
CHRONICLES

Notable and Anniversary Dates in Biochemistry for 2011*

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DISCOVERIES

- 200th anniversary of the concept of the *molecule* connecting atomic theory of the structure of matter with A. Avogadro's law (1811).
200th anniversary of the first scientific idea about enzymes (Gottlieb Kirchhoff, 1811-1814).
200th anniversary of the preparation of pure iodine (B. Courtois, 1811).
150th anniversary of the creation of the theory of chemical structure of organic compounds (A. M. Butlerov, 1861).
125th anniversary of the synthesis of protein-like substances with involvement of enzymes (A. Ya. Danilevsky, 1886).
125th anniversary of the first observation of the spectrum of a cytochrome system typical for some animal tissues, with four bands in the visible part of the spectrum (C. A. McMunn, 1886).
100th anniversary of the isolation of the first vitamin (B₁) and of the introduction of the term *vitamin* (C. Funk, 1911-1912).
100th anniversary of the first detection of keto acid decarboxylation (C. Neuberg, 1911).
100th anniversary of the "planetary" hypothesis of atomic structure (E. Rutherford, 1911).
75th anniversary of the discovery of DNA in plants (A. N. Belozersky, 1936).
75th anniversary of the development of cytophotometry principles for determination of chemical composition of cells based on their light absorption (T. Caspersson, 1936).
75th anniversary of the synthesis of vitamin B₁ (R. Williams, J. Cline, 1936).
75th anniversary of the isolation of cortisone (E. Kendall, O. Wintersteiner, USA; N. Reichstein, Switzerland, 1936).
50th anniversary of the discovery of nuclear RNA (G. P. Geogiev, V. L. Mant'eva, 1961).

- 50th anniversary of formulating the basic properties of the genetic code (F. Crick, 1961).
50th anniversary of the creation of a cell-free system synthesizing polypeptides in the presence of natural RNA or synthetic polyribonucleotides (M. Nirenberg, J. H. Matthaei, 1961).

PUBLICATIONS AND JOURNALS

- 150th anniversary of the publication of the work *On Chemical Structure of Substances*, by A. M. Butlerov, 1861.
150th anniversary of the publication "Untersuchungen uber das Sonnenspectrum und die Spectren der chemischen Elemente" (*Studies on the Solar Spectrum and of Spectra of Chemical Elements*), by G. R. Kirchhoff, 1861-1862.
100th anniversary of the publication of the work *On the Back Action or "Afteraction" of Carbon Dioxide and on the Biological Significance of CO₂ which Is Usually Present in the Organism* (P. M. Albitsky, 1911).
75th anniversary of the publication of the work *The Organization of Cells. Experimental Studies, Papers, and Speeches. 1903-1935* (N. K. Koltsov, 1936).
75th anniversary of the foundation of the journal *Biokhimiya*, Editor-in-Chief A. N. Bach (1936).
75th anniversary of first publication of *Biokhimiya* (Moscow, Leningrad, 1936).
50th anniversary of the V International Congress on Biochemistry (Moscow, 1961).

February 6 – 150th anniversary of the birth of Nikolai Dmitrievich Zelinsky (1861-1953, born in the town of Tiraspol), Russian organic chemist, Academician of the USSR Academy of Sciences, Honored Scientist. From 1935 he actively participated in organization of the Institute of Organic Chemistry where he was the chief of some laboratories. From 1953 this institute was given his name. His main works are in chemistry of hydrocarbons and organic catalysis; his works on adsorption and creation of the carbon gasmask (1915) are of special purpose. He is an author of important discov-

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eries, winner of State Awards (1942, 1946, 1948), a creator of a scientific school of scholars who fundamentally contributed to various fields of chemistry. For biology and medicine his following works are especially important: methods of synthesis of amino acids and their esters (1906-1911), mild hydrolysis of proteins (1912-1914), the diketopiperazine theory of protein structure (1923) which was later combined with the polypeptide theory (1947-1958), studies on the chemical nature of androsterone-like hormones, studies on properties of fatty acids; first synthesis of fatty acid for use in medicine. Bibliography and literature: *Great Medical Encyclopedia*, 3rd edition, *Great Soviet Encyclopedia*, 3rd edition.

February 22 – 75th anniversary of the birth of John Bishop (1936), American virologist and biochemist. Jointly with H. Varmus he detected in normal cells a new class of genes named protooncogenes, which give origin to active viral oncogenes. He proved that cancer is a disease of the genome, a result of genetic changes caused by various agents (viruses, physical or chemical carcinogens) leading to activation of protooncogenes existing in normal cells. Winner of the Nobel Prize in Physiology and Medicine for fundamental studies of cellular mechanisms of oncogenesis (1989, jointly with H. Varmus). Bibliography: Siehelin, D., Guntaka, R. W., Bishop, J. M., and Varmus, H. E. (1976) *J. Mol. Biol.*, **101**, No. 3, 349-366. Literature: *The Nobel Prize Winners of 1989* (1990) *Priroda*, No. 1, 96-98; *The New Encyclopedia Britannica* (1994) *Chicago*, **2**, 239; *Who's Who in America*, 1992-1993 (1992) N. Y.

March 1 – 100th anniversary of the death of J. H. Van't Hoff (1852-1911), Dutch physical chemist. His works in stereochemistry, osmotic theory of solutions, and thermodynamics of chemical equilibrium significantly influenced the development of physical chemistry. Jointly with W. Ostwald, in 1887 he founded the journal *Zeitschrift fur physikalische Chemie*. In 1901 he was awarded the Nobel Prize for discovery of chemical dynamics and osmotic pressure laws. Bibliography: *Lectures on Formation and Decomposition of Double Salts* (1937) (Russian translation, edited and prefaced by Academician N. S. Kurnakov), Moscow-Leningrad; *The Theory of Solutions* (1903) (Russian translation), Riga. Literature: M. A. Bloch: *The Life and Creative Work of Van't Hoff* (1923), Petersburg; N. S. Kurnakov et al.: *In Memory of J. H. Van't Hoff* (1937) *Uspekhi Khimii*, **6**, No. 1; Cohen Ernst: *Jacobus Henricus van't Hoff, Sein Leben und Wirken* (1912), Leipzig.

March 8 – 125th anniversary of the birth of Edward C. Kendall (1886-1972), American biochemist, member of the National Academy of Sciences of the USA. He prepared crystalline thyroxine (1914), glutathione (1926-1930), and cortisone (1936). For discovery of chemical structure and biological action of adrenocortical hormones he was awarded the Nobel Prize (1950, jointly with Ph. Hench and T. Reichstein). Bibliography and literature: *Great Medical Encyclopedia*, 3rd edition.

April 6 – 100th anniversary of the birth of F. Lynen (1911-1979), German biochemist, member the National Academy of Sciences of the USA (1962). He studied metabolism of fatty acids, structure of sterols, biosynthesis of terpenes, rubbers, action mechanism of biotin and biotin-dependent enzymes, synthesis of cholesterol. He was the first to isolate acetyl-CoA from yeast (1951); jointly with colleagues, he explained mechanism of fatty acid biosynthesis. He showed that biosynthesis of cholesterol starts from condensation of two molecules of acetyl-CoA and of other compounds, and that upon the accumulation in the cell of cholesterol the system of GMG-CoA-reductase is suppressed and cholesterol production decreases. In 1964 he was awarded the Nobel Prize in Physiology and Medicine (jointly with K. Bloch) for "discoveries associated with mechanism and regulation of metabolism of cholesterol and fatty acids in the organism". Bibliography: *Biosynthesis of Saturated Fatty Acids* (1961) *Fed. Proc.*, **20**, 941. Literature: *Great Medical Encyclopedia*, 3rd edition; *Great Soviet Encyclopedia*, 3rd edition; *The Nobel Prize Winners: Encyclopedia (A-L)* (1992) Progress, Moscow; *Science* (1963) October 23.

June 20 – 150th anniversary of the birth of F. G. Hopkins (1861-1947), English biochemist. He developed a titrimetric method for determination of uric acid (1891-1893), discovered and isolated tryptophan (1903, jointly with S. W. Cole), isolated glutathione and studied its structure and properties (1921-1923). For studies of growth-stimulating vitamins he was awarded the Nobel Prize in 1929 (jointly with Ch. Eijkman). Bibliography and literature: *Great Medical Encyclopedia*, 3rd edition; *Great Soviet Encyclopedia*, 3rd edition.

August 17 – 125th anniversary of the death of Alexander Mikhailovich Butlerov (1828-1886, born in the town of Chistopol), Russian chemist, member of the St. Petersburg Academy of Sciences. He was Chief of the Chair of Chemistry of Petersburg University (1868-1885); he created the theory of chemical structure of organic compounds (1861),

synthesized some new organic substances, discovered the polymerization phenomenon. He was the first to prepare formaldehyde and a mixture of synthetic sugar-like substances from it. He was president of the Russian Physico-Chemical Society (1878). Bibliography and literature: *Great Medical Encyclopedia*, 3rd edition; *Great Soviet Encyclopedia*, 3rd edition.

November 19 – 300th anniversary of the birth of Mikhail Vasil'evich Lomonosov (1711-1765, born in the village of Denisovka (now Lomonosovo) near Kholmogory, Arkhangelsk region), a great Russian scientist, one of founders of modern natural history. His works and letters contain many significant ideas concerning problems of medicine and hygiene. He wrote a special medical manuscript

About Saving and Multiplication of the Russian People (1761). He insisted on development of the growth of medicinal plants. Bibliography and literature: *Great Soviet Encyclopedia*, 3rd edition; *Great Medical Encyclopedia*, 3rd edition; *Biologists: Reference Book on Biographies* (1984) Naukova Dumka, Kiev, pp. 378-379.

December 15 – 95th anniversary of the birth of M. H. F. Wilkins (1916-2004), English biophysicist, member of the London Royal Society (1959). For discovery of molecular structure of nucleic acids and their role in the inheritance of characters and properties of organisms he was awarded the Nobel Prize (in 1962, jointly with F. H. Crick and J. D. Watson). Bibliography and literature: *Great Soviet Encyclopedia*, 3rd edition.