemistry of heparin. For his pioneering works on isolation and study of prostaglandins and similar biologically active substances, he won the Nobel Prize (1982, jointly with B. Samuelson, J. Vane). Bibliography and literature: see Great Medical Encyclopedia and Great Soviet Encyclopedia, Third Edition; *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 61; *The Nobel Prize Winners*, in *Encyclopedia: A-L* (1992) Progress, Moscow.

March 19 – 25th anniversary of the death of Grachia Khachaturovich Bunyatyan (1907-1981, born in the town of Nor-Bayazet, Yerevan Guberniya), Armenian biochemist, Honored Scientist of Armenia, Academician and Vice-President of the Armenian SSR Academy of Sciences (1961-1967). He was Professor and Chief of the Chair of Biochemistry, Yerevan Medical Institute (1937-1961), organizer and Director of the Institute of Biochemistry, Academy of Sciences of Armenian SSR (from 1961). His main works are in the field of functional biochemistry of the brain. He studied mechanisms of ammonia generation from amino acids, found a new nicotinamide coenzyme (diaminonicotinamide dinucleotide), and studied its role in metabolism, showed the role of γ -aminobutyric acid in metabolism of carbohydrates and amino acids. He discovered in the brain new copper-containing proteins, studied the role of unsaturated phosphatides and choline in oxidative processes, oxidation and stabilization of vitamin C, and cortical regulation of metabolism. He was the first to show antioxidant properties of vitamin C, phosphatides, carotenoids, and vitamin A; revealed new regularities in brain metabolism in its different functional states. He was Chairman of the Armenian Society of Biochemists (from 1975), member of the German Leopoldina Academy of Naturalists (from 1972), of the International Society on Neurochemistry, International Organization of Brain Studies, member of the International Biochemical Union Council (from 1975). Bibliography: *Phosphatides as Pro- and Antioxi-*

dants at Autooxidation of Lipids and Vitamin A (Carotenoids) (1937) Yerevan; *Urea Cycle in Brain* (1971) in *Handbook of Neurochemistry*, New York-London, Vol. 5, pp. 235-247. Literature: *Reference Book on Biographies of Men of Natural Science and Technique* (1958) Moscow, Vol. 1; *Biol. Zh. Arm.* (1977) **30**, No. 5, 101-104; *Problems of Brain Biochemistry* (1978) **13**, 5-8; *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 104.

March 26 – 90th anniversary of the birth of Ch. Anfinsen (1916), American biochemist. He contributed to studies on the structure, functions, and synthesis of proteins and enzymes, showed the significance of the protein primary structure in formation of the unique biologically active conformation of its macromolecule. He studied the structure and functions of ribonuclease and published (1956) preliminary data on its structure. He was the first to indicate that data on protein structure could be used for detecting genetic likeness or difference of representatives of different species. He proposed a new interpretation of biological evolution. For his investigation of ribonuclease, especially interrelationship between its amino acid sequence and biologically active coenzymes, he won the Nobel Prize in Chemistry (jointly with S. Moore and W. Stein, 1972). A number of his works concern to the structure and properties of interferon. Bibliography: see Great Soviet Encyclopedia, Third Edition, Vol. 30, p. 1714; *The Molecular Basis of Evolution* (1959). Literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, pp. 24-25; *The Nobel Prize Winners*, in *Encyclopedia: A-L* (1992) Progress, Moscow, pp. 29-32.

April 6 – 95th anniversary of the birth of F. Lynen (1911-1979), German biochemist, member of the National Academy of Sciences of USA (1962), German Leopoldina Academy of Naturalists, etc. He studied intermediary metabolism, oxidation, and biosynthesis of fatty acids and cholesterol and was the first to isolate acetyl-CoA from yeast (1951). Jointly with colleagues, he explained the mechanism of fatty acid biosynthesis. He showed that cholesterol generation begins from condensation of two molecules of acetyl-CoA and further compounds but, with accumulation of cholesterol in the cell, the system of GMG-coenzyme A-reductase is suppressed, and the synthesis of cholesterol decreases. In 1964, he received the Nobel Prize in Physiology and Medicine (jointly with K. Bloch) for discoveries concerning the mechanism and regulation of metabolism of cholesterol and fatty acids. Bibliography: *Biosynthesis of Saturated Fatty Acids* (1961) *Fed. Proc.*, **20**, 941. Literature: *The Nobel Prize Winners*, in *Encyclopedia: A-L* (1992) Progress, Moscow; *Science* (1963) October 23; Great Medical Encyclopedia, Third Edition.

May 30 – 100th anniversary of the birth of Aleksandr Mikhailovich Kuzin (1906-1999, born in Moscow), Russian biochemist and radiobiologist, Corresponding

Member of the USSR Academy of Sciences. In 1938-1950, he was Professor and Chief of the Chair of Organic and Biological Chemistry, the First Moscow Medical Institute (now Sechenov Moscow Medical Academy). In 1950-1952, he organized and led the Laboratory of Isotopes and Radiation, USSR Academy of Sciences. From 1952, he was Leader of the Department of Radiobiology and Laboratory of Molecular Radiobiology, Institute of Biophysics, the USSR Academy of Sciences (in 1952-1957 Director). His main works are in biochemistry and molecular effects of ionizing radiation on the organism, in particular, radiation damage of the cell. He studied the mechanism of condensation of formaldehyde and sugar (1938) and showed the role of carbohydrates as autocatalysts of this process, studied specific polysaccharides of macro- and microorganisms. He discovered generation of growth inhibitors in irradiated plant tissues and studied the stimulating effect of a pre-sowing irradiation of seeds. He is the author of the structural-metabolic theory of cell radiation damage and the theory of molecular mechanisms of the stimulating effect of small doses of radiation. He was Editor-in-Chief of *Biofizika* (1955-1961) and *Radiobiologiya* (from 1961) journals. Bibliography: *Molecular Mechanisms of Biological Effects of High Energy Radiation* (1968) Nauka, Moscow, p. 31; *The Effect of Ionizing Radiation on Cell Membranes* (1973) Moscow, p. 111 (in co-authorship); *Molecular Radiobiology of the Cell Nucleus* (1973) Moscow, p. 208; *Applied Radiobiology* (1981) Moscow, p. 222 (with D. A. Kaushansky); *Radiotoxins* (1983) Nauka, Moscow, p. 174 (with V. A. Kopylov); *Structural-Metabolic Theory in Radiobiology* (1986) Nauka, Moscow, p. 284; *Ideas of Radiation Hormesis in the Nuclear Age* (1995) Nauka, Moscow, p. 158. Literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 341.

June 8 – 90th anniversary of the birth of F. Crick (1916), English biophysicist, member of the London Royal Society and National Academy of Sciences of USA. In 1953 jointly with D. Watson he completed the creation of DNA model, in 1961 (with colleagues) he proposed a manner for reading the genetic code by three types of RNA: informational, ribosomal, and transfer. In 1962, he won the Nobel Prize in Physiology and Medicine for discoveries concerning the molecular structure of nucleic acids and their significance for transmission of information in living systems. In the book *Life Itself: Its Origin and Nature* (1981), he accentuated a surprising similarity of all life forms (except mitochondria), with the identical genetic code in all living objects studied by the time. In 1965, he proposed the hypothesis of the ambiguous correspondence, which promoted development of general principles of the genetic code structure and explained the mechanism of the codon correspondence to amino acids. Bibliography: *Of Molecules and Men* (1966). Literature: *The Nobel Prize Winners*, in *Encyclopedia: A-L* (1992) Progress, Moscow; P.

Weintraub (ed.) (1984) *The Omni Interviews*; Great Medical Encyclopedia, Third Edition.

June 19 – 100th anniversary of the birth of E. B. Chain (1906-1979), English biochemist, member of the London Royal Society. In 1950-1961, he was Director of the International Center of Chemical Microbiology, from 1961 Professor of the Chair of Biochemistry, London University. The main field of his studies was biochemistry of antibiotics. He isolated (1940, jointly with H. W. Florey) penicillin from culture of the black mold fungus described by A. Fleming in 1929, described its properties, established its chemical structure, and applied for the first time (1941, jointly with Florey) for treatment of animals and human. He discovered penicillinase, the enzyme catalyzing degradation of penicillin, studied mechanism of the lysozyme effect, discovered viruses of fungi, and investigated the possibility of using in medicine of ribonucleic acid prepared from them. He studied metabolism of tumor tissue, the effect of insulin, elaborated methods of biochemical microanalysis and technology of some microbiological productions. He was Foreign Member of the USSR Academy of Sciences (from 1976), member of the French Medical Academy. For discovery of penicillin, he received the Nobel Prize in Physiology and Medicine (1945, jointly with A. Fleming and H. Florey). He was awarded the Berzelius Gold Medal of the Swedish Medical Society (1946), the Pasteur Gold Medal of the Biochemical Society of France, the Ehrlich Prize (1954). Bibliography: *Antibiotics, a Survey of Penicillin* (1949) London-New York-Toronto, Vols. 1/2 (jointly with others); *Landmarks and Perspectives in Biochemical Research* (1964) London, p. 426. Literature: see Great Medical Encyclopedia and Great Soviet Encyclopedia, Third Edition; *The Nobel Prize Winners*, in *Encyclopedia: M-Ya* (1992) Progress, Moscow.

July 6 – 90th anniversary of the birth of Aleksandr Stepanovich Khokhlov (1916-1997, born in Moscow), Russian chemist and biochemist, Academician of the USSR Academy of Sciences. He worked in the Institute of Biological and Medical Chemistry (1945-1952), Institute of Experimental Pathology and Therapy of Cancer (1952-1954), All-Union Institute of Antibiotics (1954-1960). From 1959, he was Leader of laboratory and Vice-Director of the Institute of Bioorganic Chemistry. His main works are in chemistry and biochemistry of biopolymers (in particular, he studied their protein-peptide nature), bioregulators, hormones, and synthetic and natural anticarcinogenic substances. He investigated the structure and properties of antibiotics, hormones, antitumor substances, elaborated various approaches to study biopolymers. Bibliography: *Chemistry of Antibiotics* (1949), Moscow, p. 454 (with others); *Paper Chromatography of Antibiotics* (1979), Nauka, Moscow, p. 364 (in co-authorship); *Low-Molecular-Weight Microbial Autoregulators* (1988), Nauka, Moscow, p. 271.

Literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 676; *The 70th Anniversary of A. S. Khokhlov* (1986) *Antibiotics and Medical Technology*, No. 11, 875.

July 23 – 100th anniversary of the birth of V. Prelog (1906-1998), Swiss organic chemist, Academician, member of the American National Academy of Sciences, Foreign Member of the USSR Academy of Sciences (1966). He contributed to development of modern approaches for investigation of complex organic compounds including some antibiotics important for practice. He was the Nobel Prize Winner in Chemistry for studies in the field of structure and activity of cells of living organisms (1975, jointly with J. Cornforth). Bibliography and literature: see Great Soviet Encyclopedia, Third Edition; *International Who's Who, 1991-1992* (1991) London; *The Nobel Prize Winners*, in *Encyclopedia: M-Ya* (1992) Progress, Moscow.

July 27 – 125th anniversary of the birth of H. Fischer (1881-1945), German organic chemist and biochemist. His main works concern chemistry of pyrrole and its derivatives. He synthesized pigments of blood and bile (hemin in 1929 and bilirubin in 1931) and showed blood hemoglobin to consist of a protein globin and a complex iron compound hemin. He established the structure of chlorophylls *a* and *b*. For studies on pigments of blood and plant leaves and for the synthesis of hemin he won the Nobel Prize in Chemistry (1930). Bibliography and literature: see Great Soviet Encyclopedia, Third Edition; V. Cholakov, *Nobel Prizes* (1986) Mir, Moscow; *The Nobel Prize Winners*, in *Encyclopedia: A-L* (1992) Progress, Moscow.

July 28 – 80th anniversary of the birth of Dmitrii Georgievich Knorre (1926, born in Leningrad), Russian biochemist, Academician of the Russian Academy of Sciences. In 1985-1990, he was Director of the Novosibirsk Institute of Bioorganic Chemistry, 1990-1996 Secretary Academician of the Department of Physicochemical Biology, Russian Academy of Sciences. From 1996, he is Consultant of the Russian Academy of Sciences. His works concerned elaboration of antioxidants for food fats (1947-1957), he also studied mechanisms of biosynthesis of peptides (1957-1965), oligonucleotides (1974-1977), and proteins, principles of specific interactions of macromolecules, mechanisms of interactions of different chemical reagents with proteins and nucleic acids; he developed approaches for chemical synthesis of biopolymers, principles of nucleic acid modification with carbodiimides and alkylating agents. He participated in the organization of domestic production of biopreparations: transfer RNA, nucleotides, and their derivatives. Bibliography and literature: see Great Medical Encyclopedia and Great Soviet Encyclopedia, Third Edition; *Physical Chemistry*, 2nd Edition (1990) Moscow, p. 416 (in co-authorship); *Biological Chemistry*, 3rd Edition (2002) Moscow, p. 479 (jointly with others).

August 11 – 80th anniversary of the birth of A. Klug (1926), English biochemist, member of the London Royal Society. He established that tobacco mosaic virus is a broad helix-like structure with repeated protein fragments and genetic material located along the inner surface of the protein, developed so-called crystallographic electron microscopy when the image undergoes diffraction with laser radiation. In 1981, he proved (with colleagues) that each of many histones is a short stump-like cylindrical molecule with a region of unbroken DNA coiled around. In 1982, he received the Nobel Prize in Chemistry for development of the method of crystallographic electron microscopy and elucidation of the structure of biologically important nucleic acid–protein complexes. Bibliography: *The Nucleosome* (1981) *Scientific American*, February. Literature: *The Nobel Prize Winners*, in *Encyclopedia: A-L* (1992) Progress, Moscow; *Science* (1982) November 12; Great Medical Encyclopedia, Third Edition, **22**, p. 284.

August 21 – 75th anniversary of the death of Sergei Pavlovich Kostychev (1877–1931, born in St. Petersburg), Russian biochemist, plant physiologist and microbiologist, Academician of the USSR Academy of Sciences. From 1914, he was Professor, from 1916 Chief of the Chair of Plant Physiology, St. Petersburg University, from 1923 Director of the Laboratory of Plant Biochemistry and Physiology of the USSR Academy of Sciences, and of the State Institute of Experimental Agronomy (from 1930 the Institute of Agricultural Microbiology, Lenin All-Union Academy of Agricultural Sciences) in Leningrad. His main works concern chemistry of respiration and fermentation. He showed that alcoholic fermentation is not the first stage of respiration as it was believed but both processes are related through common intermediate products of carbohydrate transformations. He experimentally based and developed the theory about the genetic relation of respiration and fermentation, which considers the anaerobic degradation of sugars to be the initial stage common for both fermentation and respiration. He found that during fermentation yeast can synthesize acids and alcohols. He studied the production of citric acid during the vital activity of the fungus *Aspergillus niger*, and results of these studies were used in technological schemes of the first domestic microbiological plants. He established the pathway of nitrate reduction to ammonia by plants and showed the generation of ammonia upon fixation of atmospheric nitrogen by *Azotobacter*, elucidated changes in photosynthesis during the day. Bibliography: *About the Appearance of Life on Earth* (1913) St. Petersburg, p. 50; *Plant Physiology* (1924–1933) Leningrad, Vols. 1/2; *Selected Works on Physiology and Biochemistry of Microorganisms* (1956) Moscow, Vols. 1/2. Literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 328.

August 23 – 75th anniversary of the birth of H. Smith (1931), American microbiologist. The main field of his

researches is gene engineering. He was the first (1970) to isolate the restriction endonuclease *HindII* and lay the foundations for works with such type enzymes (methods of enzyme purification and determination of the structure of the region under study). He won the Nobel Prize in Physiology and Medicine for discovery of restriction enzymes and their use in molecular genetics (1978, jointly with W. Arber and D. Nathans). Bibliography: *Genetic and Molecular Characterization of Some Non-transferring Plasmids* (1974) *Mol. Genet.*, **129**, 229–242. Literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, pp. 579–580; *The Nobel Prize Winners*, in *Encyclopedia: M-Ya* (1992) Progress, Moscow.

September 4 – 75th anniversary from the birth of Aleksandr Sergeevich Spirin (1931, born in the town of Kaliningrad, Moscow Region), Russian biochemist, Academician of the Russian Academy of Sciences, member of the German Leopoldina Academy of Naturalists. From 1973, he was Chief of the Chair of Molecular Biology, Moscow State University, in 1967–2001 Director of the Institute of Protein, Russian Academy of Sciences. From 2001, he is Consultant of the Russian Academy of Sciences. He is the Lenin Prize Laureate (1976) for participation in the cycle of works on discovery and study of informosomes. His main works concern biochemistry of nucleic acids and protein biosynthesis. Based on systematic comparative analysis of DNA and RNA composition of bacteria, he predicted (1957, jointly with A. N. Belozersky) the existence of informational RNA; gave the first qualitative description of the macromolecular structure of highly polymeric RNAs (1959–1961); established structural transformations of ribosomes and formulated one of the main principles of their structure (1963). He proposed and experimentally justified a model of the quaternary structure of one of two ribosomal subparticles (1978–1980). Bibliography: Great Medical Encyclopedia, Third Edition; *Structure of Ribosomes and Biosynthesis of Protein* (1984) Biological Research Center, Pushchino, p. 367; *Molecular Biology: Structure and Biosynthesis of Nucleic Acids* (1990) Moscow, p. 351. Literature: see Great Medical Encyclopedia, Third Edition; *A. S. Spirin: Bibliography* (T. B. Kuvshinkina et al., Compilers) (2001) Nauka, Moscow.

September 6 – 100th anniversary of the birth of L. F. Leloir (1906–1987), Argentine physician and biochemist, member of the Argentine National Academy of Medicine (from 1961). His main works concern metabolism and biosynthesis of carbohydrates. He obtained for the first time (1937) a cell-free preparation able to oxidize fatty acids, discovered a number of intermediary products of carbohydrate metabolism and, in particular, isolated glucose diphosphate (1948), uridine diphosphate glucose (1951), and also found out the main enzymatic reaction resulting in the generation in the organism of nucleotide diphosphate sugars (NDPS). He studied the role of kidneys in hypertension and discovered hypertensin, a sub-

stance entering the blood in kidney diseases and significantly increasing blood pressure. For discovery of a number of enzymes catalyzed in the presence of NDPS he was awarded the Nobel Prize in Chemistry (1970). Bibliography and literature: Great Soviet Encyclopedia, Yearbook (1971); *The Nobel Prize Winners of 1970* (1971) *Priroda*, No. 2, 103-104; *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 365.

September 30 – 100th anniversary of the birth of Vladimir Aleksandrovich Belitsker (1906, born in Ryazan), Russian Biochemist, Academician of the Ukrainian SSR Academy of Sciences, Honored Man of Science of the Ukrainian SSR. From 1944, he was Leader of the Department of Protein Structure and Function, Institute of Biochemistry, the Ukrainian SSR Academy of Sciences. He discovered phosphorylation during electron transfer along the respiratory chain (jointly with E. T. Tsybanova, 1939). A number of his works concern searching for physicochemical bases of specific functions of proteins. He developed a method for production of a protein blood substitute from bovine blood (BK-8) (jointly with K. I. Kotkova), contributed to studies of physicochemical bases of fibrinogen conversion into fibrin at the blood coagulation. Bibliography and literature: see Great Medical Encyclopedia and Great Soviet Encyclopedia, Third Edition; *Vladimir Aleksandrovich Belitsker* (1976) *Ukr. Biokhim. Zh.*, **48**, No. 5, 671-673.

October 5 – 85th anniversary of the birth of M. B. Hoagland (1921), American biochemist, member of the American Academy of Arts and Sciences. He contributed to studies on mechanisms of protein biosynthesis, regeneration of liver, and the effect of beryllium on tumorigenesis. He was one of the first investigators of the role of nucleic acids in protein synthesis; studied location of different RNAs in the cell, in particular, transfer RNA in the cytoplasm. He discovered (1956) the mechanism of amino acid activation by transfer RNAs during the first stages of protein biosynthesis and was the first who described (1957) the enzymes aminoacyl synthetase and tRNA synthetase. Bibliography and literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 671.

October 13 – 100th anniversary of the birth of Sergei Rufovich Mardashev (1906-1974, born in St. Petersburg), Russian biochemist, Academician of the USSR Academy of Medical Sciences, Vice-President of the USSR Academy of Medical Sciences (1963-1974). From 1952, he was Chief of the Chair of Biochemistry in the First Moscow Medical Institute (now Sechenov Moscow Medical Academy). From 1959, he led the Laboratory of Enzymology, Institute of Biological and Medical Chemistry. In 1952-1962, he was Director of the Research Laboratory at the V. I. Lenin Mausoleum. His main works concern nitrogen metabolism in animals and microorganisms and enzymology. He developed specific methods (enzymatic, microbiological, chromatographic) for determination of amino acids and analysis of amino

acid composition of proteins; detected for the first time free asparagine in animal tissues and studied its biosynthesis and metabolism. For discovery of a new species of bacteria containing a highly active specific decarboxylase of aspartic acid and development of a specific quantitative method for its determination in biological objects he was awarded the State Prize (1949). He found a new type of decarboxylation of aspartic acid (β -decarboxylation), isolated (1953) a new microorganism of micrococci containing a highly active histidine decarboxylase, developed a specific quantitative method for determination of histidine, and later was the first to isolate from this microorganism crystalline homogenous histidine decarboxylase. He prepared from microorganisms crystalline asparaginase, an enzyme used in the treatment of leukemia. He developed and introduced in practice enzymatic methods of diagnosis of liver, kidney, and pancreas diseases. He is the author of the guidebook *Biological Chemistry* (jointly with B. I. Zbarskii and I. I. Ivanov, 1951). Bibliography and literature: see Great Medical Encyclopedia, Third Edition; *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, pp. 402-403.

November 8 – 70th anniversary of the birth of Genrikh Romanovich Ivanitskii (1936-2003, born in Moscow), Russian biophysicist, Corresponding Member of the Russian Academy of Sciences, winner of the State (1978) and Lenin (1980) Prizes. In 1977-1987, he was Director of the Institute of Biological Physics, from 2001 Director of the Institute of Theoretical and Experimental Biophysics. His main works concern modern biophysical approaches for investigation of the cell by means of computerized technique and coherent optics. He performed computerized studies on the cellular structure of the brain and analysis of blood cells, studied behavior of glial cells in vascular diseases of the brain, developed a method to control the cell pulsations, computer-aided methods for analysis of fine chromosome rearrangements by karyotyping. He led the creation of the first domestic center for computer-aided analysis of cell structures (1970). Bibliography: *Automated Analysis of Microobjects* (1967) Moscow-Leningrad, p. 224 (in co-authorship); *Mathematical Biophysics of the Cell* (1978) Nauka, Moscow, p. 310 (jointly with others); *Biotechnique Is a New Line in Computerization* (G. R. Ivanitskii, ed.) (1990) Nauka, Moscow, p. 144 (in co-authorship); *Physicochemical and Clinical Studies of Perfluoroorganic Compounds* (G. R. Ivanitskii, ed.) (1994) Pushchino, p. 119 (jointly with others); *Perfluoroorganic Compounds in Biology and Medicine* (G. R. Ivanitskii, ed.) (2001) Pushchino, p. 226. Literature: *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 269.

November 18 – 100th anniversary of the birth of G. Wald (1906-1997), American biologist and biochemist. His main works concern biochemistry, physiology, and evolution of vision, photoreception mechanisms, color vision, and visual adaptation in humans, as well as prob-

lems of life origin and biological evolution. He discovered the role of vitamin A in biochemistry of a visual pigment of rods, rhodopsin, developed an enzymatic theory of excitement of visual receptors, was the first to isolated a visual pigment of cones, iodopsin. For studies on visual pigments won the Nobel Prize (1967, jointly with H. Hartline and R. Granit). Bibliography and literature: see Great Medical Encyclopedia, Third Edition.

November 22 – 25th anniversary of the death of H. Krebs (1900-1981), English biochemist, member of the London Royal Society and National Academy of Sciences of USA. He mainly studied tissue nitrogen metabolism and for the first time used Warburg's microspirometric method and his technique of surviving tissue slices. He created a theory of urea generation (the ornithine Krebs cycle) and developed a theory of the cell respiration, or the tricarboxylic acid cycle (1937), which is another fundamental process of tissue metabolism (the Krebs cycle). For discovery of the respiratory cycle of tricarboxylic acids, he was awarded the Nobel Prize (1953). Bibliography and literature: see Great Medical Encyclopedia, Third Edition.

November 30 – 80th anniversary of the birth of A. Schalley (1926), American biochemist (of Polish origin), member of the National Academy of Sciences of USA. In 1966, he isolated (with colleagues) a hypothalamic hormone (thyrotropin-releasing hormone, TRH) promoting the release from hypophysis of thyrotropin activating in its turn the production of thyroid gland hormones. In 1969, he showed (with colleagues) that TRH consists of three amino acids. TRH is now used for diagnosis and treatment of some diseases associated with insufficiency of thyroid hormones. In the late 1960s, he obtained (with colleagues) a hypothalamic hormone (gonadotropin-releasing hormone, GRH) regulating the release by hypophysis of gonadotropins promoting the secretion of female and male sex hormones from ovaries and testes, respectively. GRH was found to be a peptide of ten amino acids. In 1977, he won half of the Nobel Prize in Physiology and Medicine for discoveries concerning the brain production of peptide hormones (jointly with R.

Guillemin). The other half of the Nobel Prize was given to R. Yalow for radioimmunological determinations of peptide hormones. Literature: *The Nobel Prize Winners*, in *Encyclopedia: M-Ya* (1992) Progress, Moscow; *Science* (1977) November 11.

December 15 – 90th anniversary of the birth of M. H. F. Wilkins (1916), English biochemist, member of the London Royal Society (1959). He studied structure of DNA by X-ray crystallographic analysis and confirmed the hypothesis proposed by J. Watson and F. Crick that DNA should be a double helix (1953). He developed a theory of photo- and thermoluminescence, worked in the field of biophysics of the nervous system. He is member of a number of academies and scientific societies. For discovery of molecular structure of nucleic acids and their significance for inherited transmission of characters and properties of organisms, he won the Nobel Prize (1962, jointly with F. Crick and J. Watson). Bibliography and literature: see Great Soviet Encyclopedia, Third Edition; *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, p. 639.

December 19 – 60th anniversary of the birth of Vsevolod Arsen'evich Tkachuk (1946, born in the town of Biisk, Altai region), Russian biochemist, Academician of the Russian Academy of Medical Sciences and the Russian Academy of Sciences. From 1982, he is a head of a laboratory and then (from 1987) Leader of the Biochemistry Department, Research Institute of Experimental Cardiology, Russian Cardiological Research Complex, and concurrently Chief of the Chair of Biological and Medical Chemistry, Moscow State University. His main studies concern biochemical mechanisms of regulation of intracellular processes and their alterations in various cardiovascular disorders. He was the first to describe a hormone-like effect of lipoproteins on the cells of blood vessels and blood. Bibliography: *Introduction to Molecular Endocrinology* (1983) Moscow, p. 256; *Receptors and Intracellular Calcium* (1994) Nauka, Moscow, p. 288 (jointly with P. V. Avdonin). Literature: V. A. Tkachuk (2004) *60th Anniversary of the Russian Academy of Medical Sciences*, Moscow, p. 419.