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Obituary

Obituary Étienne-Émile Baulieu (1927–2025)

The world has lost a formidable mind and a generous mentor. Professor Etienne Baulieu's passing on the 30th of May 2025 marks not only loss to his family and friends but also to humanity losing a 98 years worth of experience. His contributions span more than seventy years in areas such as steroid biochemistry, neuroendocrinology, reproductive pharmacology, and other domains.

Baulieu reshaped conventional thinking about steroid hormones' actions and receptors biology. A trained physician biochemist, he devoted much of his career in understanding how steroid hormones impact cellular processes both physiologically and pathologically as well as at the large systems biology level in health disease states. He demonstrated an unwavering commitment to scientific inquiry and to advancing translational research with societal impact.

The most recognizable product from his work is the antiprogestin RU-486 or mifepristone, a synthesized 19-nor-steroid. This compound, acting as a competitive antagonist of the progesterone receptor, enabled the medical termination of early pregnancy without surgery [1]. The controversies politically and ethically surrounding RU-486 are countless, however, it remains pivotal within reproductive endocrinology due to its safety record, how it works within the body, and in regard to its indisputable scientific benefits.

Progesterone and dehydroepiandrosterone (DHEA), as well as their adrenal steroid precursors, were redefined by Baulieu as neurosteroids. He proposed that they are synthesized in the brain and act on neural targets bypassing peripheral endocrine glands [2]. This development, along with other advances, broadens the field of neuroendocrinology and stimulated entire generations of scientists to investigate steroidogenesis, receptor binding, and the functional aspects of steroids.

The resolving power of glial cell cultures allowed him to trace some of the earliest receptors for steroids not only in neurons but also in non-neuronal cells of the brain which led to understanding the intricate interplay between glial cell function and steroid action [3,4]. These discoveries were foundational regarding how glial cells may respond to steroid hormones during normal physiology and various pathologies.

Studying rodent brain tissue under his leadership revealed local synthesis of neurosteroids, along with their local regulation and role in modulation of neuronal excitability and stress responses [5]. His research added knowledge on DHEA being a hypoxic signaling pathway modulator by documenting its inhibitory effects on HIF-1α accumulation in pulmonary artery cells [6].

Baulieu's work within receptor biology focused upon determination of heterooligomeric composition interchanges together with chaperones for steroid receptors. Cadepond et al. [7] and Renoir et al. [8] published works discussing the roles of hsp90 heat shock proteins in facilitating glucocorticoid and progesterone receptor complexes. Radanyi et al. [9] developed monoclonal antibodies to probe these interactions which improved the visualization and resolution of steroid receptor dynamics.

He also studied the structural aspects that determine receptor activity. The glucocorticoid receptor mutagenesis-constructs evaluation with its DNA-binding domain performed by Segard-Maurel et al. [10] demonstrated certain mutations could dramatically alter its transformation process as well as its ligand binding affinity. Rafestin-Oblin and her group's work on receptor-ligand kinetics provided important understanding behind mineralocorticoid signaling mechanisms and also blockade antagonism.

Over the years, Baulieu has shown dedication to innovations within the endocrine field whilst maintaining a robust approach to problem solving throughout one's career. As an author of more than 740 manuscripts with a large quantity in The Journal Of Steroid Biochemistry and Molecular Biology, he was known for his clear concepts and methodological precision which served as benchmarks for many researchers in the field.

He worked alongside diverse groups of trainees which allowed him having impact over many advancing researchers that have key positions in academic institutions as well as clinical research programs all over globe

His lab was a magnet of biochemical research for young scholars with its environment of rigorous thought and scientific aspiration.

The passing of Étienne-Émile Baulieu marks the end of exceptional epoch in biomedical research. His sharp intellect, his amazing rigor, as well as his ability to traverse scientific and societal frontiers are remarkable examples for us all. We grieve for a creative mind who was a very exacting, but also supportive mentor and an unwavering champion defending science without politics.

Farewell to a mentor, colleague, and pioneer.

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