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*Published in:*  
Chemical Synthesis

*DOI:*  
[10.20517/cs.2023.62](https://doi.org/10.20517/cs.2023.62)

*Publication date:*  
2023

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication](#)

*Citation for pulished version (HARVARD):*  
Su, BL 2023, 'Prof. Alain Krief, a brilliant scientist, a passionate chemist and a fantastic chemist trainer', *Chemical Synthesis*, vol. 3, no. 4, 51. <https://doi.org/10.20517/cs.2023.62>

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Editorial

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## Prof. Alain Krief, a brilliant scientist, a passionate chemist and a fantastic chemist trainer

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**How to cite this article:** Su BL. Prof. Alain Krief, a brilliant scientist, a passionate chemist and a fantastic chemist trainer. *Chem Synth* 2023;3:46. <https://dx.doi.org/10.20517/cs.2023.62>

**Received:** 5 Dec 2023 **Accepted:** 6 Dec 2023 **Published:** 6 Dec 2023

**Academic Editor:** Ying Wan **Copy Editor:** Pei-Yun Wang **Production Editor:** Pei-Yun Wang

It is my immense pleasure to lead this Special Issue in honor of Professor Alain Krief on the occasion of his 80th birthday. I would like to express my admiration for him and extend my heartfelt congratulations on the successful publication of Volume 3, Issue 4 of the Journal of *Chemical Synthesis* (CS).

Prof. Alain Krief was born in Tunis on 13th December 1942. He completed his Ph.D. in 1970 under the supervision of Prof. Jacqueline Ficini on cycloaddition of ynamines at the Université Pierre et Marie Curie in Paris, France. While working as a CNRS Research Associate (1968-1972), he made a ten-month postdoctoral stay at the laboratory of Prof. Elias J. Corey (Nobel Laureate, 1990) at Harvard University on sterol biosynthesis in 1970 (Prof. Krief contributed a research paper to this Special Issue on Sterol biosynthesis with a research highlight from double Nobel Laureate in Chemistry, Prof. K. B. Sharpless). In 1972, he was appointed as “Chargé de Cours” to head the newly established Laboratory of Organic Chemistry in Facultés Universitaires Notre-Dame de la Paix (now University of Namur), Belgium, a position he held until 1997. Subsequently, he became the Director of the Laboratoire de Chimie Organique de Synthèse (1997-2008). Notably, he was exceptionally promoted to a full professor in 1975 at the remarkable age of 33. Currently, Prof. Krief holds the status of an emeritus professor at the University of Namur (Belgium). Additionally, he serves as an adjunct professor at the University of Karachi (HEJ Research Institute, Pakistan) and a UNESCO research fellow at iThemba-Lab in Cape Town (South Africa).



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Alain worked on a number of research subjects, demonstrating an abiding interest in bioorganic chemistry and the mechanism of sterol biosynthesis with an outstanding output of research that was summarized in more than 350 papers. Here, I would like to mention only two fields in which his impressive contributions have been highly recognized. The first one is on cyclopropane chemistry and pyrethroids. He developed novel syntheses of chrysanthemic acid and its analogs using elegant synthetic strategies. This essential methodology led to numerous synthetic methods of pyrethroids. The cornerstone of Alain's pyrethroid syntheses is the built-in flexibility of the approach, allowing for potential adaptability to expand the chemical space around their basic scaffold. The second one is about selenium chemistry. Alain stands as one of the pioneers of organoselenium chemistry and continues to be a leading authority in this field. For an extended period, selenium, as an element, held minimal significance in synthetic chemistry. However, owing to his groundbreaking studies, this has changed fundamentally.

Alain's pioneering work has been recognized by a number of scientific awards, such as the Prize of the French "Académie des Sciences" in 1985 and the International Wernaers Prize for Research and Broadcasting of Knowledge in 1999, and prestigious appointments, including Presidencies of the Janssen Prize for Creativity in Organic Synthesis (2002-2008) and the Société Royale de Chimie Belge (1993-1995). He has organized and been chairman of several congresses, including the famous Belgian Organic Synthesis Symposium (BOSS).

Not only a brilliant scientist and passionate chemist, but Alain was also a fantastic chemist trainer. Under his supervision, Alain mentored approximately 50 PhD and 100 Master students. His successful training for students who passed the FRIA (Fonds de Recherche pour l'Industrie et l'Agriculture, Belgium) scholarship remains a household story at the University of Namur. These students now hold significant positions in academic and industrial sectors. Alain's passion for chemistry remains unwavering. Even at 80 years old, he continues to visit the Laboratory daily, conducting various exploratory experiments and providing assistance to students.

Alain was heavily involved as a leader in the International Organization for Chemical Sciences in Development (IOCD), the first organization devoted to the role of the chemical sciences in global development. From 2009 to 2020, Alain Krief served as the Executive Director of the IOCD.

In this Special Issue honoring him, we have assembled 11 papers contributed by authors from around the world. Among them are two papers from a collaboration between my research groups in Belgium and China, focusing on Lithium-Selenium batteries<sup>[1-2]</sup>. Li-Selenium batteries have been recognized as very promising next-generation Lithium batteries with high energy density. Following these two research papers is a Research highlight from Editor<sup>[3]</sup>. Alain also contributed to this Special Issue on his passionate subject, "Schizophrenic behavior of 2,3-oxidosqualene sterol cyclase from pig liver towards 2,3-oxidosqualene analogs"<sup>[4]</sup>. The double Nobel Laureate in Chemistry, Prof. K. B. Sharpless, made a comment on Alain's last research<sup>[5]</sup>. "Biotransformation studies on bioactive compounds: 25 years of interesting research at the ICCBS" is from a Pakistan research group in honor of Prof. Krief<sup>[6]</sup>. Prof. Krief paid much attention to the research and higher education in Pakistan. He frequently visited Pakistan these last years in spite of COVID-19. Prof. Stefano A. Cerri from Italy contributed a paper entitled "Information, knowledge, and human learning for chemistry: the visionary contribution of Professor Alain Krief"<sup>[7]</sup>. We are deeply grateful to Prof. Vivian Wing-Wah Yam, the current and first female president of the IOCD, for her excellent contribution entitled "Luminescent alkynylplatinum(II) terpyridine-containing conjugated polymers: synthesis, characterization and photophysical studies"<sup>[8]</sup>. The excellent review paper from Prof. Wei Yan from Singapore and China on "Selenium nanomaterials enabled flexible and wearable electronics"<sup>[9]</sup> is

highly appreciated. This review illustrates the huge application of selenium nanomaterials. Prof. Hisashi Yamamoto contributed a feature article on “From Lewis acids to peptide chemistry”<sup>[10]</sup>. This Special Issue concludes with a perspective paper titled “Future prospects in boron chemistry: new boron compounds and Lewis acids for catalysis and materials science”<sup>[11]</sup>, authored by Prof. Guillaume Berionni, a highly promising figure in organic chemistry from the University of Namur, with whom Prof. Krief shares a profound collaborative bond.

Through this Special Issue, we aim to bring you some novel developments in selenium and other chemistry, highlighting the significant contributions made by Prof. Krief.

## DECLARATIONS

### Author’s contribution

The author contributed solely to this manuscript.

### Availability of data and materials

Not applicable.

### Financial support and sponsorship

None.

### Conflicts of interest

The author declared that there are no conflicts of interest.

### Ethical approval and consent to participate

Not applicable.

### Consent for publication

Not applicable.

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