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Nomination 12 May 1981

Summary of scientific research

Early studies using experimentally induced secondary degeneration in the vegetative nervous system (1935-38), first successful method for the identification of neuronal connections in the Central Nervous System by experimental secondary degeneration of synapses (1937-41).

Anatomical evidence of the monosynaptic nature of the "stretch-reflex" (1948); functional anatomy of the vestibulo-ocular reflex (1943-52); functional anatomy and synaptology of the spinal pathways and reflex systems (1951-67). Investigations into the functional anatomy of "hypothalamic control of the anterior pituitary" (around 1962). Cerebellar studies resulting in the "Eccles-Ito-Szentágothai model" of cerebellar cortex function (1967). Studies of complex glomerular synaptic systems (1962-72).

Cerebral cortex studies starting with 1962: relatively early neuron circuit models from 1967-69 were continuously updated by emergent new information on various neuron types, and by application of new techniques for tracing of local and distant neuronal connections (1969-). Introduction and elaboration of the concept of the "modular architectonics" principle of neural centers; particularly in the cerebral cortex (1975-) and its application for neural centers in general (1980-).

Elaboration of new and more dynamic concepts for the modular architectonics principle on the basis of cross correlated physiological, anatomical and biochemical identification of individual neurons and their synapses.