

**CENTENARY OF THE BIRTH OF
ACADEMICIAN PROF. DR. ISAK TADZER,
FOUNDER OF THE PATHOPHYSIOLOGY
AND NUCLEAR MEDICINE IN MACEDONIA**

Borislav Karanfilski

Acad. Dr. Isak Tadzer

Institute of Pathophysiology and Nuclear Medicine, Medical Faculty,
University of "Ss. Cyril and Methodius", Skopje, Republic of Macedonia

Corresponding author: Borislav Karanfilski, Professor at the Institute of Pathophysiology and Nuclear Medicine,
Medical Faculty, University of "Ss. Cyril and Methodius", Skopje, Republic of Macedonia;
Email karanfilski@hotmail.com

ABSTRACT

Academician Prof. Dr. Isak Tadzer was born a hundred years ago on December 24, 1916 in Sofia. He completed the primary and secondary education at the German College in Sofia. In 1935 he began his studies at the Medical Faculty in Vienna, which he had to stop because of the annexation of Austria to Germany in 1938. He returned to Bulgaria where he continued his studies and graduated from the Medical Faculty in Sofia in 1941. During the War, 1941-1944, he was forcibly mobilized and he worked as a doctor in several villages. He was twice interned in camps in Bulgaria. In 1944 he joined the National Liberation Army and the Partisan Groups of Yugoslavia. After the liberation in 1945 he started specialization in internal medicine at the famous clinic of Prof. Chilov in Sofia. In 1946 he applied to the call by the Yugoslav government to the doctors in Bulgaria to come in aid of temporary work in our country. On the advice of the current Federal Minister of Public Health Dr. Dimitar Nestorov, Dr. Tadzer came to Skopje and was assigned to work in the Country hospital. He started specialization in internal medicine at the famous professor Ignjatovski, he established a family and decided to stay in Skopje. In 1949 Prof. Tadzer ended his specialization and he was elected an Assistant at the Department of Internal Medicine.

In 1951 he left the Internal Clinic and he was elected an Assistant, and in 1952 he was elected a Docent in the subject of Pathological Physiology. In 1959 he was elected, and in 1964 he was re-elected as an Associate Professor, and in 1967 he was elected a Professor of pathophysiology at the Medical Faculty in Skopje. In the period from 1952 to 1978 he was Head of the Department and Director of the Institute of Pathophysiology.

He was elected a Corresponding Member of the Macedonian Academy of Sciences and Arts in 1969, and a Full Member in 1974. In the period from 1984 to 1988 he was a Secretary of the Department of Medicine and Biology of the Academy.

Prof. Tadzer has published over 300 scientific papers in the field of clinical medicine and pathological physiology, of which about 200 in journals in English, French, German and Serbo-Croatian, as well as 15 books, which include him among the most prolific pathophysiologists on the territory of former Yugoslavia and beyond. In the period from 1950 to 1966 several times he was on a vocational training in similar institutions and centers in Europe, and in 1972 he was on a study stay at many nuclear and medical laboratories in the USA.

In addition to his great research activities his contribution as a teacher was of substantial influence and importance to the faculty. He was one of the greatest lectures at the Medical Faculty, the Faculty of Stomatology and the Pharmaceutical Faculty.

Prof. Tadzer co-authored in most of the textbooks on pathophysiology for students of medicine, stomatology and pharmacy. He was an extraordinary physician, one of the pillars of the Macedonian medicine, he possessed universal, encyclopedic knowledge and is one of the most renowned medical workers in the second half of the 20th century in Macedonia.

In addition to the scientific, medical and educational work Prof. Tadzer has especially rich social activity. He was President of the Faculty Council in 1975-76, he was Vice Dean of the Medical Faculty in 1958-60, Dean of the Faculty from 1963 to 1965, Dean of the Pharmaceutical Faculty and Vice Rector of the University from 1965 to 1967. Especially it should be noted his long-lasting activity at the Macedonian Medical Association of more than 50 years. Also, significant is his creative work within the Editorial board of the journal "Macedonian Medical Review", where for more than 15 years he was Editor in Chief or member of the Editorial board.

For his complete activity Prof. Tadzer has won numerous diplomas, plaques and awards, and among them the following are emphasized: National Award of October 11, Order of Labor of Second Degree, the Award of the City of Skopje – November 13, the Charter of Dr. Trifun Panovski and the Certificate of Acknowledgement awarded by the Macedonian Medical Association for the outstanding results in advancing the medical science, practice and development of the health care and the long-term contribution and promotion of the MMA.

Key words: pathophysiology, nuclear medicine, founder, scientist, Medical Faculty in Skopje, Macedonia.

INTRODUCTION AND BIOGRAPHICAL DATA

Allow me first to address the colleagues from the Institute of Pathophysiology and Nuclear Medicine at the Medical Faculty in Skopje and to give them a special recognition for the initiative to mark the centenary of the birth of our teacher, the brilliant professor, thorough and prolific researcher and versatile educated doctor, one of the doyens of the Medical Faculty and the healthcare in Macedonia.

He was born 100 years ago on December 24, 1916 in Sofia, as the first of four children in a trading family from mother Joa and father Salis Tadzer [1].

He completed the primary and secondary education at the German College in Sofia. In 1935 he began his studies at the Medical Faculty in Vienna, but he had to stop because of the annexation of Austria to Germany in 1938.

He returned to Bulgaria and he continued the studies and graduated from the Medical Faculty in Sofia in 1941, and then he completed the medical internship at the Aleksandrovska Hospital.

During the War, 1941-1944, he was forcedly mobilized and he worked as a doctor in several

villages and he was twice interned in camps in Bulgaria. In 1944 he joined the National Liberation Army and the Partisan Groups of Yugoslavia. After the liberation in 1945 he started specialization in internal medicine at the famous clinic of Prof. Chilov in Sofia.

In 1946 he applied to the call by the Yugoslav government to the doctors in Bulgaria to come in aid of temporary work in our country. On the advice of the current Federal Minister of Public Health Dr. Dimitar Nestorov, Dr. Tadzer came to Skopje and was assigned to work in the Country hospital, he started specialization in internal medicine at the famous professor Ignjatovski, he established a family and decided to stay in Skopje.

Prof. Tadzer spent his whole mature professional and creative life in Macedonia, which he accepted as his second homeland. From the marriage with Milena, a nurse sent from Slovenia to work at the Medical Faculty, two children were born: the son Salis, who has studied medicine and has specialized in cardiac surgery in Tel Aviv, and since 2010 he has been working in Skopje, in the hospital of Acibadem, Sistina and the daughter Slavjanka who has studied medicine, and who has specialized in anesthesiology and has stayed to work in Tel Aviv.



Figure 1. Awarding diploma on election a Corresponding Member of the Macedonian Academy of Sciences and Arts

COMPLETION OF SPECIALIZATION IN INTERNAL MEDICINE AND CROSSING OVER TO THE INSTITUTE FOR PATHOPHYSIOLOGY

In 1949 Prof. Tadzer ended his specialization and he was elected an Assistant at the Department of Internal Medicine [2].

In 1951 he left the Internal Clinic and he was elected an Assistant, and in 1952 he was elected a Docent in the subject of Pathological Physiology.

In 1956 he attained an academic rank with the article "Reactive eosinopenia in clinical pathology" and in 1958 he completed the PhD at the Medical Faculty in Skopje on the subject of "Impact of the spleen on the coagulation system".

In 1959 he was elected, and in 1964 he was re-elected an Associate Professor, and in 1967 he was elected a Professor of pathophysiology at the Medical Faculty in Skopje. In the period from 1952 to 1978 he was Head of the Department and Director of the Institute of Pathophysiology [3].

He was elected a Corresponding Member of the Macedonian Academy of Sciences and Arts in 1969, and a Full Member in 1974. In the period from 1984 to 1988 he was a Secretary of the Department of Medicine and Biology of the Academy.

Prof. Tadzer loved and accepted new challenges in life. The first occurred in 1951 when he left the coveted position of Assistant in Internal Medicine and was employed at the Department of

Pathophysiology. In those years the subject began to be studied as Clinical Physiology first in the USA and then it has spread throughout Europe and came to Belgrade and Skopje.

The subject was incorporated in the curriculum for medical studies in Skopje by the professor of normal physiology, Miloje Vidakovic, who for several years held lectures and examinations along with two assistants. Prof. Tadzer came as the third assistant, and already in 1952 he was elected a Docent. Under his leadership a special Institute and Department of Pathophysiology were formed.

Since its founding Prof. Tadzer clinically oriented the Institute and in 1953 he established a clinical department with 40 beds, which performed medical activity. Time has justified this bold move by prof. Tadzer. The subject of Pathophysiology which studies the causes and mechanisms of diseases has become one of the most important in the education of students.

FOUNDER OF NUCLEAR MEDICINE IN MACEDONIA

The second major challenge for Prof. Tadzer was again the new subject of Nuclear Medicine, which he also accepted without hesitation [4]. In 1958, the Federal Commission for Nuclear Energy in Belgrade reached a decision on establishing centers for the application of nuclear energy in

medicine in all Yugoslav republics and the subject to be incorporated in the curriculum of the medical faculties. The Commission provided funding for this purpose: for building separate buildings, for buying proper equipment and for sending personnel abroad for education in this area. The Faculty concluded that these activities are to be taken by the Institute of Pathophysiology and renamed the Institute into Institute for Pathophysiology and Nuclear Medicine. This decision had a special significance for the Institute. The application of radioactive isotopes enabled exceptionally rapid development and deepening of the research work and significant improvement in the quality of the medical activity of the Faculty in general and expansion of the educational activities of the Institute, serious responsibilities in the organization of the Institute, curricula for the new subject and its realization, and very complex, intricate and massive application of the radioactive isotopes in all branches of medicine.

In 1963 ended the construction of the separate building of the Institute of 1200 square meters, which was severely damaged by the earthquake. After restoration in 1964 the Institute moved into the building. Later, special laboratories for radio-immunology and radio pharmacy, cabinet for nuclear medicine and outpatient clinic for thyroid disorders were formed.

The Institute has overcome all these challenges for a short time and has developed into one of the most successful nuclear and medical centers

known in Yugoslavia and beyond, and today it is well equipped, it has a highly professional personnel and provides professional quality results. The development of the nuclear medicine in our country was in parallel with its development in the more developed European centers. Merit of Prof. Tadzer is the initiative for dispersion of the nuclear medicine in the country, i.e. in Bitola.

SCIENTIFIC ACTIVITY

Prof. Tadzer has published over 300 scientific papers in the field of clinical medicine and pathological physiology, of which about 200 in journals in English, French, German and Serbo-Croatian, as well as 15 books, which include him among the most prolific pathophysiologists on the territory of former Yugoslavia and beyond [5]. In the period from 1950 to 1966 several times he was on a vocational training in similar institutions and centers in Europe, and in 1972 he was on a study stay at many nuclear and medical laboratories in the USA.

The acquired knowledge and achievements in the world medicine resulting from these visits abroad he has successfully incorporated in teaching, research and publication activity.

The scientific activity of Prof. Tadzer is of wide range, the result of untamed curiosity, special inclination and talent, wealth of ideas, high ethical criticism and persistence in scientific truth. As an observer with intuition and creativity he noticed



Figure 2. The Institute for Pathophysiology and Nuclear Medicine

the new phenomena, he intensified the research with particular persistence. He has led several research projects in the field of experimental and clinical medicine, pathophysiology and nuclear medicine. Through active participation in numerous international and national professional meetings, symposia, conferences and panel discussions he established himself as an expert and scholar in the country and abroad. He organized numerous specialized scientific meetings and gatherings.

His first papers are related to anemia in the pregnant, he detected the first cases of Kalaazar in adults in the endemic form in Macedonia, and he examined the effects of the placental extract on the arthritis, diuresis, and excretion of pepsinogen on the thymus, spleen and adrenal gland. With the help of the radioisotopes he follows the dynamics of the intraperitoneal transfusion of marked erythrocytes from the abdominal cavity into the bloodstream. Part of the papers relate to the impact of the hypothermia on the function of the thyroid gland, the intestinal resorption and the renal function.

Prof. Tadzer has outstanding achievements in the field of hemostasis. He studied the impact of the ionizing radiation on the hemostatic system, the relations of the coagulation system and the spleen, the disorders of the hemostasis in hepatitis, dermatoses, in rubella, coagulation defects in polycythemia, changes in hemostasis in conditions of hypothermia, the occurrence of an inhibitor of hemostasis and its identification in the visceral

erythematosus, disorders in the conversion of fibrinogen in nephrosis and he revealed congenital defects in hemostasis. Part of the papers of Prof. Tadzer are in the field of endocrinology and the study of iodine deficiency [6].

PUBLICIST ACTIVITY

From the books where Prof. Tadzer is co-author we will mention: *Diagnostic applications of radioactive isotopes* published by the Institute of Nuclear Sciences in Vincha in 1967 and the *Application of radioactive isotopes in the diagnosis and treatment of diseases of the thyroid gland* published by the same Institute in 1979.

TEACHING ACTIVITY

In addition to his enormous research activities, his contribution as a teacher had a great influence and importance to the faculty. He was one of the top lecturers on the Medical, Dental and Pharmaceutical faculty.

He had the talent to expose complex topics, ideas and concepts in a clear and interesting way, which made the study of the pathophysiology become easier.

Besides on the mentioned faculties in Skopje he held lectures in Pathophysiology and Nuclear Medicine at the Medical Faculty in Banja Luka and Nis, especially after his retirement.



Figure 3. Library of the Institute for Pathophysiology and Nuclear Medicine

His educational contribution is far-reaching and includes generations and generations of students, MDs and PhDs.

Prof. Tadzer co-authored in most textbooks on pathophysiology for students of medicine, dentistry and pharmacy: *Special pathological physiology* published by the University in Skopje (two editions 1982 and 1987), *General pathological physiology*, Studentski zbor (1987), *Pathological physiology-practical teaching*, University in Skopje (two editions in 1990 and 1995) and *Pathologic Physiology*, University in Skopje (1991).

The textbook *General and special pathological physiology* written with the colleagues in 1979 was one of the few books translated into Serbo-Croatian language, with four releases in 1983, 1985, 1988 and 1989, published by *Medicinska knjiga Belgrad-Zagreb* and has become widely accepted and until today has been the most used textbook on pathological physiology throughout the former Yugoslavia.

HEALTHCARE ACTIVITY

Prof. Tadzer was an extraordinary physician, one of the pillars of the Macedonian medicine, he possessed universal, encyclopedic knowledge and is one of the most renowned medical workers in the second half of the 20th century in Macedonia.

He was constantly updated with the latest achievements and he left lasting traces in the development of medicine [7].

SOCIAL ACTIVITY

In addition to the scientific, medical and educational work Prof. Tadzer has especially rich social activity. He was President of the Faculty Council in 1975-76, he was Vice Dean of the Medical Faculty in 1958-60, Dean of the Faculty from 1963 to 1965, Dean of the Pharmaceutical Faculty and Vice Rector of the University from 1965 to 1967. From these positions and with his ideas and suggestions he significantly influenced the improvement of the quality and content of the curricula and the reorganization of the regime of studies in the rigorous system "year after year".

Prof. Tadzer is one of the founders of the Faculty of Stomatology and the Pharmaceutical Faculty.

ACTIVITIES IN THE MACEDONIAN MEDICAL ASSOCIATION

I would like to especially emphasize his long-lasting activity of more than 50 years in the Macedonian Medical Association [8]. Also, significant is his creative activity within the editorship of the journal *Macedonian Medical Review* where for more than 15 years he was an editor or a member of the editorial board. His engagement which was full of enthusiasm and his wish to create a professional journal corresponding to those of the developed western countries, his wish for our doctors to write modern professional papers,



Figure 4. First Congress on Nuclear Medicine in the Republic of Macedonia, 1998

inclusion of interesting segments such as letters of readers, expert questions and answers, presentation of news of the world medicine and many other activities has made the journal close to and demanded by the physicians. On the other hand, the superior quality and in line with the international standards and norms enabled the journal to be internationally recognized and classified.

Through numerous papers published in the journal *Annual Review of the Medical Faculty* and the journal *Prilozi (Contributions)* of the Department of Biological and Medical Sciences of the Academy, he contributed to the increasing of the level of the medical knowledge in our country.

Prof. Tadzer taught his assistants in many other things, not only in the pathophysiology - he taught us about life, and not only by the things he has said, but through his commitment to the highest principles. He had the ability to motivate people with his firm and strong spirit. We were simply too busy trying to keep up with him. His mind, his tireless, almost fanatical devotion to science, education, health and family has impressed all those who knew him. He always expected and pulled the best out of people.

Prof. Tadzer had rigid and high moral and professional principles and criteria on which he consistently insisted. He did not allow any improvisations in the research activity. Before publishing any materials from the Institute for Pathophysiology and Nuclear Medicine it had to go through an extremely serious and thorough assessment which functioned as a permanent system. In the health-care work every patient received a high quality and timely health care service regardless of the patient's social position, and the students were well aware that the examinations could be passed only with good knowledge of the subject.

SOCIAL RECOGNITION

For his complete activity Prof. Tadzer has won numerous diplomas, plaques and awards, and among them the following are emphasized: National Award of October 11, Order of Labor of Second Degree, the Award of the City of Skopje – November 13, the Charter of Dr. Trifun Panovski and the Certificate of Acknowledgement awarded by the Macedonian Medical Association for the outstanding results in advancing the medical science, practice and development of the health care and the long-term contribution and promotion of the MMA.

We appreciate and respect the extraordinary life of prof. Tadzer and at the same time we are aware that we are much obliged. He gave us an imaginative and innovative approach to the pathophysiology and many new scientific concepts. He gave many students the tools for understanding the pathophysiology and to a lot of us exciting research careers. But above all, he inspired us with his commitment to education and with his unique ability to pull the best out of those around him, with his persistent spirit and his courage.

Prof. Tadzer was a preferred debater in discussions including music, theater, film, history, literature, art and social events.

He was a polyglot and he spoke the German, French, English and Spanish language in communication.

He was retired in 1982 and died in 2005 at the age of 89.

We miss him immensely, and he will remain alive in our memories as a shining example of the best in a man. Prof. Tadzer was a great man and his legacy will be everlasting.

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СТО ГОДИНИ ОД РАЃАЊЕТО НА АКАДЕМИКОТ ПРОФ. Д-Р ИСАК ТАЦЕР, ОСНОВАЧ НА ПАТОФИЗИОЛОГИЈА И НУКЛЕАРНА МЕДИЦИНА ВО МАКЕДОНИЈА

Борислав Каранфилски,

Професор по патофизиологија и нуклеарна медицина на Медицинскиот факултет,
Универзитет „Св.Кирил и Методиј“, во Скопје, во пензија.

Резиме

Академик проф. д-р Исак Тацер е роден пред сто години на 24 декември 1916 година во Софија. Основното и средно образование го завршува во германскиот колеџ во Софија. Во 1935 година ги започнува своите студии на Медицинскиот факултет во Виена, што ќе мора да ги прекине поради анексија на Австрија кон Германија во 1938 година. Се враќа во Бугарија ги продолжува студиите и дипломира на Медицинскиот факултет во Софија во 1941 година. Во текот на војната 1941-1944 година бил принудно мобилизиран и работел како лекар во неколку села а два пати бил интерниран во логори во Бугарија. Во 1944 година стапува во редовите на Народно ослободителна војска и партизанските одреди на Југославија. По ослободувањето 1945 година започнал со специјализација по интерна медицина во познатата клиника на проф. Чилов во Софија. Во 1946 година се пријавува на повикот на Југословенската влада до лекарите во Бугарија да дојдат како помош на временна работа во нашата земја. По сугестија на тогашниот сојузен министер за народно здравје д-р Димитар Несторов, д-р Тацер доаѓа во Скопје и бива доделен на работа во Земската болница, започнува специјализација по интерна медицина кај познатиот професор Игњатовски, формира семејство и одлучува да остане во Скопје. Во 1949 година проф. Тацер ја завршува специјализацијата и бива избран за асистент на катедрата по интерна медицина.

Во текот на 1951 година ја напушта Интерната клиника и е избран за асистент а во 1952 година за доцент по предметот патолошка физиологија. Во 1959 година бил избран а во 1964 година преизбран во звањето вонреден а во 1967 година редовен професор по патофизиологија на Медицинскиот факултет во Скопје. Во периодот од 1952 година до 1978 година бил раководител на катедрата и директор на Институтот за патофизиологија.

За дописен член на Македонската академија на науките и уметностите е избран во 1969 а за редовен член во 1974 година. Во периодот од 1984 до 1988 година беше секретар на Одделението за медицина и биологија на Академијата.

Проф. Тацер има објавено над 300 научни трудови од областа на клиничката медицина и патолошка физиологија од кои околу 200 во списанија на англиски, француски, германски и српско-хрватски јазик како и 15 книги што го вклучуваат помеѓу најплодните патофизиолози на територијата на бивша Југославија и пошироко. Во период од 1950 до 1966 година повеќе пати беше на стручно усовршување во сродни институции и центри во Европа, а во 1972 на студиски престој во повеќе нуклеарно-медицински лаборатории во САД.

И ако неговите истражувачки активности се огромни неговиот придонес како наставник имаше за факултетот големо влијание и значење. Беше еден од врвните предавачи на Медицинскиот, Стоматолошкиот и Фармацевтскиот факултет.

Проф. Таџер беше коавтор во повеќето учебници по патофизиологија за студентите по медицина, стоматологија и фармација. Беше извонреден лекар, еден од стожерите на македонската медицина, поседуваше универзално, енциклопедиско знаење и е еден од највидните здравствени работници во втората половина на 20-тиот век во Македонија.

Покрај научната, здравствената и наставната работа проф. Таџер имаше богата посебно плодна општествена активност. Беше претседател на Советот на факултетот во 1975-76 година, продекан на Медицинскиот факултет во 1958-60 година, декан на факултетот од 1963 до 1965 година, декан на Фармацевтскиот факултет и проректор на Универзитетот од 1965 до 1967 година. Посебно треба да се одбележи неговата долготрајна, повеќе од 50 години активност во Македонско лекарско друштво. Исто така значајно е неговото креативно делување во рамките на Редакцијата на списанието „Македонски медицински преглед“ каде повеќе од 15 години беше одговорен уредник или член на редакцијата.

За својата целокупна активност проф. Таџер е носител на бројни дипломи, плакети и признанија, а меѓу нив посебно се издвојуваат: Државната награда 11 Октомври, Орден на трудот од втор степен, наградата на град Скопје - 13 Ноември, повелбата Д-р Трифун Пановски и благодарница доделена од Македонското лекарско друштво за исклучителни резултати во унапредувањето на медицинската наука, практика и развојот на здравствената заштита, и долгогодишен придонес и афирмација на МЛД.

Клучни зборови: патофизиологија, нуклеарна медицина, основоположник, научник, Медицински факултет во Скопје, Република Македонија.