A *Semblanza* for the RegPep26/2027 Named Prize Lectureship Professor George Fink

A career spanning continents and disciplines

In the history of neuroendocrinology, few scientists have combined groundbreaking discovery with institutional leadership, editorial vision, and international collaboration as seamlessly as Professor George Fink. A neuroendocrinologist and neuropharmacologist of the first rank, Fink's career has spanned Australia, the United Kingdom, Israel, and the United States, building bridges across continents and disciplines at every step.

As a distinguished member and long-term supporter of the International Regulatory Peptide Society (IRPS), Professor Fink has not only contributed foundational discoveries to our understanding of reproductive neuroendocrinology and stress, but has also served as a tireless advocate for the field, proposing important speakers, sharing his deep expertise, and helping to shape the intellectual direction of the Society .

As the IRPS prepares to gather in Beijing in 2027, we propose a Named Prize Lectureship to honor Professor George Fink, a scientist whose work elucidated the mechanism of estrogen positive feedback and the ovulatory surge, who was among the first to directly measure corticotropin-releasing factor (CRF) release into hypophysial portal blood, and who has dedicated his career to training the next generation and fostering international scientific exchange.

Foundational Statements

1. The scientist: elucidating the mechanisms of reproduction and stress

Professor George Fink's scientific career is distinguished by two major streams of discovery, each of which has fundamentally shaped modern neuroendocrinology: his work on the neuroendocrine control of ovulation and his pioneering studies of the hypothalamic-pituitary-adrenal (HPA) axis.

The ovulatory surge: solving the estrogen feedback puzzle

One of the central questions in reproductive neuroendocrinology has been: *How does estrogen, acting on the brain and anterior pituitary, trigger the massive surge of luteinizing hormone (LH) that causes ovulation?* Professor Fink and his colleagues provided the definitive answer .

Fink demonstrated that estrogen exerts a dual action to facilitate the ovulatory surge. First, it induces a dramatic 20- to 50-fold increase in the responsiveness of the anterior pituitary gland to gonadotropin-releasing hormone (GnRH), the hypothalamic decapeptide that controls LH release. Second, and perhaps even more importantly, Fink

discovered a unique GnRH self-priming effect, whereby prior exposure to GnRH enhances the pituitary's subsequent response to the same hormone.

This self-priming mechanism is biologically elegant: it enables even low-amplitude pulses of GnRH to trigger robust gonadotropin release from the self-primed pituitary gland. Beyond its role in the ovulatory surge, Fink showed that GnRH self-priming also plays a key role in the onset of puberty, linking his basic mechanistic discoveries to fundamental developmental biology .

Stress research: direct measurement of CRH release

In parallel with his reproductive work, Fink made equally seminal contributions to our understanding of the body's stress response. In 1971, he and his colleagues achieved a milestone: they were the first to demonstrate by direct measurement that a corticotropin-releasing factor (CRF) is released from the hypothalamus into hypophysial portal blood .

This direct measurement was technically challenging. The hypophysial portal system, the specialized blood vessels connecting the hypothalamus to the anterior pituitary, is tiny and inaccessible. Yet Fink's team succeeded in sampling this portal blood and quantifying CRF release. They showed that CRF travels through this portal system to the pituitary gland, where it triggers the release of adrenocorticotropin (ACTH), which in turn stimulates adrenal glucocorticoid secretion - the canonical HPA axis .

Subsequent work using the same direct measurement technique revealed a critical **synergistic action of arginine vasopressin (AVP) with CRF** in triggering ACTH release. Moreover, Fink's group demonstrated that glucocorticoid negative feedback in the HPA system operates primarily by blocking AVP release and blunting pituitary responsiveness to CRF, insights that have profound implications for understanding stress-related psychiatric disorders .

Psychopharmacology and mental health

As Director of the MRC Brain Metabolism Unit in Edinburgh, Fink directed psychopharmacological research in drug-free patients, with a special focus on the role of stress in psychotic disorders. He pioneered the use of HPA axis measurements as a window into the central mechanisms of psychotic illness, demonstrating that dysfunction in stress hormone regulation is not merely a consequence of mental disorder but may be integral to its pathophysiology .

His more recent research has focused on sex steroid control of central neurotransmission, work that is highly relevant to understanding gender differences in mood disorders and mental state, a field with significant clinical implications .

2. The scholarly editor: building the encyclopedia of stress

Beyond his primary research, Professor Fink has made an extraordinary contribution to the scientific community as an editor and synthesizer of knowledge. He was the founding Editor-in-Chief of the first edition of the *Encyclopedia of Stress* (2000), a monumental four-volume work that brought together the entire field of stress research in a single comprehensive reference .

The *Encyclopedia of Stress* was awarded the 2001 British Medical Association Commendation for its contribution to mental health, a rare honor that recognized the work's impact on both science and clinical practice. Fink subsequently edited the second edition (2007) and has continued to build on this legacy with the *Handbook of Stress* series, which includes volumes on *Stress Science: Neuroendocrinology* (2009), *Stress Consequences: Mental, Neuropsychological and Socioeconomic* (2009), *Stress of War, Conflict and Disaster* (2010), the *Handbook of Neuroendocrinology* (2011), and most recently *Stress: Genetics, Epigenetics and Genomics* (2020) .

These editorial endeavors represent a form of scientific leadership that is often underappreciated but absolutely essential: creating the infrastructure that allows researchers across disciplines to access, understand, and build upon each other's work.

3. The leader: president of the European neuroendocrine association

Professor Fink's leadership in the neuroendocrine community is exemplified by his service as President of the European Neuroendocrine Association (ENEA) from 1991 to 1995 . During his presidency, he presided over ENEA international congresses in Lisbon (1993) and Jerusalem (1995), the latter particularly significant given his long-standing connection to Israeli science.

His leadership roles extend beyond ENEA. He has served on numerous editorial boards and scientific committees, including:

- Chair of the Brain Research Panel of the EU Biomedical Programs 3 and 4
- The Mental Health Panel of the Wellcome Trust
- Council of the European Neuroscience Association

5. The mentor and educator: training the next generation

Throughout his career, Professor Fink has been deeply committed to education and mentorship. His academic appointments tell the story of a teacher who has shaped young scientists across three continents:

- Senior Lecturer in Anatomy, Monash University, Australia (1968–1971)
- University Lecturer in Human Anatomy and Official Fellow and Tutor (Brasenose College) in Physiology and Medicine, Oxford University (1971–1980)
- Honorary Professor, University of Edinburgh (appointed 1984)
- Visiting Professor, Rockefeller University (Neurobiology and Behavior Laboratory)
- Visiting Professor in Neurobiology, Mayo Clinic, Rochester, Minnesota

- Arthur Fishberg Professor, Mount Sinai Medical Center, New York
- Walter Cottman Visiting Professor, Monash University

As Director of the MRC Brain Metabolism Unit in Edinburgh for nearly 20 years, Fink created an environment renowned for integrated molecular and clinical neuroendocrinology and psychopharmacology, training numerous postdoctoral fellows and junior faculty who have gone on to their own distinguished careers .

His honorary appointments include Honorary Professor in the University of Melbourne and Professorial Research Fellow at the Florey Institute for Neuroscience and Mental Health, positions he holds to this day.

6. The human being: a life of intellectual curiosity and generosity

Those who know Professor Fink speak of his intellectual curiosity, his generosity with time and ideas, and his genuine passion for science as a collaborative enterprise. He has mentored countless students and junior colleagues, served on innumerable committees, and given freely of his expertise to advance the field.

His career path, from Melbourne to Monash to Oxford to Edinburgh and back to Melbourne, reflects a restlessness of intellect and a willingness to embrace new challenges. He could have remained in any of these prestigious positions for decades. Instead, he chose to move, to grow, and to build new institutions and new collaborations wherever he went.

His most recent position as Professorial Research Fellow at the Florey Institute for Neuroscience and Mental Health in Melbourne represents a kind of homecoming, returning to Australia after a distinguished international career to continue contributing to the scientific community he helped to build .

The proposed **Professor George Fink Named Prize Lectureship** at RegPep26/2027 in Beijing would serve several important purposes:

Honoring foundational discoveries

Professor Fink's work on GnRH self-priming, estrogen positive feedback, and direct measurement of CRF release are **cornerstones of modern neuroendocrinology**. Every scientist working on reproductive neuroendocrinology or the HPA axis stands on ground that Fink helped to prepare.

Celebrating scientific leadership

Fink's service as President of ENEA, his leadership of the MRC Brain Metabolism Unit, and his editorial vision in creating the *Encyclopedia of Stress* represent forms of scientific leadership that are essential to the health of our field. A lectureship in

his name would honor not just discovery but the **institutional and editorial work** that makes discovery possible.

Recognizing a long-term IRPS supporter

As a distinguished member and long-term supporter of the IRPS, Professor Fink has contributed directly to the success of our society. His willingness to propose speakers, share his expertise, and engage with the next generation of scientists exemplifies the best of what the IRPS stands for.