FIRST EUROPEAN CONFERENCE ON CHEMISTRY FOR LIFE SCIENCES

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The First European Conference on Chemistry for Life Sciences which was aimed to understand the chemical mechanisms of life was organized by the working party on chemistry for life Sciences of the European Association for Chemical and Molecular Sciences (EuCheMs).

Under the patronage of Divisione di Chimica dei Sistemi Biologici Societa Chemicia Italiana and the University of Bologna, the conference was held on October 4-8, 2005 in Rimini (Italy) in the Palacongressi. This conference is a seed of a new series of conferences to flank the European chemistry congresses and for the growth of this community.

The opening cermony began with a welcome address, then a pre-conference lecture entitled “Chemical Passwords and Identity Cards in Insect Societies”.

The scientific programme includes eight plenary lectures, seven mini symposia, two poster sessions and an exhibition for scientific apparatus and equipments had been organized.

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The plenary lectures were entitled:

1. In silico structural genomics using protein design algorithms.
2. Drug discovery at adaptive signaling interfaces: Moving Targets.
3. Comparative genomics to reveal the evolution of protein families and their functions.
4. Heterologous protein production in yeast.
5. Calcium signalling and surroundings.
6. Structural properties of longer peptides acting like small proteins.
7. Structure and mechanisms of the plant high-harvesting complex.
8. A structural and functional genomics project to target viral enzymes from human pathogens: from structures to drugs.

The mini-symposia sessions included the following topics:

Sessions I & II: Metal-based Drugs

1. Metal based drugs: activation and targeting.
2. Platinum-nucleic acid chemistry 35 year after its start.
3. Ruthenium and other non-platinum anticancer drugs.
4. Organometallic generation of dual functionally in selective estrogen receptor modulators.
5. Targeting the mitochondrial cell death pathway with gold complexes.
6. Specific interactions of copper(II) ions with fragments of prion and related proteins.
7. Copper binding of the prion protein.
8. NMR and CD studies of Cu(II) and Ni(II) binding to the amyloidogenic region of the prion protein.

Session III: Drug discovery

1. Fragment based durg discovery using rational desgin.
2. Structure based drug desgin of a new class of antibacterial agents.
3. Drug discovery research in the medical research council technology.

Session IV: Spectroscopic Tools

1. Probing the mechanism of drug resistance by Raman crystallography.
2. Fluctuation dynamics of the cell interior.
3. Electric field effects on biological electron transfer processes studied by vibrational spectroscopies.
4. Resonance Raman investigation of hexacoordinate plant hemoglobins.
5. Magnetic circular dichroism and electron paramagnetic resonance spectroscopy: probes of multi spin paramagnetic sites in proteins.

Session V: Mass Spectrometry of Biomolecules

1. Applications of nano-ESI-MS to the study of protein folding and non-covalent complexes.
2. Investigating protein complexes by nano-ESI and tandem-MS.
3. Proteome coverage of mass spectrometry -based proteomics.
4, Mass spectrometry of non covalent complexes: molecular recognition in the gas phase.

Session VI: NMR - based Structrual Biology

1. Computationally enhanced NMR methods and applications.

2. Using NMR to study calcium binding in modular proteins containing epidermal growth factor-like domains.
3. Solution structure of two hypothetical proteins from archaebacteria testing the possibilities of NMR in structural proteomics.

Session VII: Membranes

1. Membrane proteins in action: structural analyses and implications.
2. Solid state NMR studies of biological assemblies.
3. Amphipols and hemifluorinated surfactants: two novel classes of tools for membrane biology research.

The posters formed two separate sessions. All with numbers 1 to 76 were presented in the 1st session while the other 76 posters were presented in the 2nd session.