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In Memoriam: Professor Vladimír Sklenář (April 16, 1951 – April 13, 2024)

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The international NMR community mourns the loss of its prominent and much beloved member, Professor Vladimír Sklenář (Fig. 1). Known as 'Vladi' to his many friends, he played a key role in establishing the Central European Institute of Technology (CEITEC) at Masaryk University in the Czech Republic, which flourished under his stewardship to become a center of excellence in both NMR spectroscopy and electron microscopy.

Vladi, originally trained in electrochemistry at Masaryk University and in NMR at the Department of Radiofrequency Spectroscopy at the Czechoslovak Academy of Sciences in Brno, earned his PhD in Applied Physics in 1984. This early stage of his career focused mostly on nucleic acid NMR and on the development of methods to suppress the enormous water signal in biological ¹H NMR spectra. Limited by the NMR infrastructure available to him but stimulated by expert senior colleagues such as Jaroslav Kypr and Zenon Starcuk, he rapidly gained visibility for his prowess in NMR spectroscopy, foreshadowing his highly successful career.

In 1986, before the fall of the Iron Curtain, he managed to gain permission for a one-year (later extended to 15 months) post-doctoral research stint in the USA while his wife and son were forced to stay behind to ensure he would return to his home country. In the USA, at the National Institutes of Health, Vladi became a tremendously stimulating force in the early years of the research group of Ad Bax, first-authoring a dozen papers that further advanced his favorite topic of water suppression [1], while developing novel methods for the measurement of ¹H-³¹P J couplings [2] and pursuing his interests in structural studies of nucleic acids, Z-DNA in particular [3]. At that time, he also pioneered the important area of sensitivity-enhanced indirect detection of low-γ

nuclear spin relaxation [4].

Remarkably, while other NIH post-doctoral fellows complained about the meager stipends they received, Vladi's frugal lifestyle enabled him to save about half of what he earned and return to Czechoslovakia as a 'rich' man, and the proud owner of a suitcase full of Western consumer electronics that were unavailable in his home country at that time.

Following his burst of published NMR innovations, he traveled from the Czechoslovak Academy of Sciences in Brno to Los Angeles to present an invited talk at the 1988 ACS Annual Meeting. While there, Vladi spent a week in Juli Feigon's new lab at UCLA (they had met in June 1987 at a nucleic acids structure meeting in Albany NY) helping with optimized implementation of advanced experiments on her recently installed GE 500 MHz NMR spectrometer. Subsequently, Juli managed to get NIH funding and Vladi obtained permission for a 3.5 month visit to UCLA, arriving just before the Velvet Revolution in Czechoslovakia in November 1989. He quickly adjusted to life in sunny California, riding an old bike to and from the lab. Two papers resulted from that visit, on an intramolecular DNA triplex, published in 1990 in Nature [5] and JACS [6], that helped launch both of their academic careers and led to a long-term scientific collaboration and friendship. For the next 15 years, Vladi visited the Feigon lab at least annually, resulting in seminal publications on NMR methods development for studying nucleic acids and applications to biologically important DNA and RNA (e.g. [7–9]). Former Feigon postdoc Nick Hud recalled "sitting next to Vladi at the NMR console when he developed a pulse sequence to create a pure ¹⁵N coherence state so that we could follow the movement of ammonium ions, without losing signal due to proton exchange" for studies of DNA G-quadruplexes [10] and A-tracts [11]. Later visits also included students from Vladi's

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Fig. 1. Vladislav Sklenar standing in front of his framed printout of a 2D NOESY spectrum of triplex DNA (left) acquired for the landmark Sklenar and Feigon *Nature* 1990 paper (right) during a CEITEC meeting he organized in January 2013 in Brno.

lab, including Lukas Trantirek and Richard Stefl. Richard was first author on their final publication together that solved a long standing conundrum on the origin of the difference in helix bending in DNA A-tracts of dA4T4 versus dT4A4 DNA [12]. Today, both Richard and Lukas, as well as Radovan Fiala, are carrying on Vladislav's legacy at CEITEC.

Vladislav often said that he considered working in the Bax and Feigon labs, both the result of serendipitous events, two of the great good fortunes of his (scientific) life. This feeling was entirely mutual, as he greatly enriched the science and lives of all members in both laboratories.

After returning back to Europe, he took advantage of the newly gained political freedom to explore Western Europe, where he joined the Marion Merrell Dow Research Institute from 1992 to 1995. At the Dow Research Institute, he published what are perhaps his best-known and most highly cited papers describing the WATERGATE sequence for water suppression [13,14], which has become a standard element in the majority of modern protein and nucleic acid NMR experiments.

In 1995, Vladislav returned to his alma mater, Masaryk University in Brno, where he became Professor of Physical Chemistry and established an advanced and highly successful NMR spectroscopy laboratory, which was integrated into the Laboratory of Structure and Dynamics of Biomolecules, merging with other strengths at Masaryk University that culminated in the National Centre for Biomolecular Research in 2001. Vladislav used his deep scientific insights combined with his outstanding

interpersonal skills to garner substantial funding, despite adverse economic circumstances. The strong biomolecular NMR program was one of the key pillars during the establishment of CEITEC, which later became an integral part of the European network of structural biology infrastructures (INSTRUCT). The highly prolific CEITEC center was among the first to effectively integrate the very complementary techniques of electron microscopy and NMR spectroscopy, gaining high international visibility and stature. Christian Griesinger commented on CEITEC, "This is an amazing facility, to my knowledge second to none in Europe." From 2016 to 2022 Vladislav served as Chair of the Czech Infrastructure for Integrative Structural Biology.

Over his career, Vladislav received numerous honors and awards. Among these are the Marci Medal and the Hanus&Sedmera Prize of the Jan Marcus Spectroscopic Society, and the Masaryk University Rector's Award. He served as a member of the EUROMAR Board of Trustees, as a Council Member of ISMAR, on the Scientific Council of The Institute of Scientific Instruments of the Czech Academy of Sciences, of Masaryk University, as well as the Charles University of Prague. Having authored more than 20 papers in the *Journal of Magnetic Resonance*, he served on its Editorial Board for 13 years. But perhaps his greatest legacy is the impetus he generated to build a new generation of structural biologists in Central Europe, supported by state-of-the-art instrumentation. His positive vision accompanied by a big smile and exemplary collegiality are memories that we cherish and that inspire us to move forward as a scientific community.

Declaration of competing interest

The authors declare that they have no competing interests that could have influenced this paper.

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