ALLOSTERY TURNS 60: celebration with Changeux lui-même.

Accademia Nazionale dei Lincei. May 20th, 2025. SCIENTIFIC PROGRAM

VIDEO https://www.lincei.it/it/manifestazioni/allostery-turns-60

A message from *Brunori, Changeux and Eaton.*

The Monod–Wyman–Changeux (MWC) model for allosteric proteins is an elegant and powerful theoretical paper published in may 1965 in the Journal of Molecular Biology with the title: "On the nature of allosteric transitions: a plausible model". The paper represented a remarkable discovery in the field of biological regulation introducing a conformational selective mechanism to allow regulatory proteins to cope with the ever-changing physiological demands of the cell. The concept emerged from experiments on the control of L-threonine deaminase activity carried out at the Institut Pasteur à Paris by Jean-Pierre Changeux, a PhD student of Jacques Monod; the model was successfully and extensively applied to hemoglobin by many outstanding scientists including Jeffries Wyman and Max Perutz. The paper has been cited more than 10.000 times and has been explained in almost every Biochemistry & Biophysics textbook. The MWC model proved highly successful in multiple basic disciplines and provided molecular explanation for the mechanism of action of an increasing number of medicines in several clinical areas (neurology, psychiatry, endocrinology, cardiovascular, oncology) with major consequences on the design of new powerful allosteric drugs, opening a new era of precision pharmacology.

Welcome by President *R. Antonelli* and SE the French Ambassador *M. Briens*

Brunori M. Introductory remarks

CHAIR: A Triller (Paris).

Changeux J-P (Paris): *Allostery: from bacterial regulatory enzymes to brain receptors*.

Wüthrich K (Zürich). *Transmembrane signaling by GPCRs viewed by NMR*.

CHAIR: A. Fersht (Cambridge, UK)

Eaton WA (Bethesda) *Hemoglobin,the paradigm of multisubunit allosteric proteins*

Brunori M (Rome) *Variations on the theme*

Horovitz A. (Rehovot) *The GroEL nano-machine: allostery and function*

CHAIR: P. Brzezinski (Stockholm)

Cournia Z. (Athens) *Allostery and drug discovery*

Walker J (Cambridge, UK): *Allosteric regulation of ATP synthase.*

Lehn JM (Strasburg): *The management of oxygen: the ITPP Story - From the Laboratory to the bedside.*

CHAIR: G Parisi (Rome)

Robinson C (Oxford). *From recombinant complexes to regions of the brain: what role does Allostery play?*

Wolynes P (Huston) *Frustration and allostery*

Changeux J-P (Paris): *The future…*

***Concluding remarks by* Giorgio Parisi.**