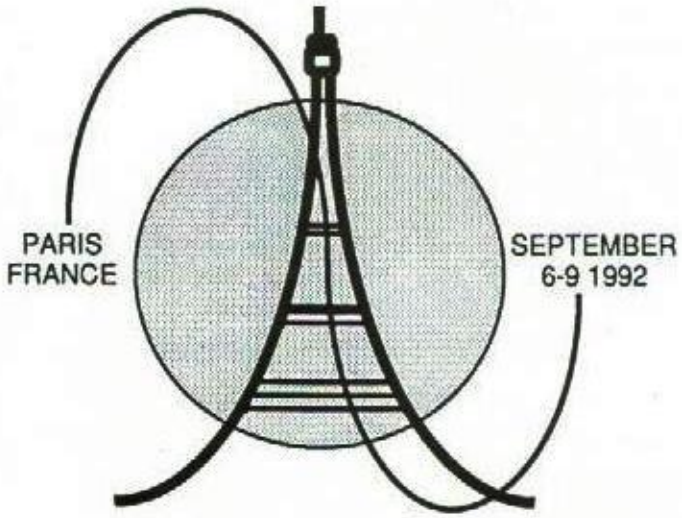
MELATONIN AND THE PINEAL GLAND FROM BASIC SCIENCE TO CLINICAL APPLICATION

SATELLITE SYMPOSIUM OF THE IXTH INTERNATIONAL CONGRESS OF ENDOCRINOLOGY



ABSTRACTS
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L. Di Bella
(Private Laboratory of Physiology, Via Marianini, 45, 41100 Modena, Italy).

Melatonin and platelets/endothelium relationships.

Melatonin (MLT) is synthesized in pineal and orbital organs, in megacariocytes and platelets (PLT) (L. Di Bella et al. Boll. Soc. It. Biol. Sper. 1979, LV, 318; B.J. LEMAITRE et al. 2nd Coll. EPGS. Giessen, 1981, pag. 42), whose dense bodies store, synthesize and loosely bind MLT and serotonin (5HT). MLT interacts with Purines and Purine Receptors, so also to reverse the aggregating activity of ADP. This action seems to depend on the acetylation of a 72 kDA polypeptide, so that the cycloxygenase ceases to function. The ensuing stabilization of the PLT membrane prolongs the PLT life span and allows the complete fulfilment of the manifold PLT/Endothelium interrelations, even as regards the short loops of concomitant autocine and paracrine reactions. Both physical (blood vessel wall shear stress; stretch and transmural pressure) and biochemical factors (pO2; Endocthelium Derived Contracting or Relaxing Factors; Endothelines; MLT; 5HT; Purines ans vascular smooth muscle tension neurogenic agents) modulate blood/tissue exchanges, and the relative organ functions, according to the location and the current activity degree of the latter. The general physical and mental decay processes are negatively influenced as well as the course of the Friedreich's ataxia, Schizophrenia, Depression, etc. More specific and immediate results are achieved in PLT disorders, in blood and bone marrow diseases and in cancer.