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OBITUARY

Jean Rossier (1944–2026),A pioneer of neuropharmacology, single-cell biology and protein chemistry who helped define modern neuroscience

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Jean Rossier, a neuropharmacologist whose work reshaped fundamental understanding of neurotransmission, neuronal diversity and protein modification, died peacefully on 12 January 2026 at his family home in Chandolin, Switzerland. He was 81.

Born in Brussels on 18 June 1944, Rossier trained first as a physician before turning to basic research. After receiving his medical degree, he moved in 1971 to the Collège de France, where he completed a doctorate in science under the supervision of Philippe Benda and Jacques Glowinski. His thesis work on the enzyme that synthesizes acetylcholine rapidly became foundational; more than five decades later, it remains widely cited.

In 1975, Rossier left for the United States, embarking on five training years in the laboratories of Roger Guillemin and Floyd Bloom at the Salk Institute and of Sydney Udenfriend at the Roche Institute in Nutley. There, he contributed decisively to the emerging field of opioid neuropeptides, endogenous morphine-like molecules fundamental to pain, reward and affective processes. His 1977 *Science* paper demonstrating the co-synthesis and co-release of adrenocorticotropic hormone (ACTH) and β-endorphin became a landmark of the field, accumulating more than 1,700 citations and helping to establish the principle that neuropeptides could be co-packaged and co-regulated with classical hormones.

Returning to France in 1980, Rossier founded a neuropharmacology laboratory at the CNRS unit in Gif-sur-Yvette, directed by Robert Naquet. There he shifted his focus to GABA receptors, the major inhibitory neurotransmitter system of the brain. He discovered that β-carbolines, negative allosteric modulators of the GABA receptor, could enhance learning and memory, an insight later pursued by pharmaceutical companies in the search for cognitive-enhancing drugs for neurodegenerative and genetic disorders.

In 1991, his group achieved a conceptual and technical breakthrough by combining patch-clamp electrophysiology with single-cell RT-PCR. By correlating the electrical properties of individual neurons with the ion channels and receptors whose mRNAs they expressed, Rossier provided the first direct demonstration that molecular and functional identities could be unified at the level of a single cell. This innovation opened the door to single-cell genomics.

Three years later, at the request of the Nobel prize Pierre-Gilles de Gennes, Rossier founded the biology teaching and research department at ESPCI Paris. There, he expanded single-cell RT-PCR to analyse the diversity of cortical interneurons. He demonstrated that distinct interneuron types could be defined only through the integration of multiple molecular, morphological and physiological parameters, a framework that has since become standard. His subsequent work revealed that these interneuron populations play specialized roles in neural circuits and in regulating local cerebral blood flow. At ESPCI he also pursued microfluidics and DNA-chip technologies, filing patents and launching a start-up devoted to these innovations.

In memory of Jean Rossier.

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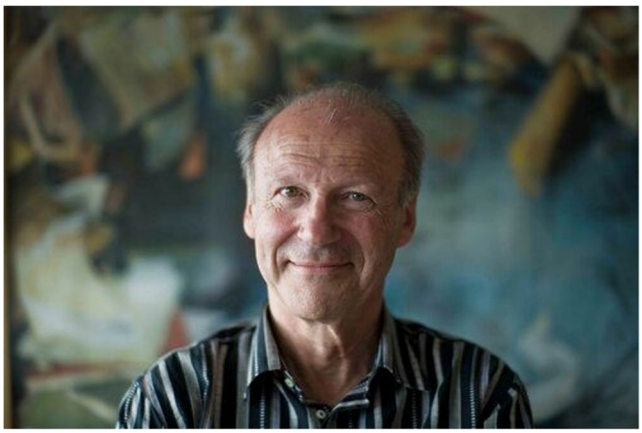
Rossier made major contributions beyond neuropharmacology and cell physiology. Through the development of advanced mass spectrometry in his laboratory, he discovered two major post-translational modifications, polyglutamylation present on most brain tubulins, and polyglycylation, characteristic of ciliary structures. These modifications are now known to regulate microtubule stability and, in the case of polyglutamylation, to contribute to neurodegenerative disease mechanisms.

Over the course of his career, Rossier authored more than 300 publications, including 9 in *Nature*, and 7 in *Science*. His work has been cited more than 34,000 times, and he held an h-index of 93, numbers that reflect the scope, originality and enduring influence of his ideas. He lectured internationally, received numerous awards and, in 2002, was elected to both the French Academy of Science and the European Academy in Brussels.

Among his honours, the one he valued most was the Nature Mentoring in Science Award, received in 2011. Mentoring was indeed a defining theme of his professional life. Rossier supervised nearly forty PhD students and welcomed more than fifty visiting scientists from around the world; many went on to leadership positions in academic and industrial research. His teaching at ESPCI inspired more than one hundred engineering students to pursue doctoral studies in biology.

Those who worked with him remember a vivid, generous and intellectually restless scientist, demanding of himself and others, yet warm, enthusiastic, and exuberant in equal measure. Jean Rossier's scientific legacy is vast, spanning neuropharmacology, molecular neuroscience, protein chemistry and technological innovation. His personal legacy endures in the many researchers he trained and inspired.

He is mourned by his family, friends, colleagues and by the broader neuroscience community, which continues to build on the foundations he laid.



Data availability No data.

Declarations

Conflicts of interests The authors declare no conflicts of interest.