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## Opening Lecture

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### OL

#### Jakub Karol Parnas — life and creativity

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Professor Jakub Karol Parnas was a prominent Polish biochemist, world-renowned scientist, who headed the Department of Medical Chemistry at the Jan Kazimierz University in Lviv. To honor him the Polish and Ukrainian Biochemical Societies organized in Lviv in 1999, the 1st Polish-Ukrainian Parnas Conference. During this Conference a plaque commemorating Professor Parnas was placed on the wall of the building where the Department of Medical Chemistry was located. The Conference was a great success. Attendees decided to organize these Conferences every two years, rotating between Poland and Ukraine. The present Parnas Conference, held in Krakow, is the 6th one.

Jakub Karol Parnas was born on 16th January 1884 in Mokrzany near Tarnopol (now Ukraine). At that time all European scientific institutions were open for young, talented people. Parnas studied chemistry in Berlin and Strasbourg. In 1906 he received his diploma, and in 1907 the PhD degree in Zurich Polytechnicum. First World War interrupted his stay in Cambridge, England. After the war, Parnas decided to work in Poland. He organized the Department of Physiological Chemistry at the Warsaw University. Since 1920, Professor Parnas headed the Department of Medical Chemistry at the Medical Faculty of the University in Lviv. These were the most fruitful years of his life and work. He created the excellent team of pupils and coworkers, in a close cooperation with European scientists. Second World War ended this happy life. In June 1941, before German troupes entered Lviv he was evacuated to Ufa in the Asian part of USSR, and in 1943, transferred to Moscow. Until 1947 he was a director of the National Institute of Biological Sciences.

On 29th January 1949, Jakub Karol Parnas was arrested with no explanation and died in Lubyanka, the infamous Moscow prison.

Parnas and his collaborators were really pioneers investigating biological phosphorylation. They were among the first researchers who employed radioactive phosphorus to investigate this process and used it in biochemical

studies. The first reaction of phosphorylation discovered by Parnas and his collaborators was breakdown of glycogen to glucose 6-phosphate, occurring in the presence of inorganic phosphate. Moreover, two of three regulatory enzymes of glycolysis were discovered by Parnas' team. Thus, Ostern, Gutke and Tershakovec discovered 1,6-phosphofruktokinase, whereas in the discovery of pyruvate kinase, Ostern, Mann and Parnas took part. It was great discovery that in glucose metabolism, in the reaction catalyzed by phosphofruktokinase ATP is used for phosphorylation, but in the reaction catalyzed by pyruvate kinase ATP is formed. For these discoveries Parnas has been considered among Embden and Meyerhof as the main contributor to discovery of glycolysis and this first unrevealed metabolic pathway has been called Embden-Meyerhof-Parnas.

It is most unfortunate that young biochemists (and, in general, molecular bioscientists) who may well master the intricacies of the mutual interactions of protein kinases, and the sequencing of these proteins *via* cDNA and other modern methods, may regard the Embden-Meyerhof-Parnas pathway as a tedious and uninspiring, something to memorize to pass exams. Even worse, they probably have never heard of Parnas' tragic life. Lemberg/Lviv/Lvov, where he created an excellent, outstanding biochemical school (most present-day Polish biochemists stem from it directly or indirectly) was also a flourishing center of Jewish intelligentsia and activity. Parnas' life story did not take place during medieval, dark ages — his tragic life took place 60–70 years ago. His fate (and that of Meyerhof) must be made known to today's youth. The future is in the youth's hands: they must be informed as completely and as objectively as possible, so that they will be able to positively shape their own future and that of generations to come.