UNIVERSITÀ DEGLI STUDI DI PALERMO

DIPARTIMENTO DI SCIENZE E TECNOLOGIE BIOLOGICHE CHIMICHE E FARMACEUTICHE (STEBICEF)

Istituto di Biomedicina e Immunologia Molecolare "Alberto Monroy" - CNR

ibim cnr

RBB stebicef

Ricerca Biologica e Biotecnologica

Congresso Scientifico:

Ricerca di base, interdisciplinare e traslazionale in ambito Biologico e Biotecnologico (II ed.)

26 e 27 Giugno 2014

Aula Mutolo della Sezione di Biologia Cellulare del Dipartimento di Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche (STEBICEF)

In copertina presentiamo una nuvola di tag (tag cloud in Inglese), rappresentazione visiva delle etichette (tag) o parole chiave usate negli abstract dei lavori del Congresso.
Generalmente questa lista è presentata in ordine alfabetico, con la peculiare caratteristica di attribuire un font più grande alle parole più importanti. Si tratta quindi di una lista pesata.
Le nuvole di tag costituiscono un elemento di interfaccia per gli architetti dell'informazione, che le possono utilizzare per progettare navigazioni alternative all'interno di un sito web.
(testo tratto da Wikipedia)

ISBN 9788890580550

UNIVERSITÀ DEGLI STUDI DI PALERMO

DIPARTIMENTO DI SCIENZE E TECNOLOGIE BIOLOGICHE CHIMICHE E FARMACEUTICHE (STEBICEF)

Area di Palermo

Congresso:

Ricerca di base, interdisciplinare e traslazionale in ambito Biologico e Biotecnologico (II ed.)

26 e 27 Giugno 2014
Aula Mutolo della Sezione di
Biologia Cellulare del Dipartimento di Scienze e Tecnologie
Biologiche, Chimiche e Farmaceutiche (STEBICEF)

Comitato Scientifico:
Vincenzo Cavalieri (STEBICEF)
Davide Corona (STEBICEF)
Marta Di Carlo (IBIM)
Mirella Ciaccio (IBIM)

Segreteria Organizzativa:
Giovanni Morici
Francesca Faillaci
Veronica La Fiora
Silvia Casamirra
Giuseppina Turturici

Grafica e impaginazione: *Giovanni Morici*
mail: eventi.stebicef@unipa.it
stampato presso: Officine**grafiche** Palermo

Anche quest'anno, il Dipartimento di Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche (STEBICEF) dell'Università di Palermo e l'Istituto di Biomedicina e Immunologia Molecolare (IBIM) del CNR di Palermo promuovono un convegno scientifico congiunto.

Il convegno, dal titolo "Ricerca di Base, Interdisciplinare e Traslazionale in ambito Biologico e Biotecnologico", avrà luogo il 26 e 27 Giugno 2014 presso l'Aula Mutolo della Sezione di Biologia Cellulare del Dipartimento STEBICEF, in viale delle Scienze, Edificio 16.

Tale evento si innesta pienamente nel contesto della convenzione Università-CNR, proponendo uno scambio interculturali mirato a diffondere lo stato dell'arte delle ricerche condotte dai componenti dei due Enti.

Il convegno offre inoltre un'importante occasione di confronto e di incontro anche per colleghi che operano in altre Strutture.

Durante lo svolgimento dei lavori i partecipanti avranno anche l'occasione di trovare momenti di approfondimento sulle tematiche proposte (quali Biologia Molecolare, Biochimica, Biologia dello Sviluppo, Genetica, Fisiologia, Microbiologia e molte altre ancora), sia da un punto di vista prettamente metodologico che per quanto attiene la nascita di nuove e proficue collaborazioni.

Per raggiungere tali obiettivi, il convegno si articola alternando due tipologie di sessioni: una inerente le comunicazioni orali e l'altra l'esposizione di poster.

Al fine di promuovere la divulgazione delle attività, tutte le comunicazioni scientifiche sono incluse negli Atti.

Il Comitato Scientifico

Dr. Vincenzo Cavalieri
Dr. Davide Corona
Dr. Marta Di Carlo
Dr. Mirella Ciaccio

Congresso "**Ricerca di base, interdisciplinare e traslazionale in ambito Biologico e Biotecnologico**"

Presso l'Aula Mutolo del Dipartimento di Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche

26-27 Giugno 2014

PROGRAMMA

Giovedì 26 Giugno

8.30 REGISTRAZIONE
9.15 SALUTO DI BENVENUTO E APERTURA DEI LAVORI
Prof. ***Giovanni Spinelli***, Direttore STEBICEF - UNIPA
Dr. ***Giovanni Viegi***, Direttore IBIM – CNR

9.40 - 11.00 Sessione I
Moderatori: Dr. Vincenzo Cavalieri / Dr. Maria Di Bernardo

9.40 – 10.00 **Santa Anna Acuto**, A.O. Ospedali Riuniti Villa Sofia-Cervello
The sea urchin *sns5* chromatin insulator settles a gene therapy vector into an independent domain of expression in the vertebrate genome.

10.00 – 10.20 **Salvatore Molino**, STEBICEF - UNIPA
Thanatos associated protein 11 (THAP11) modulates expression of c-MYC by binding the HB2.8 enhancer blocker element

10.20 – 10.40 **Maria Cristina Onorati**, STEBICEF - UNIPA
Chromatin remodelers, nucleoplasm compartment and proteinopathies

10.40 – 11.00 **Giosalba Burgio**, STEBICEF - UNIPA
UbcD1 is a Histone H2B Ubiquitin-Conjugating Enzyme Essential for Global Chromatin Structure and Gene Expression Regulation

11.00 - 11.30 ***Coffee break / visione Poster***

11.30 - 12.50 Sessione II
Moderatori: Prof.ssa Anna Maria Puglia / Dr. Mirella Profita

11.30 – 11.50 **Giulia Anzalone**, IBIM – CNR
IL-8 and TSLP production from epithelial cells in IL-17A mediated airway inflammation of COPD patients.

11.50 – 12.10 **Giovanna Barbieri**, IBIM - CNR
The growth inhibition of $(Bu_3Sn)_4TPPS$ and $(Bu_2Sn)_2TPPS$ treated human melanoma cells is associated to decrease of adhesion receptors expression

12.10 – 12.30 **Teresa Faddetta**, STEBICEF - UNIPA
Metabolic Pathways in *Microbispora sp.* ATCC-PTA 5024, Producer of NAI-107 Lantibiotic

12.30 – 12.50 **Giovanna Barresi**, STEBICEF - UNIPA
Biotecnology and Cultural Heritage: bioactive molecules applied in restoration projects

12.50 - 14.30 ***Light Lunch / visione Poster***

14.30 - 16.10 Sessione III
Moderatori: Dr. Melchiorre Cervello / Prof. Aldo Di Leonardo

14.30 – 14.50 **Daniela Carlisi**, BIONEC – UNIPA
The synergistic effect exerted by the HDAC inhibitor SAHA and the sesquiterpene lactone parthenolide on triple negative breast cancer cells.

14.50 – 15.10 **Gaetano Felice Caldara**, STEBICEF - UNIPA
How cancer cells cross lymphatic endothelium?

15.10 – 15.30 **Maria Rita Emma**, IBIM - CNR
Role of Nupr1/p8 in hepatocellular carcinoma: implications in cell growth control and response to treatment

15.30 – 15.50 **Walter Arancio**, DIBIMIS - UNIPA
Anaplastic Thyroid Carcinoma: a ceRNA analysis pointed to a crosstalk between *SOX2*, *TP53* and microRNA biogenesis.

15.50 – 16.10 **Riccardo Di Fiore**, STEBICEF - UNIPA
microRNA-29b-1 is involved in self-renewal and fate decisions of human osteosarcoma 3AB-OS cancer stem cells

16.10 - 18.00 ***Coffee break/ visione Poster***

Venerdì 27 Giugno

09.00 - 10.40 Sessione IV
Moderatori: Dr. Maria Grazia Zizzo / Dr. Giovanni Duro

09.00 – 09.20 **Michelangelo Auteri**, STEBICEF - UNIPA
Novel evidences for a role of dopamine as modulator of intestinal motility: a study on mouse distal colon.

09.20 – 09.40 **Domenico Nuzzo**, IBIM - CNR
Diet-Induced Obesity: A Risk Factor for Alzheimer's disease

09.40 – 10.00 **Carmela Zizzo**, IBIM – CNR
Malattia di Anderson Fabry: misdiagnosi e nuovi marcatori molecolari

10.00 – 10.20 **Rita Messineo**, IBIM - CNR
Relationship between Human alfa-Galactosidase Isozymes

10.20 – 10.40 **Antonella Amato**, STEBICEF - UNIPA
Chronic treatment with GLP-2 (3-33) exacerbates glucose metabolism disorders in mice fed a high fat diet.

10.40 – 11.10 ***Coffee break / visione Poster***

11.10 - 12.50 Sessione V
Moderatori: Prof. Giulio Ghersi / Dr. Antonella Bongiovanni

11.10 – 11.30 **Rosa Alduina**, STEBICEF - UNIPA
Streptomyces coelicolor: DNA methylation and differentiation

11.30 – 11.50 **D Spigolon**, IBF - CNR
Hsp60 and GroEL Chaperonins: Thermodynamic Characterization on Self-Assembly and Structural Stability Studied by Nano DSC and Nano ITC

11.50 – 12.10 **Patrizia Cancemi**, STEBICEF - UNIPA
A proteomic signature for breast cancer patients stratification

12.10 – 12.30 **Loredana Randazzo**, IBF - CNR
Protein diffusion in ovo

12.30 – 12.50 **Patrizia Saladino**, STEBICEF - UNIPA
RNA binding proteins in brain cells differentiation

12.50 – 14.00 ***Light Lunch / visione Poster***

14.00 - 15.20 Sessione VI
Moderatori: Dr. Giovanna Barbieri / Dr. Fabiana Geraci

14.00 – 14.20 **Pasquale Picone**, IBIM - CNR
NANOGELS AS USEFUL TOOL FOR ALZHEIMER'S DISEASE THERAPY

14.20 – 14.40 **Angelo Spinello**, STEBICEF - UNIPA
The Interaction of Small Molecules with Biomolecules

14.40 – 15.00 **Nicolò Mauro**, STEBICEF - UNIPA
Clever pH-Sensitive Drug-polymer Conjugates For Targeted Cancer Therapy

15.00 – 15.20 **Vincenzo Martorana**, IBF - CNR
A molecular strategy to cope with serpinophaties.

15.20 Premiazione migliori Poster.

Ore 15.30 Chiusura dei lavori

Abstract comunicazioni orali:

client–protein interactions. Some of these conformational changes are associated with Intrinsically Disordered Regions [1]. Hsp60 assists the correct folding of mitochondrial proteins and plays a role in cytoprotection against cell stressors. Despite a plethora of studies on its bacterial homologs GroEL, key questions on Hsp60 structure-functions are still unanswered. There are evidence that Hsp60 exists in solution in dynamic equilibrium between monomers, heptameric single rings and double ringed tetradecamers. We use ITC-dilution and Nano-DSC to probe the dissociation equilibrium and thermal stability of Hsp60 and GroEL [2]. Results indicate that Hsp60 exists in a dynamic equilibrium between monomeric and heptameric form, even in the absence of ATP and the 10kDa co-chaperonin [3]. The two proteins unfold with different melting temperatures (T_m) and calorimetric enthalpy changes (ΔH_{cal}). In the case of Hsp60, the transition peak is skewed towards the low temperature side as expected for a transition coupled to dissociation. Experiments at different protein concentration confirm that the unfolding is coupled to the dissociation of the oligomeric protein.

[1]Tompa P. et al.(2004),FASEB J. 18,1169.
[2]Kathryn L. et al(2005),Biophysical Journal, 89, 3332.
[3]Pace A. et al.(2013),Curr. Pharm. Design,19,2757.

The Interaction of Small Molecules with Biomolecules

Angelo Spinello, Alessio Terenzi, Riccardo Bonsignore, Antonella Marrone, Annamaria Martorana, Anna Maria Almerico, Antonino Lauria, Giampaolo Barone*
Dipartimento di Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche, Università di Palermo
angelo.spinello@unipa.it, giampaolo.barone@unipa.it
keyword: **computational chemistry, DNA, host-guest interactions, metal complexes**

The binding of small molecules with biological targets is associated to interesting chemical and biological properties of the resulting supramolecular systems. We have recently reported on the synthesis and characterization of cationic first row transition metal complexes and the study of their DNA binding properties, in aqueous solutions at neutral pH, essentially investigated by viscosimetry and spectroscopic techniques such as circular dichroism, absorption and fluorescence in the UV-visible wavelength range. Of course, such procedure cannot furnish atomic level details of the molecule-DNA interaction. Computational Chemistry may provide support for the interpretation of experimental data on an atomistic level (Fig.1). For example, we have recently shown that Molecular Dynamics (MD) simulations, followed by quantum mechanics/molecular mechanics (QM/MM) calculation, provided detailed structural informations and binding energies of the complexes between nickel(II), copper(II), zinc(II) metallointercalators with nucleic acids in the canonical B conformation [1]. We are presently applying such complementary experimental and computational approach to the interaction of small molecules with G-quadruplex (G4) DNA. The latter is a non-canonical conformation recently observed in human cells [2], and it has been proposed as a target for a novel class of anticancer drugs. Recently we have performed MD simulation to have an insight into the molecular recognition process of small organic ligands and other biological targets, such as mRNA and proteins [3].

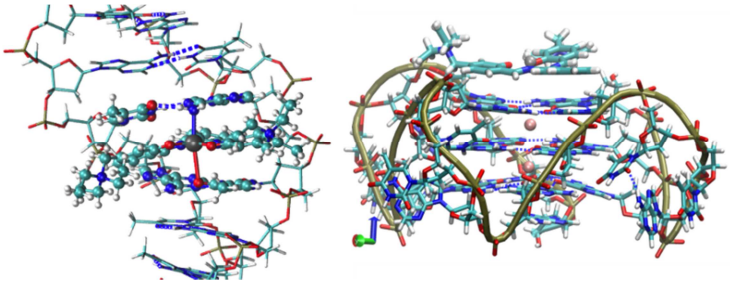

Figure 1: The interaction of a zinc(II) complex with duplex (left) and quadruplex (right) DNA.

References:
[1] Lauria, A. et al. (2014) *Dalton Trans.,* **43**, 6108.
[2] Biffi, G. et al. (2013) *Nature Chem.*, **5**, 182
[3] Lentini, L. et al. (2014) *Mol. Pharmaceutics,* **11**, 653.

Misdiagnosis and new diagnostic tools in Fabry Disease

Carmela Zizzo, Paolo Colomba, Giuseppe Albeggiani, Rita Messineo, Simone Scalia, Caterina Bartolotta, Marcello Filogamo, Daniele Francofonte, Giuseppe Cammarata, Francesco Iemolo, Riccardo Alessandro, Giovanni Duro*
Istituto di Biomedicina e Immunologia Molecolare "A. Monroy" – Consiglio Nazionale delle Ricerche – Via Ugo La Malfa, 153 – Palermo ; zizzo@ibim.cnr.it; *duro@ibim.cnr.it
Fabry Disease, Multiple Sclerosis, microRNAs

Fabry Disease (FD) is a hereditary, X-linked, progressive and multisystemic lysosomal storage disease, featuring variable course and clinical manifestations. It is a metabolic disorder caused by the functional deficit of the enzyme α-galactosidase A (α–GAL A). This deficit is responsible for the alteration of the metabolism of some glycosphingolipids and precisely globotriaosylceramide (GB3), which builds up in lysosomes of different cellular types, particularly in vascular endothelium cells. FD is an X-linked lysosomal enzymopathy caused by mutations in the GLA gene, encoding for α–GAL A. It is considered a rare disorder with an estimated incidence of 1:40.000, but actually data in literature show that FD is often seen and rarely diagnosed.
Since FD clinical manifestations overlap to clinical manifestations of other diseases, patients affected by FD are often first diagnosed as affected by common pathologies, different from FD. Among these, Multiple Sclerosis (MS) shows neurological signs and symptoms similar to the ones of FD and it is the first diagnostic hypothesis in 5% of FD patients.
Therefore, we are performing genetic and enzymatic tests in patients with diagnosis of ambiguous MS, in order to identify unacknowledged patients affected by FD.
Moreover, since 98% of subjects with systemic symptoms does not show any mutation occurring in the exons of the GLA gene, more innovative diagnostic tools are required to make a more reliable diagnosis. Among these, microRNAs, currently used to diagnose many pathologies, could be the new era of biomarkers for FD.
Diagnosis of FD needs to be timely in order to start the enzyme replacement therapy (ERT) as early as possible; ERT limits or stops symptoms progression, therefore improving considerably quality of life.