



Professor Charles Duyckaerts (1951–2022)

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Charles Duyckaerts passed away on August 6, after several years of struggle against cancer. During his outstanding career as a neuropathologist at the Salpêtrière Hospital, Charles had acquired an international reputation as a leading expert on neurodegenerative diseases, and his departure leaves a great void.

Born in Liège in 1951, he kept a keen taste for texts and ancient languages from his early training years at the Jesuit college Saint-Servais in Liège. But his erudition was nourished above all by a great curiosity for almost everything that concerned literature, music, and science. Attracted by mechanics since childhood when he built machines for which his brother was the test pilot, he could have become an engineer, but he finally chose to study medicine in Paris from 1970. In 1978, during his internship, he spent a year at the neurological hospital in Tunis, as part of the international cooperation. This luminous place is one of those to which he remained faithful all his life. He became a Doctor of medicine in 1983, specializing both in pathological anatomy (1984) and clinical neurology (1985). This period ended with a doctorate in human biology in 1987. This was the beginning of his academic career, first as associate professor, then full professor from 1991, and finally as head of the neuropathology department at the Pitié-Salpêtrière Hospital from 2008 until his retirement in 2018.

Recognized as an expert in the neuropathological approach to Alzheimer's disease, Charles Duyckaerts has produced more than 500 publications, most of them of international importance. His approach was always original. Rather than relying on his great experience and the extent of his knowledge in neuropathology, he always knew how to take a fresh look on an old question and use his curiosity to fuel new projects. The mathematician in him undertook to measure the thickness and length of cortices and concluded

that neuronal loss occurred mainly in columns rather than in cell layers [6]. He later developed a system for calculating neuronal densities by tessellation, based on the theory of Dirichlet polygons [4]. A keen observer and connoisseur of the anatomy of the central nervous system, he liked to deduce from his observations the possible pathways of propagation of the disease [3, 5, 7]. The use of animal models was a second way of confirming his hypotheses [2]. He used his imagination to develop tracing methods on tissue blocks and could spend a whole Saturday afternoon working with whatever he could get his hands on: electrophoresis equipment, an epoxy resin kit bought in a hobby store. Notably, it is from a cryo-dissection process that he had invented, and then from the CLARITY transparency system, that he promptly and enthusiastically adopted, that he developed his observations on the propagation of neurotoxic proteins in Alzheimer's disease [1, 8]. This work crowned a long career that he had devoted entirely to the understanding of neurodegenerative diseases, which he considered to be one of the worst scourges, both human and social.

Charles had faith in what neuropathological observation could contribute to the progress of neuroscience research. With great humanity, willpower and energy, he had, with the support of patient associations, created the neuro-CEB brain tissue bank. He loved to spend hours explaining the state of research to the general public, to patients and to students of all levels. He was an exceptional teacher who drew the diagrams of his presentations freehand. He was also keen on recounting the historical evolution of thought, and delighted in unearthing a forgotten archive.

He shunned opportunities to promote himself. However, among the many awards he received for his major contributions to his field of research (Ipsen 1988, Henry Wisniewski 2006, Claude Pompidou 2011), the title of Doctor Honoris Causa of the Catholic University of Louvain in 2014, had particularly touched him, like a renewed link with his native Belgium.

Since his departure, Charles Duyckaerts, remains for those who had the chance to know him, to work with him, to be his students, a source of inspiration and courage.

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Courtesy of Patricia Gaspar



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