# Accademia Nazionale dei Lincei Centro Linceo Interdisciplinare «B. Segre»

in collaborazione con Università di Roma "La Sapienza" Dipartimento di Scienze Biochimiche e Istituto di Biologia e Patologia Molecolari del CNR

### **CONVEGNO INTERNAZIONALE**

### **ALLOSTERIC PROTEINS:**

# 40 years with Monod-Wyman-Changeux

#### **24 MAGGIO 2005**

Comitato Scientifico: M. Brunori (Roma), G. Careri (Roma), J.P. Changeux (Parigi), H.K. Schachman (Berkeley, USA).

### Programma

9.00 Indirizzi di saluto

Presidenza: H. Buc (Parigi), A. Bellelli (Roma)

- 9.15 J.-P. Changeux (Parigi): *The MWC model in retrospect: from regulatory enzymes to receptor channels*
- 9.45 S.J. Edelstein (Ginevra): The nicotine acetylcholine receptor
- 10.30 Intervallo
- 11.00 E. Di Cera (St. Louis, USA): Thrombin allostery
- 11.45 A. Horovitz (Rehovot, IL): Allostery of chaperonin GroEL
- 12.30 H.K. Schachman (Berkeley, USA): Aspartate transcarbamylase

### Presidenza: M. Perrella (Milano), G. Careri (Roma)

- 14.30 E. Chiancone (Roma): Cooperativity in dimeric hemoglobins
- 15.15 W.A. Eaton (Bethesda, USA): MWC and hemoglobin
- 16.00 Intervallo
- 16.30 I. Pecht (Rehovot, IL): Allosteric control of intra-protein electron transfer: the cd1 nitrite reductase
- 17.15 T. Duke (Cambridge, UK): Allosteric states in multiprotein complexes
- 18.00 M. Karplus (Harvard, USA): Allostery: 40 years later
- 18.45 Discussione generale

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In May 1965, J. Monod, J. Wyman and J.P. Changeux published in the *Journal of Molecular Biology* a seminal paper that became one of the most exciting and cited publications in Biochemistry and Molecular Biology. They presented a theory on allosteric control in proteins and enzymes displaying cooperative functional behaviour, which proved to be a very lucid interpretation of biological regulation.

At the time Jeffries Wyman (Linceo) was a guest professor at the Biochemistry Institute of the University of Rome, where he worked from 1961 to 1986 with E. Antonini and his group contributing to our understanding of the structure-function relationships in hemoglobin, the paradigm of an allosteric protein. Their studies provided the proper milieu to test the applicability of the allosteric theory to hemoglobin, which was championed by M. F. Perutz (Linceo) based on the original observation that oxy and deoxy hemoglobin populate two different quaternary structures. For many years the allosteric theory was applied, by-and-large, to hemoglobin and a handful of enzymes. But more recently it was demonstrated to account for the behaviour of many other proteins, sometimes very complex such as receptors, chaperonins and multiprotein complexes. Allostery has become an acquired concept which is extensively covered in all Biochemistry textbooks. The purpose of this Meeting is to critically discuss the validity and limitations of the theory when applied to various complex proteins, and to assess future developments.

Registration is necessary for attendance. Please write to: maurizio.brunori@uniroma1.it Home page: http://www.lincei.it/centrolinceo/

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