COM.IT.ES

Comitato degli Italiani all'Estero
Committee for Italians Abroad

under the auspices of the
Consulate General of Italy in Houston

Presents the 3rd Conference of Italian Researchers;

"The Contribution of Italian Researchers in the World"
The Past - The Present - The Future

Conferenza dei Ricercatori Italiani

2007

Chairman - Vincenzo Arcobelli, President Comites
Moderator - Andrea Duchini, M.D., The Methodist Hospital, Houston

Saturday, November 10th 2007
9:30 a.m. - 6:30 p.m.

Italian Consulate Auditorium
1330 Post Oak Boulevard
Houston, Texas 77056

The Contribution of the Italian Researcher in the World
The Past - The Present - The Future

9:00 a.m. Opening Remarks and Introduction
Andrea Duchini
Vincenzo Arcobelli
Cristiano Maggipinto

9:30 a.m. Bioscience section
Moderators; Giulio Taglialatela, Nicola Perone

Cell Biology Gianni, Davide. The Scripps Research Institute, LaJolla, CA
The involvement of the tyrosine kinase c-Src in the regulation of Reactive Oxygen Species (ROS) generation mediated by the NADPH oxidase-1.

Neuroscience Giuffrida, Andrea, UTHSC, San Antonio, TX
Anti-dyskinetic effects of cannabinoids in an animal model of Parkinson's disease

Nanomedicine Tasciotti, Ennio, UTHSC, Houston, TX
A multistage nanodelivery system for therapeutic applications and medical imaging

Endocrinology Gentile, Saverio, NIH, Durham, NC
Non genomic effects for thyroid hormone: a rationale for sudden cardiac death syndrome

Oncology Abbadessa, Giovanni, Temple University, Philadelphia, PA
Hepatocellular Carcinoma (HCC); Standard, Experimental and Unconventional Approaches for an Unbeaten Disease

Cell Biology. Alpini, Gianfranco, Texas A&M, TX
Regulation of growth of cholangiocarcinoma, a cancer of biliary origin.

Psychology Versace, Francesco. UTHSC, Houston, TX
Recognition memory for emotional and non emotional pictures

Cardiology De Gregorio, Michele. Harper Hospital/Wayne State University, Detroit, MI
Endovascular repair of abdominal aortic aneurysms (AAA)

Cardiac Surgery La Francesca, Saverio, Texas Heart Institute, Houston
Clinical application of the latest devices available at the Texas Heart Institute for replacing the function of the failing heart

12:30 p.m. Lunch Break
Poster presentation

1:30 p.m. Technology section
Moderators; Paolo Papi, Brando Ballerini

Geophysic Montelli, Raffaella. Exxon, Houston, TX
What lies under volcanoes such as Hawaii

Informatics Giammaria, Alberto, IBM, Austin, TX
Virtualization Today

Engineering Urbani, Fabio. UT, Brownsville, TX
Metamaterials: Applications, Design Procedure and Manufacturing Limitations

Physics Alessandrini, Matteo, UH, Houston, TX
Design and Testing of Superconducting Magnets made with MgB_2

Mathematics Ferrero, Daniela, TxSU, San Marcos, TX
Network Influence on Individuals.

3:30 p.m. Coffee Break

4:00 p.m. **Roundtable;** ***Development of a network of Italian researchers in the world***
Moderators; Herve' Gentile, Rita Fraschini

Gentile, Saverio, NIH, Durham, NC
Prometeo Network, East Coast
Gianni, Davide. Scripps Research Institute, La Jolla, CA
Prometeo Network, West Coast

Devoto, Alberto. Italian Embassy, Washington, DC
La Fondazione di Scienziati e Accademici Italiani in Nord America (ISSNAF); i suoi scopi e programmi.

Occhiello, Ernesto. Dow Chemical Company
Ricerca industriale nell'epoca della globalizzazione

6:00 Conclusions

Original research:

Medicine Nascimbene, Angelo. UTHSC, Houston, TX
Acute thrombocytopenia after liver transplantation.

Medicine Bonacini, Maurizio. California Pacific Medical Center, San Francisco, CA
Predictive value for low level hepatic fibrosis in chronic hepatitis c (CHC) patients: comparison of five non-invasive indices

Medicine Tagliabue, Claudia. UT Southwestern, Dallas, TX
Comparison of Clarithromycin, Dexamethasone, or Combination Therapy for Experimental *Mycoplasma pneumoniae* Respiratory Infection

Optometry Carleo, Olivia, UH, Houston, TX
Stargardt's Disease

Informatics Ambrosetti, Rodolfo. IBM, Austin, TX
Software quality: an oxymoron?

Informatics Giammaria, Alberto, IBM, Austin, TX
Virtualization Today

Informatics Papi, Paolo, IBM, Austin, TX
Global Software Development

Cell Biology. Alpini, Gianfranco, Texas A&M, TX
Regulation of growth of cholangiocarcinoma, a cancer of biliary origin.

Cell Biology Gianni, Davide. The Scripps Research Institute, LaJolla, CA
The involvement of the tyrosine kinase c-Src in the regulation of Reactive Oxygen Species (ROS) generation mediated by the NADPH oxidase-1.

Genetics Morello, Roy. BCM, Houston, TX
CRTAP and *LEPRE1* are required for collagen prolyl 3-hydroxylation and their mutations cause recessive osteogenesis imperfecta.

Endocrinology Gentile, Saverio, NIH, Durham, NC
Non genomic effects for thyroid hormone: a rationale for sudden cardiac death syndrome

Endocrinology Iacobellis, Gianluca, McMaster University, ON, Canada
The Obese Heart; New Risk Factor, Diagnostic Tool and Therapeutic Target

Physics Alessandrini, Matteo, UH, Houston, TX
Design and Testing of Superconducting Magnets made with MgB_2

Physics Ricci, Edio. UNCR, Costa Rica,
Solar Ovens for Sterilizing Bio-Infectious Waste

Physics Brancaleon, Lorenzo. UT San Antonio, TX
Direct protein photodamage: a new paradigm for cancer phototherapy?

Physics Crosetto, Dario, 3D-Computing, DeSoto, TX
Premature Death from Cancer: A Calamity That Could Have Been Avoided!!!

Oncology Massarelli, Erminia, MDACC and TMH, Houston, TX
Predictive factors of Resistance to Therapy with Epidermal Growth Factor Receptor Tyrosine Kinase Inhibitors in Non-Small Cell Lung Cancer

Oncology Zorzi, Daria. MDACC, Houston, TX
Chemotherapy with Bevacizumab Does Not Affect Liver Regeneration After Portal Vein Embolization in the Treatment of Colorectal Liver Metastases

Oncology Barone, Ines. Baylor College of Medicine, Houston, TX
Evidence that estradiol, through a short non genomic loop, downregulates PTP1B and enhances aromatase activity in MCF-7 cells.

Oncology Santarpia, Libero. MDACC, Houston, TX
Role of Ras/Raf-MAPK and PI3K/Akt pathways in anaplastic thyroid cancer

Oncology Perazzona, Bastianella. MDACC, Houston, TX
Kinase domain defective mutants of Bcr enhance Bcr-Abl oncogenic effects

Oncology Abbadessa, Giovanni, Temple University, PA
Hepatocellular Carcinoma (HCC); Standard, Experimental and Unconventional Approaches for an Unbeaten Disease

Chemistry Mauro Fianchini. The University of Texas at Arlington, Arlington, TX

The chemistry of the “Coinage” metals with carbon monoxide and ethylene

Neuroscience Giuffrida, Andrea, UTHSC, San Antonio, TX
Anti-dyskinetic effects of cannabinoids in an animal model of Parkinson’s disease

Nanomedicine Tasciotti, Ennio, UTHSC, Houston, TX
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Cardiology De Gregorio, Michele. Harper Hospital/Wayne State University, Detroit, MI
Endovascular repair of AAA

Cardiology Vatta, Matteo. BCM, Houston ,TX
Toward the understanding of the molecular basis of arrhythmogenesis in heart failure

Cardiac Surgery La Francesca, Saverio, Texas Heart Institute, Houston, TX Clinical application of the latest devices available at the Texas Heart Institute for replacing the function of the failing heart

Geophysic Montelli, Raffaella. ExxonMobil, Houston, TX
What lies under volcanoes such as Hawaii

Geological Sciences Innocenti, Sabrina, ExxonMobil, Houston, TX
Geochemical, textural and petrographic indicators for eruptive behavior at Merapi volcano

Engineering Urbani, Fabio. UT, Brownsville, TX
Metamaterials: Applications, Design Procedure and Manufacturing Limitations

Mathematics Daniela Ferrero, TxSU, San Marcos, TX
Network Influence on Individuals.

Dentistry Fiorentino, Paolo, University of Toronto, ON, Canada
Capsaicin-Induced Inflammation Within Temporomandibular Joint Involves TRPV1 Receptor Mechanisms

This Conference, presently at its 3rd edition, aims at stressing for the Italian and Italian American public the outstanding contribution of our researchers to the development of science and technologies in the United States. The participants are, as a matter of fact, involved in high level research, in the different fields of biosciences and technologies.

The excellence of research in our country is well known all over the world, and has recently been emphasized by the awarding of the Nobel Prize for Medicine to an American of Italian origins. The prestigious prize was assigned to Dr Mario Capecchi and his colleagues Martin Evans e Oliver Smithies for their work on the possibility of producing genetic modifications in laboratory cavies through embryonic cells. Born in Italy, Capecchi moved to the States in early age, and has now become one of the fathers of the gene- targeting technique.

Capecchi is one of the most striking examples of what we can call the "brain exchange" phenomenon.

More and more Italian researchers and scholars are moving more and more often to the States. Here the scientific research can count on the most sophisticated instruments ever. I'm sure that many of the participants in the Conference found here the possibility to further their studies, possibilities which in many cases were not granted in Italy. The Academic world is notoriously a globalized world, where people from different countries and different religions, work together, side by side, for the sake of progress. Exchange of ideas, exchange of brains, cooperation of international teams- as in the case of Capecchi- provide best results and significant contribution to research advancement. In a global world, mind's capability is a world's heritage. We have to feel committed to share everyone's knowledge for the sake of progress and for the benefits which this sharing will bring about.

Cristiano Maggipinto
Consul General of Italy
Houston

Messaggio del Presidente del Comites

Vorrei dare il benvenuto a nome del Comites della circoscrizione consolare a tutti i partecipanti a questa manifestazione. La conferenza e' giunta alla sua terza edizione e permettera' anche quest'anno ai ricercatori Italiani in vari campi di incontrarsi e scambiare idée ed informazioni. Permetterá anche l'incontro fra i ricercatori e la comunitá Italiana e italo-americana della circoscrizione, incluso le ditte Italiane che sponsorizzano la nostra ricerca e ne traggono beneficio.

Le nostre comunitá all'estero rappresentano una proiezione dell'immagine nazionale che arricchisce il prestigio e la ricchezza che il nostro paese raccoglie nella comunitá internazionale. La ricerca Italiana da sempre ha rappresentato una delle parti piu' vive e di successo della nostra societá, rafforzando la percezione di una nazione all'avanguardia in tutti i campi dalla scienza alla tecnologia alla medicina. La ricaduta di quest'immagine ha benefici incalcolabili per il nostro commercio, il nostro prodotto, le nostre istituzioni.
Per questo motivo vogliamo sostenere la comunitá dei ricercatori all'estero e fornire una base di incontro e supporto affinche' i nostri ricercatori possano sviluppare rapporti sempre piu' stretti con istituzioni italiane, con la nostra comunitá e con i colleghi.

Vorrei ringraziare il Console Generale d'Italia a Houston Cristiano Maggipinto ed il suo staff per l'ospitalitá presso la sede del consolato. Un ringraziamento particolare al Dr.Duchini e a tutti i membri del comites per il loro impegno a favore di questa iniziativa. Di nuovo grazie ai volontari che hanno dato il loro aiuto per l'organizzazione della conferenza ed un grazie di cuore a tutti i ricercatori che parteciperanno all'edizione di quest'anno ed un sentito saluto a coloro che non hanno potuto partecipare.

Vincenzo Arcobelli
Presidente Comites

Toward the development of a network of Italian researchers in the world

This is a special year for Italian research in the U.S. with the Nobel prize to the Italian-born Mario Capecchi and with astronaut Paolo Nespoli flying at this very moment on the International Space Station. We are happy to celebrate these achievements with our conference, now at its third edition. We have a very exciting program, with presentations in all fields of research from bioscience, medicine to technology, geology, physics, informatics, mathematics and more.

The theme of this year conference is the development of a network of Italian researchers around the world. To achieve such a goal we hope that four parties will come together; Italian researchers, Italian companies, Italian academic institutions and the Italian diplomatic network, embassies and consulates around the world. In recent years the world-wide election of the Comites, created a new structure alongside our diplomacy. Together they represent a great support network. We hope that more and more researchers will understand the opportunity and necessity to work together towards common goals.

Many resources are now available and some will be presented at this conference. The Giovanni Armenise-Harvard Foundation from Boston has been supporting Italian research since 1996. The Foundation has sponsored international symposia as well as supported collaborative programs between US centers and Italian scientific institutions, bringing together hundreds of American and Italian scientists to share their work and ideas.

Dr Giovanni Abbadessa, Dr Davide Gianni and Dr Saverio Gentile will present the internet based network, *Prometeo*, already available to Italian researchers around the world. *Prometeo Network* is the result of the effort of young and enthusiastic investigators and provides researchers in life sciences and physicians with a scientific community online, where information and resources are attainable to every member.

Finally Dr Alberto Devoto from the Italian Embassy in Washington will illustrate the goals and potential of the *Italian Scientists and Scholars of North America Foundation (ISSNAF).* ISSNAF is a nonprofit foundation aimed at promoting a network among Italian scientists, scholars and professionals in North America and Italy. Among the founders are names such as Renato Dulbecco, Renato Crea, Luigi

Cavalli-Sforza and many others prominent Italian researchers. Italian scientists or researchers working with a U.S. or Canadian scientific, technology or academic institution, agency or company in various positions (faculty, business operator, researcher, post-doctoral scholar, fellow or graduate student) can all become members of ISSNAF.

For the success of this conference a special thanks goes to Vincenzo Arcobelli, the Comites members and Consul General of Italy Cristiano Maggipinto. They have been irreplaceable in allowing this conference to exist. I also would like to thank all the participants and the volunteers that are giving their time and effort for the success of Italian research in the world. To all I wish good work, confident that together we can make a difference.

Andrea Duchini, M.D.
Houston 10/31/2007

Participants

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Abstracts 2007

Hepatocellular Carcinoma (HCC); Standard, Experimental and Unconventional Approaches for an Unbeaten Disease.

Giovanni Abbadessa

HCC is the V cause of death worldwide, with an increasing incidence in western Countries mainly due to the spread of its major risk factor, HBV-HCV infection. The incidence and mortality rates are very similar, due to the lack of efficacy of current treatments. Several studies with new targeted drugs have been presented at the last ASCO Conference in Chicago, bringing new hope for millions of patients. A key role for the development of one of these drugs, Sorafenib, has been played by the "Oncology and Hematology Division" at "Istituto Clinico Humanitas" in Milan, Italy. New and "unconventional" approaches involve the use of oncosuppressor and antiangiogenetic genes, and pre-clinical results obtained at Temple University, Philadelphia, PA, gave encouraging data for the further development of this strategy. Also, a new organic arsenic is being tested in HCC patients, with the rationale that inorganic arsenic has been used for long time to cure this disease in China. There is a need for Clinical Oncologists and Hepatologists to understand how to exploit at best the new targeted drugs, which should be probably handled differently than standard chemotherapy.

Biography

Oncology fellowship in Milan, Italy, under the supervision of Dr. A. Santoro (Istituto Humanitas)
PhD student in "Genetical Oncology" at the University of Siena, Italy
Designs in vivo trials of gene therapy in cancer at Temple University, Philadelphia, PA, USA
Opened a BL2 animal room at Temple University
In 2005 started an association, Urania, to create a network of Italian physicians and researchers.
In 2007 founded PrometeoNetwork, a free network of international and topic-based groups for clinicians and researchers in the Life Sciences: https://www.prometeonetwork.com

Abstract Title: Design and Testing of Superconducting Magnets made with MgB_2

Matteo Alessandrini

Abstract: Magnesium Diboride is a new superconducting material with a combination of very interesting properties, never found in any other compounds before. Compared to Low Temperature Superconductors, it can work at higher temperature and its fast development is promising for applications at even higher magnetic fields. Compared to High Temperature Superconductors, it has much lower manufacturing costs and can work at similar temperature when operated in magnetic field below 3-4 tesla.

Main applications are in MRI, particle accelerators, fault current limiters, energy storage devices, motors and generators. Its use in electric plasma space propulsion systems such as the VASIMR engine, is pushed by three main factors: (1) magnesium diboride is intrinsically the most lightweight superconducting material, (2) the copper solenoid magnets, currently used in the VASIMR engine, have a central warm bore of about 15 cm and an axial magnetic flux density below 1 tesla, and (3) the flow of high density hot plasma through the magnet bores suggest the use of a superconducting material with high thermal stability, which is achievable only at temperature ranges above 15 K, where materials heat capacity is already more than one order of magnitude higher than liquid helium temperature (4.2 K).

A superconducting magnet (Fig. 1) was wound with copper-stabilized MgB_2 tape produced by Columbus Superconductors, and tested in our new facility at University of Houston. Also, another 2m long tape was wound to study normal zone propagation. First results and stability study were presented at the International Magnet Technology Conference MT-20 in August 2007, in Philadelphia.

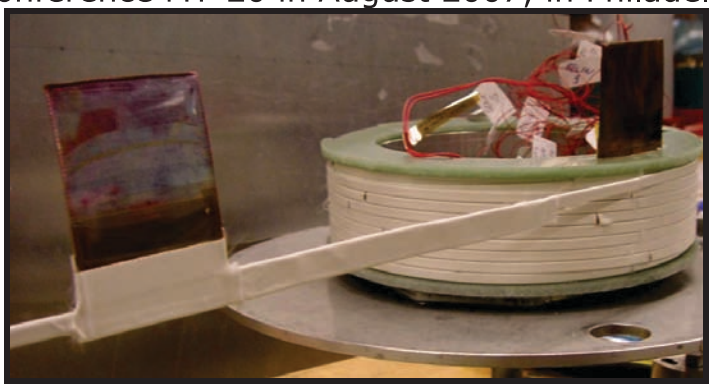

Fig. 1 Winding of the superconducting magnet made with MgB_2 tape

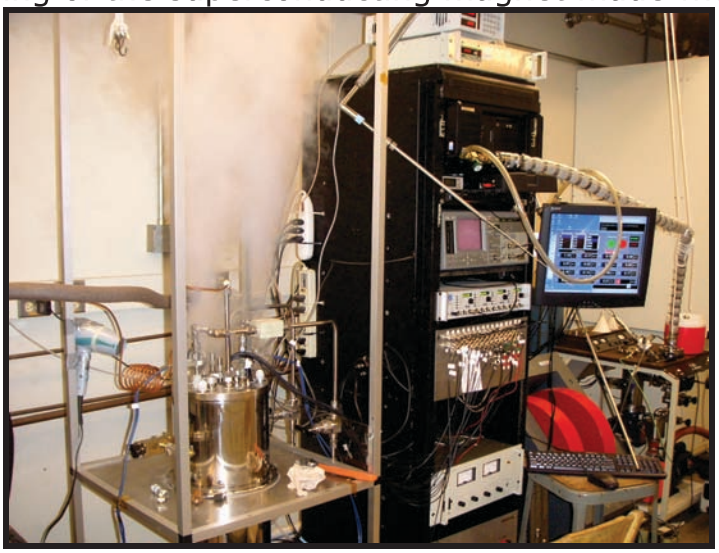

Fig. 2 Magnet testing in temperatures between 4.2 K and 36 K

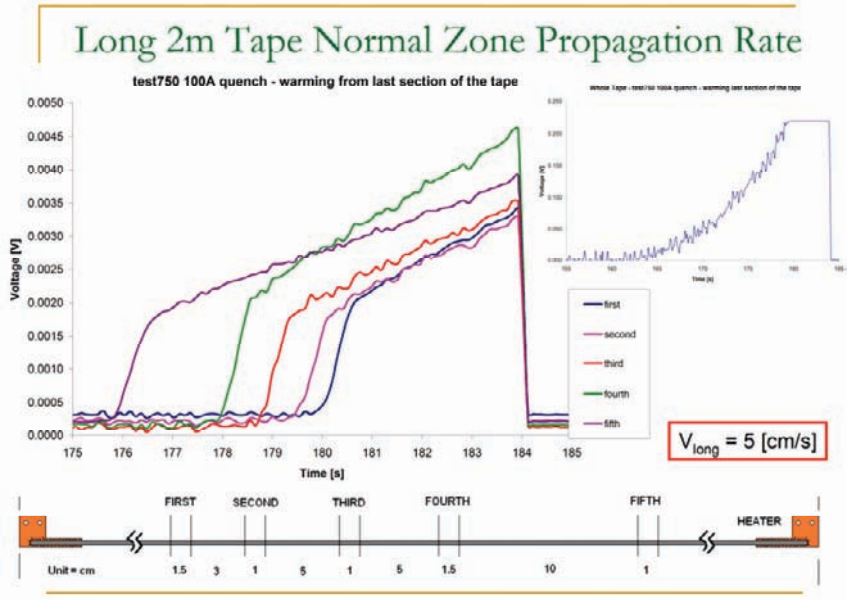

Fig. 3 Normal zone propagation velocity, longitudinally along the tape

Activity: Matteo Alessandrini is defending his PhD in the Materials Engineering Program at the Mechanical Engineering Department of University of Houston in November 2007. He is Research Assistant in Dr. Kamel Salama's group at the Texas Center for Superconductivity. Matteo is primarily involved in the development of superconducting magnets for applications in Electric Space Propulsion, MRI and High Energy Physics. His financial support is granted by Ad Astra Rocket Company, which is currently developing the VASIMR engine in collaboration with the NASA Johnson Space Center, in Houston.

Regulation of growth of cholangiocarcinoma, a cancer of biliary origin.

Gianfranco Alpini, Ph.D.

Cholangiocarcinoma (CCA) is a cancer of biliary origin. It displays a poor Cholangiocarcinoma are devastating cancers of biliary origin with limited treatment options. Limited information exists regarding the growth of this biliary origin. We present data on the possible therapeutic role of gamma-aminobutyric acid (GABA, an important inhibitory neurotransmitter in the central nervous system) and the endocannabinoid system in the regulation of cholangiocarcinoma growth.

GABA decreased *in vitro* cholangiocarcinoma growth in a time- and dose-dependent manner, by both cAMP/PKA- and IP_3/Ca^{2+}-dependent pathways, leading to down-regulation of ERK1/2 phosphorylation. GABA inhibited cholangiocarcinoma cell migration and, *in vivo*, significantly decreased tumor cell proliferation, and VEGF A/C expression whereas increasing apoptosis compared to controls.

Modulation of the endocannabinoid system is being targeted to develop possible therapeutic strategies for a number of cancers; therefore, we evaluated the effects of the two major endocannabinoids anandamide and 2-arachidonylglycerol on numerous cholangiocarcinoma cell lines. While anandamide was antiproliferative and proapoptotic, 2-arachidonylglycerol stimulated cholangiocarcinoma cell growth. Specific inhibitors for each of the cannabinoid receptors did not prevent either of these effects, nor did pretreatment with pertussis toxin, a $G_{i/o}$-protein inhibitor, suggesting that anandamide and 2-arachidonylglycerol did not exert their diametric effects through any known cannabinoid receptor, nor through any other $G_{i/o}$-protein coupled receptor. Using the lipid raft disruptors methyl- -cyclodextrin and filipin, we demonstrated that anandamide, but not 2-arachidonylglycerol, requires lipid raft-mediated events to inhibit cellular proliferation. Closer inspection of the lipid raft structures within the cell membrane revealed that while anandamide treatment had no observable effect, 2-arachidonylglycerol treatment effectively dissipated the lipid raft structures and caused the lipid raft associated proteins lyn and flotillin-1 to disperse into the surrounding membrane. In addition, anandamide, but not 2-arachidonylglycerol, induced an accumulation of ceramide, which was required for anandamide-induced suppression of cell growth. These findings suggest that modulation of the GABA and endocannabinoid system may be a target for the development of possible therapeutic strategies for the treatment of this devastating cancer.

BIOGRAPHICAL SKETCH

NAME
Gianfranco D Alpini

POSITION TITLE
Research Chemist, Professor of Medicine and Systems Biology and Translational Medicine

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Terenzio Mamiani, Rome, Italy	B.S.	1976	Classical Studies
University of Rome "La Sapienza", Rome, Italy	Ph.D.	1984	Chemistry
Mount Sinai Medical Center, New York, NY	Postdoc	1985-1988	Hepatology
Albert Einstein Yeshiva University, NY	Postdoc	1988-1991	Hepatology
Mayo Clinic, Rochester, MN	Postdoc	1991-1994	Digestive Disease

Positions:
1985-1988 Postdoctoral Fellow, Dept. Medicine, Liver Unit. Mt. Sinai Medical Center, New York.
1988-1991 Postdoctoral fellow, Dept. Medicine, Liver Research Center. Albert Einstein COM, Bronx, NY.
1991-1994 Senior Postdoctoral Fellow, GI Basic Research for Digestive Diseases. Mayo Clinic, Rochester, MN.

1994-2000 Assistant Professor, Medicine and Medical Physiology, Central Texas Veterans Health Care System and The Texas A & M University System Health Science Center, College of Medicine

2000-2003 Associate Professor, Medicine and Medical Physiology, Central Texas Veterans Health Care System and The Texas A & M University System Health Science Center, College of Medicine

2004-Present Professor, Medicine and Systems Biology and Translational Medicine, Central Texas Veterans Health Care System, Scott & White Hospital and Texas A & M Health Science Center, College of Medicine, Dr. Nicholas C. Hightower Centennial Chair of Gastroenterology

Honors:
Grant Award from the American-Italian Cancer Foundation from 1993-1994. Temple Campus Development Award for Establishment of Basic Research Center for Hepatic Diseases. Department of Veterans Affairs, Research Career Award 2004. Holder of the Centennial Hightower Chair for Gastroenterology.

Software quality: an oxymoron?

Rodolfo Ambrosetti
Program Director, Software Group
IBM Corporation
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Austin, Texas - 78750

Abstract

The impact coming from defective software is relevant for both its producers and its consumers: indeed, the capability to invest in implementing new software is limited by the need to keep resources dedicated the existing one and, at the same time, defective software limits (when it doesn't completely prevent) its utilizations by the end users.

Several different methodologies and technologies have been introduced during the last decades, but the problem is far from having been solved. It seems we are facing a problem with " Malthusian" characteristics: the complexity of the software applications being developed increases at a geometric rate, while the efficiency of the development process grows at an arithmetic rate.

To make the situation worst, the typical quality control processes used for the traditional manufacturing companies cannot be applied to a development process that is, by its nature, not repetitive.

What is required is a mix of different tools to be used: reusable components, "static" code analyzers, best practices in development and new statistical methods that are emerging allowing verifying "a priori" the behavior of a software product after its release.

This paper has the goal to provide some examples of these techniques and their implementation.

Biography

Rodolfo Ambrosetti was born in Rome. After having received a degree in Mathematics in 1973 he was assistant professor at the Mathematical Institute of “la Sapienza” university in Rome for four years. He joined IBM in 1977 where, after a short experience as a branch office system engineer, he started his career in software development, covering technical positions and taking, and from 1986, managerial responsibilities. He worked in Paris, Rome and Cagliari before coming to Austin in 1996. He is currently in charge of the IBM Software Group Development laboratory in Krakow, Poland, and he is responsible for other development teams in the United States and Australia.

Evidence that estradiol, through a short non genomic loop, downregulates PTP1B and enhances aromatase activity in MCF-7 cells.

[1,2] Ines Barone, [2]Stefania Catalano, [1,2] Cinzia Giordano and [3,4]Sebastiano Ando'.
[1]Breast Center, Baylor College of Medicine, Houston, TX, 77030, USA; Departments of [2]PharmacoBiology and [3]Cell Biology and [4]Centro Sanitario, University of Calabria 87036 Arcavacata di Rende (CS), Italy

Estrogens are strongly associated with breast cancer development and progression. The intratumoral conversion of androgens to estrogens by aromatase within the breast may be an important mechanism of autocrine stimulation in hormone-dependent breast cancer. Estrogens, in addition to classic genomic actions, may elicit rapid "nongenomic" effect via a series of phosphorylation events. It is well known that aromatase is regulated at the transcriptional level through the alternative use of tissue specific promoters, while there are a few studies regarding posttranscriptional regulation of this enzyme. Thus, the aim of the present study was to evaluate if estradiol (E2) can modulate aromatase activity in human breast cancer cells.
In MCF-7 cells we examined, by tritiated water release assay, aromatase activity. Immunoprecipitation studies, using a vector containing aromatase gene with polyhistidine tags,were performed to evaluate phosphorylation status of aromatase protein.
Our results demonstrated that E2 was able to enhance, at short time, aromatase activity without any change in the enzyme expression.
For the first time, we evidenced that the rapid changes in aromatase activity resulted from a direct phosphorylation of the enzymatic protein itself. Indeed, E2 treatment induced a specific enhancement of tyrosine phosphorylation levels in His6-tagged aromatase purified protein. Sodium orthovanadate, the inhibitor of tyrosine phosphatases, increased basal and E2 induced enzymatic activity as well as tyrosine phosphorylation of aromatase purified protein. Mutagenesis studies confirmed the involvement of tyrosine residues in E2 modulation of aromatase activity. Tyrosine phosphorylation is a reversible and dynamic process controlled by the activities of the protein tyrosine kinases (PTKs) and the competing actions of the protein tyrosine phosphatases (PTPs). In this respect, we identified PTP1B, the primary tyrosine phosphatase highly expressed in human breast cancer cell lines, as a crucial intermediate of E2 induction. We demonstrated a specific association between PTP1B and aromatase at protein-protein level and a reduction of aromatase activity in basal and E2-treated MCF7 cells overexpressing PTP1B. Moreover, E2 induced a significant

increase in serine phosphorylation of endogenous PTP1B and a decrease of its catalytic activity as evidenced by in vitro phosphatase assay.
Taken together, our results suggest that E2, through a non transcriptional event, can downregulate PTP1B and then increase aromatase enzymatic activity, enhancing local estrogen production. This short autocrine loop furthermore gives a great emphasis to the role of aromatase in promoting breast cancer cell growth.

Biography

Bachelor Degree in Chemical and Pharmaceutical Chemistry– University of Calabria

Ph.D in Cell Biochemistry and Drug Action in Oncology– University of Calabria

Post-doctoral fellowship -Breast Center, Baylor College of Medicine, Houston, TX, 77030, USA
Aromatase regulation in testicular and breast cancer cells, Role of leptin in breast cancer

Selected Publications;

Catalano S., Rizza P., Gu G., Barone I., Giordano C., Marsico S., Casaburi I., Middea E., Lanzino M., Pellegrino M., Andò S. Fas Ligand expression in TM4 Sertoli cells is enhanced by estradiol "in situ" production. J Cell Physiol. 2007 May; 211 (2): 448-56.

Mauro L., Catalano S., Bossi G., Pellegrino M., Barone I., Morales S., Giordano C., Bartella V., Casaburi I. and Andò S. Evidences that leptin upregulates E-cadherin expression in breast cancer: effects on tumor growth and progression. Cancer Res. 2007 April 1; 67(7):3412-21.

Aquila S., Middea E., Catalano S., Marsico S., Lanzino M., Casaburi I., Barone I., Bruno R., Zupo S. and Andò S. Human sperm express a functional androgen receptor: effects on PI3K/AKT pathway. Hum. Reprod. 2007 Oct; 22 (10):2594-605.

Predictive value for low level hepatic fibrosis in chronic hepatitis c (CHC) patients: comparison of five non-invasive indices.

Yu I, Dreizin D, Talal A, Gish R, Bonacini M

Liver biopsy is considered the gold standard to assess hepatic inflammation and fibrosis. Due to the risks and expense of biopsy, non-invasive fibrosis indices have been developed. **AIMS:** To assess the predictive value of Fibrosure™ (FS) as a marker of hepatic fibrosis in chronic hepatitis C (CHC), and to compare this test to four other indices. **METHODS**: Retrospective review of biochemical and histologic parameters in patients with CHC. Exclusions: Gilbert's disease, interferon and ribavirin therapy, active hepatitis B, and acute sepsis. All patients underwent liver biopsy and had histology assessed according to METAVIR system. FS was performed within 12 months of biopsy. Performance characteristics of the indices for the detection of fibrosis were assessed by comparing the area under the receiver operator characteristic (AUROC) curve. Correlation between fibrosis score and the five indices was assessed with the Spearman coefficient. **RESULTS**: Of 162 CHC patients 102 (63%) were males, 35 (22%) had HIV co-infection. The median age was 52 yrs; median duration of infection was 25 years (range 1-54). The average biopsy size was 17 mm (range 6-55). 53 patients (33%) had F0-F1 fibrosis, 45 had F2 (27%) and 64 (40%) had F3-F4. In 2 patients FS could not be calculated. Modest correlations were noted between the tests and fibrosis (Table). Correlation between Fibrosure™ activity score and histologic grade was $R=0.55$, $p<0.0001$. No correlation was found with age, disease duration, AST/ALT ratio ($R<0.4$). The AUROC's comparing FS and FIB-4 to distinguish <F3 vs. ≥F3 were 0.77 for both with similar 95% C.I. Using a FS cutoff <0.32, the presence of significant fibrosis (F3-F4) was excluded with high accuracy (NPV=**94%**); this cutoff would save 35/160=22% biopsies. Using a cut-off value >0.78 for F4, only 9/36 patients were correctly identified as F4 (PPV=25%). Using a Forns cutoff of ≤4.75, the NPV to exclude F3-F4 was **94%**, thus saving 16/58=28% biopsies. Using FIB-4 <1, NPV to exclude F3-F4 was **85%**, saving 27/142=19% biopsies. Using the published cutoff of <1.45, NPV decreased to 14/58, 76%. Using APRI ≤ 0.5, NPV to exclude F3-F4 was **78%**.

Test	N=	Spearman R	P vale
Fibrosure™ (FS)	160	0.5	< 0.0001
Forns	58	0.57	< 0.0001
Fib-4	142	0.49	< 0.0001
Platelets	154	-0.44	< 0.0001
APRI	78	0.42	< 0.0001

CONCLUSION: In our experience, Fibrosure™ and Forns indices are most helpful in predicting fibrosis stages F0-F2. Further scrutiny is required since in clinical practice, such indices avoid a liver biopsy only in a minority of patients.

Biography

Maurizio Bonacini, MD joined California Pacific's Liver Program in January 2002 after serving as associate professor of clinical medicine at University of Southern California. A hepatologist, Dr. Bonacini received his training at University of Southern California's Liver Unit, Booth Memorial Medical Center (affiliated with New York University Medical Center), and Universite Catholique de Louvain (Brussels, Belgium). Dr. Bonacini's research interests include HCV and HIV coinfection, liver fibrosis and progression in HCV patients, HBV and liver diseases in minorities. Dr. Bonacini is Associate Clinical Professor of Medicine at UCSF and a co-investigator for the DILIN group, an NIH-supported research group on drug-induced liver injury.

Direct protein photodamage: a new paradigm for cancer phototherapy?

Samuel Sansone, Eric M Johnson, Nicholas F. Fernandez, Ivan Silva, Lorenzo Brancaleon

Department of Physics and Astronomy, University of Texas at San Antonio, San Antonio, TX

Phototherapy is a treatment modality in the management of cancer therapy which uses a combination of photoactive drug and localized light delivery to destroy abnormal tissues and cells. Phototherapy has encountered some important limitations such as the low specificity of the photoactive drugs for tumor cells and the somewhat unpredictable cell photodamage and treatment outcome. Despite the limitation we believe that phototherapy remains a very promising option. It can be applied to a wide variety of tumors and became the treatment of choice for non-melanoma skin cancer. Phototherapy is effective in the management of lung tumor and Barret's esophagus and is a superior treatment option for tumors of the bile duct. A non-negligible additional aspect of phototherpy is its efficacy in palliation treatment. Recently, several groups have recognized that phototherapy needs a paradigm shift to advance its biomedical applications. Our group has focused its investigations on the direct photodamage that porphyrins (a class of clinically useful photoactive drugs) produce on non-specific globular proteins.
We have studied the location and stoichiometry of the binding between porphyrins and globular proteins. Our investigations show that porphyrins non-covalently bind proteins with M binding affinity and that the binding does not affect the structure of the drug or the structure of the protein. Irradiation of the porphyrin/protein complex however does produce a distortion of the polypeptide with consequent loss of structure. This last experimental evidence shows that proteins can be directly targeted in phototherapy and that direct photodamage of polypeptides may in the future improve the specificity of tumor uptake and the predictability of the cellular damage.

Biography

Dr. Lorenzo Brancaleon was born in 1965 in Fidenza (Pr), Italy. He received his Laurea in Physics from the University of Parma in 1991 with the thesis entitled "Development of a Photoacoustic Calorimetry Instrument for the Investigation of Biomolecules". In 1997 he received his PhD in Physics from the same University with a dissertation entitled "Photophysics of Tryptophan and Tryptophan-containing peptides". From 1996 to 1998, he was a Research Associate at the Steacie Institute for Molecular Sciences of the National Research Councul in Ottawa (Canada). From 1998 to 2000 he was an Assistant in Physics at the Massachusetts General Hospital and an Instructor at Harvard Medical School in Boston, MA. From 2000 to 2003 he was appointed as Photophysicist at the Scottish Photodynamic Therapy Center and the Photobiology Unit of Ninewells Hospital in Dundee (UK). During the same period he was a honorary lecturer at the University of Dundee and the University of St. Andrews (UK). In September of 2003 he joined the faculty at the Department of Physics and Astronomy at The University of Texas at San Antonio as an Assistant Professor.

Dr. Brancaleon career has developed in and around the field of Molecular Biophysics. His investigations are currrently centered around two main research lines (i) the conformational effects of photoactive dyes on proteins and (ii) the properties of biomolecules at the interface with ferroelectric thin oxide films.

He has 32 peer reviewed manuscripts and over 35 presentation at international conferences. His group has an excellent reputation for undergraduate and graduate research training especially those of underrepresented groups.

What lies under volcanoes such as Hawaii: a new seismic imaging technique reveals a collection of plumes in the Earth's mantle.

Raffaella Montelli, Ph.D.

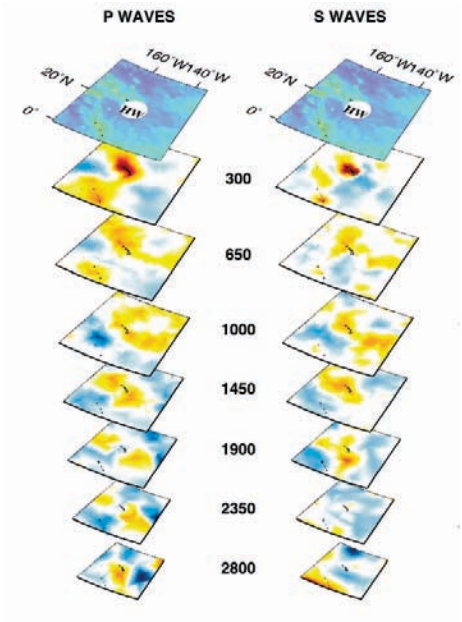

Fig 1: Three dimensional view of the plume beneath Hawaii as seen in the Princeton University P-wave velocity model (left) and S-wave velocity model (right).

What lies under volcanoes such as Hawaii: a new seismic imaging technique reveals a collection of plumes in the Earth's mantle. by Raffaella Montelli, Ph.D. Jason Morgan in the early 1970s proposed that hotspots – volcanoes such as Hawaii – are due to plume-like upwellings from the lower mantle. Despite the abundance of evidence in support of Morgan's idea, there is another current of thought that suggests hotspots originate from the upper mantle as a by-product of plate tectonics. Until 2004, seismic tomography – an imaging technique very similar to the medical CAT scan – has been unable to provide visual evidence of the presence of narrow deep rooted plume-like features in the Earth's mantle. In 2004, we presented the first results of a new tomography technique that we developed at Princeton University revealing a full collection of plumes in the Earth's mantle (Montelli et al, 2004). These findings have been recently confirmed using different types of seismic waves (Montelli et al. 2006).

Deep mantle plumes are present beneath Ascension, Azores, Canary, Cape Verde, Cook Island, Crozet, Easter, Kerguelen, Hawaii (Fig. 1), Samoa and Tahiti. The plumes beneath Afar, Atlantic Ridge, Bouvet(Shona), Cocos/Keeling, Lousville and Reunion are shown to originate at least below the upper mantle if not much deeper. Plumes that reach down to the mid-mantle are present beneath Bowie, Hainan, Easter Australia and Juan Fernandez. Only plumes at Eifel and Seychelles are unambiguously confined to the upper mantle. I will present the colorful collection of the imaged plumes and discuss their implications for the Earth's mantle dynamics.

References: Montelli, R., G. Nolet, F.A. Dahlen, G. Masters, E.R. Engdahl, S.-H. Hung, Finite-frequency tomography reveals a variety of plumes in the mantle, Science 303, 338-343, 2004 Montelli, R., G. Nolet, F.A. Dahlen and G. Masters, A catalogue of deep mantle plumes: new results from finite-frequency tomography, Geochem. Geophys. Geosyst. (G3), 7, Q11007, doi:10.1029/2006GC001248, 2006.

Biography

Raffaella Montelli received her Masters (Laurea) in Physics from the University of Bologna in 1996. From 1994 to 1997 she was a researcher at the Istituto Nazionale di Geofisica e Vulcanologia in Rome working on numerical simulations of the behavior of active seismic faults with frictions laws, and on numerical simulations of wave propagation. In 1997, she applied for and received a Marie Curie Fellowship from the European Community to spent two years in France working on a new tomography of Mt Vesuvius. She worked for the Centre National de la Recherche Scientifique and l'Universite de Nice-Sophia Antipolis, where she obtained a Doctorat in Science de l'Univers. Between September 1999 and September 2005 she was at Princeton University where she obtained her second Ph.D. in 2003 and where she was a postdoctoral fellow developing a new imaging technique for global tomography. The major breakthrough of her new tomographic images of the Earth's interior led to a Science paper, which has been recognized as one of the three most important papers written in geoscience in the past three years. Since October 2005 she has been working at ExxonMobil Upstream Research Company as a Senior Research Geophysicist in the subsurface imaging division.

Stargardt's Disease

Olivia Carleo, B.A.

University of Houston College of Optometry
Grand Rounds and New Developments
October 9, 2007

Stargardt's disease, first described in 1909 by Karl Stargardt, is the most common inherited juvenile macular dystrophy. This autosomal recessive disease has been mapped to a mutation in the ABC4 gene that encodes an ATP-dependent transport protein found in both rods and cones. This defect triggers a build-up of lipofuscin in the retinal pigment epithelium (RPE), compromising RPE function and causing subsequent photoreceptor death. Stargardt's disease usually onsets within the first two decades of life with an initial presenting symptom of decreased acuity in both eyes. Many patients present with decreased visual acuity and no retinal signs of the disease. The most frequently occurring early signs are parafoveal yellow-orange "flecks" and macular mottling. In later stages of the disease, the macula can take on a "beaten bronze" appearance between 1 and 2 disc diameters in size. Testing for Stargardt's disease includes visual acuity, dilated fundus examination, color vision testing, visual field testing, optical coherence tomography (OCT), fluorescein angiography (FA), and flash and multifocal electroretinography (ERG). While there is no current treatment for Stargardt's disease, there is ongoing research revolving around possible future therapeutic options.

Key Words: *Stargardt's disease, juvenile macular dystrophy, macular degeneration, ABC4 gene, hereditary retinal disease, lipofuscin.*

About the Author

Olivia Carleo graduated from Austin College in 2004 with a Bachelor of Arts in Biology. She intends to receive her Doctorate of Optometry in May 2008. Upon graduation, she plans to return to her hometown of Dallas, TX to practice full-scope optometry.

Premature Death from Cancer
A Calamity That Could Have Been Avoided!!!

Dario Croetto

Abstract: Over 63 Million Premature Cancer Deaths (and unfortunately still counting. one premature cancer death every 5 seconds) since **1996 when** the innovative 3D-CBS technological solution for early detection **was made available**. Experimental data proves that early detection save lives in 90-98% of the cases. Positron Emission Technology (PET) is a technique which can show abnormal metabolism (use of nutrients by body cells). Cancer cells can use up to 70 times more nutrients than a normal cell. Positron Emission Technology works by injecting a substance (molecules of glucose, oxygen, or carbon, etc.) tagged with a radioisotope (tracer) and tracks its path in the patient's body by means of a device capable of detecting the signals from the decay of the radioisotope (or from the tracer). It is therefore, important to detect as many signals as possible emitted by the tracer (or tumor markers). Current PET only captures 1 out of 10,000 signals from the tumor markers. The 3D-CBS innovative technology makes it possible to capture
1 out of 25 signals from the tumor markers, making it 400 times more efficient.

Biography

Crosetto has worked at the world's largest European Center for Particle Physics (CERN) and the Superconducting Super Collider project in Texas. He has spent most of the past twenty years designing and improving apparatuses to detect high-energy particles and during the last years designing, simulating, building and testing components for his cancer screening machine. Crosetto is the CEO of 3D-Computing, a Dallas, Texas corporation overseeing the design, construction, and financing of the cancer screening machine. He hopes to manufacture and make his invention available to the public as soon as possible with additional funding from private investors and from government grants.

Endovascular Repair of Abdominal Aortic Aneurysms

Michele De Gregorio

Background:
Endovascular repair of AAA (Abdominal Aortic aneurysm) is a relatively new technology. In comparison to the conventional open surgical treatment for AAA, Endovascular AAA repair offers a less invasive approach and is associated with a lower morbidity and mortality rate.

Purpose:
To analyze the length of stay, complication and mortality rates in a continuous series of patients following endovascular AAA repair with a prosthetic stent (Endologix).

Methods:
Between September 2005 and August 2007, we followed 56 consecutive patients who underwent endovascular AAA repair. We obtained follow-up clinical and CT data at the end of 1-3 months, 6 months and 1 year.

Results:
We followed 56 consecutive patients (44 males, 12 females). The mean age of the patients was 73 (range, 54 – 88). The endovascular stent placement was successful in 53 out of 56 patients. In 3 patients the endovascular stent could not be deployed due to narrowing and calcification of the iliac arteries and tortuosity of the aorta. Follow-up CT data was obtained for 1-3 months on 15 patients, for 6 months on 14 patients and for 1 year on 11 patients. The mean length of stay for 54 of the 56 patients who underwent the endovascular AAA repair was 2.70 days (range, 1 – 7.42 days). The remaining 2 patients had a complicated course of hospital stay of 17 and 55 days respectively. The major complications following the endovascular AAA repair were Endoleak Type II, limb ischemia and hypotensive shock. A total of 4 patients were found to have Endoleak Type II and only 1 out of the 4 patients demonstrated a persistent endoleak at 6 months. In 1 patient, the endoleak was absent at the 1 month follow-up, but present at the 1 year follow-up. In addition, 2 patients were found to have Endoleak Type II present at the 1 month follow up CT scan, but absent at the 6 month follow-up. Only 1 patient went into hypotensive shock secondary to the development of a retroperitoneal hematoma due to rupture of right iliac and right common femoral artery. Some of the other minor complications that were noted at the time of discharge, 1-3 months, 6 months and 1 year were: Pseudo-aneurysm,

hematoma, seroma and right sided hydrocele. No other major complications like Endoleak Types I, III & IV, migration, structural failure, graft distortion, aortoenteric fistulae, aneurysm enlargement, aneurysm rupture or paraplegia were noted. There was no procedure-related 30-day mortality.

Conclusions:
The endovascular AAA repair for patients was successful in majority of the patients and has the following advantages:
1) Feasible/safe strategy – minimally invasive
2) Short length of stay
3) Low rate of complications
4) Low morbidity and mortality rate

Biography

Director of Peripheral Vascular Intervention at: Harper Hospital/Wayne State University
Director of Peripheral Vascular Lab at St. Joseph Mercy-Oakland
Director of Research, CAVA Research Institute
Chief of Cardiovascular Services at Huron Valley Hospital
Administrative Director and Treasurer of CAVA-Bloomfield Division.

Education;

7/97 - 6/98	St. John's Hospital / Wayne State University Detroit, MI Fellowship in Interventional Cardiology
7/94 - 6/97	Baylor College of Medicine Houston, TX Fellowship in Cardiology
10/91-6/94	Norwalk Hospital/Yale University Norwalk, CT Residency in Internal Medicine
10/88-10/91	Cabrini Hospital / University of Rome Rome, Italy Fellowship in Clinical Endocrinology
10/82 -11/88	University of Rome - School of Medicine Rome, Italy *Summa Cum Laude* Graduate, M.D.

La Fondazione di Scienziati e Accademici Italiani in Nord America (ISSNAF); i suoi scopi e programmi.

Alberto Devoto, Ph.D.

La Fondazione di Scienziati e Accademici Italiani in Nord America (ISSNAF) è un ente senza scopo di lucro che vuole riunire i nostri connazionali residenti nell'America Settentrionale impegnati nel mondo della ricerca e nel mondo accademico. L'ISSNAF si è aperta sia a tutte le scienze: umane e sociali, naturali e fisiche, mediche ed economiche etc. L'ISSNAF, superando le barriere disciplinari, intende favorire lo scambio di idee e di progetti tra ricercatori operanti in Italia ed Europa e nell'America Settentrionale.

Biography

Laurea in Fisica, Università degli Studi di Cagliari, Cagliari, Italy, December 1970.
M.S. (Physics), The Johns Hopkins University, Baltimore MD, October 1975.
Ph.D. (Physics), The Johns Hopkins University, Baltimore MD, November 1977.

Professore Incaricato, Istituto di Fisica; Università degli Studi di Cagliari, Cagliari, Italy
January-November 1978.
Research Associate, Department of Physics; Michigan State University, E. Lansing, Michigan September 1978-June 1979 and July 1980-July 1981.
Member of Technical Staff, Bell Laboratories, Murray Hill, New Jersey, July 1979-June 1980.
Visiting Assistant Professor, Department of Physics, Florida State University, Tallahassee, FL August 1981-June 1985.
Ricercatore, I.N.F.N., Gruppo Collegato di Cagliari; Cagliari, Italy October 1986-March 1988.
Professore Associato, Dipartimento di Fisica, Università degli Studi di Cagliari, Cagliari, Italy March 1988-present.
Scientific Attaché, Embassy of Italy Washington, DC September 2004-present

NETWORK INFLUENCE ON INDIVIDUALS

DANIELA FERRERO

Significance: Network analysis is an important area of research which lies in the frontiers of economics, game theory and mathematics. The basic principle in network analysis is the intuitive notion that the behavior of an object depends in large part on how it is tied into a larger web of connections, so the discipline focuses on discovering patterns in relationships among objects. Since the basic structure of those relationships arises from empirical data, the study of large scale networks depends on the availability of technological resources to process massive amounts of information. As a consequence, network analysis evolves at a quick pace and diversifies its spectrum of applications rapidly. The global impact of the discipline is illustrated by the number of centers to study different applications of the subject that are recently proliferating, such as the DyDAN (Homeland Security Center for Dynamic Data Analysis) and the Institute of Social Networks Analysis sponsored by Xerox Corp., both created in 2007.

Proposed research: In Mathematics, network theory is called to graph theory. A graph, or a network, comprises a set of vertices that represent a set of discrete objects, and a set of edges that represent links between those objects, such as contagion, communications or blood ties. Although inherently simple, network models can gain complexity if one distinguishes different types of edges, a step necessary to study relationships in large scale networks that embody complexity. Among those models, the most important are signed graphs, or graphs where every edge is given a sign, + or – , that indicates the nature or mode of a relationship. For example, signed graphs are often used to model love/hate ties between people or alliance/hostility relationships between countries. Naturally, as the number of possible relationships between vertices of a graph increases, so does the number of different types of edges. However, only a few results on signed graphs have been generalized to graphs with three types of edges (mixed graphs), and an even a smaller number of them has been extended to graphs with four different classes of edges (4-graphs), mostly during the last year [3]. The object of study of this proposal is p-graphs, or graphs with p different types of edges, and the main goal is a dual one, of solving some open problems on signed graphs while showing that a uniform approach to the study of p-graphs, for any integer p, is indeed possible. The research proposed has three different steps: 1) to solve a series of open problems regarding signed graphs, 2) to extend the necessary concepts and generalize the results obtained in 1) to p-graphs, and 3)

to study the implications, from the algorithmic viewpoint, of the theoretical results obtained in1) and 2).

The open problems selected for this proposal have been chosen to definitively establish that the study of networks can be done independently of the number of types of edges. To manage complexity scholars have used five levels of analysis [5]. In this project we have the following problems to test the five layers: vertex, pairs of vertices, cycles, blocks and entire network.

1) Eccentricity sequences: (vertex level) In graph theory, we call the centrality of a vertex relative to the network "eccentricity." In technical terms, eccentricity means the maximum distance between a given vertex and every other vertex of the graph. The eccentricity sequence of a graph is the increasing list of the eccentricities of all of its vertices. The problem of characterizing the eccentricity sequences of signed graphs still needs to be solved. We propose to find such characterization. Moreover, we will study the expected pattern of the eccentricity sequence of a network that dynamically changes, such as the Internet. The study of this problem will build upon previous work by Harary and Ferrero [1] on the expected structure of the eccentricity sequence of a random graph.

2) Number of shortest paths between vertices: (pairs of vertices level) The length of a shortest path between two vertices measures their proximity. However, the connection between vertices joined by several shortest paths is stronger, and more tolerant to changes, than those joined by a single one. The measure we will use to quantify this notion is "k-distance." The k-distance between two vertices is the maximum length among the shortest k (disjoint) paths that join them. Our aim is to study k-distances and the corresponding notion of k-eccentricity. We will show that the k-center of the network (vertices with minimum k-eccentricity) is less susceptible to structural changes than the center.

3) N-balance and balance: (cycles level) The sign, + or -, of a circuit in a signed graph is defined as the result of the multiplication of the signs of its edges. A graph is balanced if all circuits are positive. The notion of N-balance was introduced by Harary as a relaxation of this concept. A graph is N-balanced if all circuits of length at most N are positive. If N is the length of the longest circuit in a graph, the concept of N-balance implies balance. We will prove that for a highly connected graph, there exists a number N', smaller than the longest circuit, such that N'-balance implies balance.

4) Blocks and balance: (blocks level) The notion of balance has been studied either at the vertex level (local balance) or at the graph level (balance). A graph is balanced at a certain vertex if all the circuits passing through it are positive. Then, a graph is balanced if it is

balanced at every vertex. We will prove that in any block of a given graph, all vertices are balanced or none of them is balanced.
5) Conditional P-Balance: (network level) Given a yes/no condition P, the graph is conditional P-balanced if, and only if, it is balanced at all vertices where P is satisfied. If a graph is balanced, then it will also be P-balanced for any condition P. However, the inverse does not necessarily hold. We will identify binary conditions P so that P-balance is exactly balance. We plan to establish that local balance at the proximity of the center of a graph suffices to assure balance at the graph level.

Importance: The study of signed graphs is important from the theoretical viewpoint because of its tight links to other mathematical areas, such as root systems, matroids and coding theory. In addition, the concepts of centrality and balance play a fundamental role in the applications of signed graphs [2]. The centrality of a vertex determines the impact it has over the other vertices, and the balance of a network is directly associated with its stability. Indeed, a network is balanced if all cycles have positive sign, or equivalently, all paths between two vertices have the same sign. For instance, in a network representing alliances/hostility relationships among nations [4], the central vertices will correspond to the most influential nations. At the same time, to avoid conflict between allies, the sign of the all paths between two nations should be the same, so balance should be tested. Since testing balance in a signed graph is also algorithmically complex [2], we will discover theoretical results that lead to improvements of balance testing algorithms.

Dissemination of results: Besides the mathematical journals interested in the subject, such as The Electronic Journal of Combinatorics, Discrete Mathematics or Networks, other venues for publication are the journals Social Networks, Redes, Connections, and Computational and Mathematical Organization Theory. In addition, due to the fast development of this field, we will create a virtual forum to allow quick dissemination of results and increase TxSt visibility in the field. This forum will allow the TxSt community to post questions, research results, announcements and links to societies, journals and other important websites.

Future development: Future plans are the creation of an interdisciplinary seminar in Network Analysis at TxSt, and the development of a course proposal in the field. We expect to attract external funding agencies, such as the National Security Agency and the Department of Defense. We will look for partnerships with other research institutes.

Biography

EDUCATION

Ph.D.	Mathematics	1999	Universitat Politècnica de Catalunya (Spain)
B.S.	Computer Science	1994	Universidad de la República (Uruguay)

APPOINTMENTS

9/06-Pres.: Associate Professor of Mathematics, Texas State University
9/00-8/06: Assistant Professor of Mathematics, Texas State University
9/99-5/00: Research Fellow, Institute of Information Science, Academia Sinica, Taiwan

RESEARCH

Top 10 publications

1) C. Balbuena, D. Ferrero, X. Marcote. Diameter vulnerability of line digraphs in terms of the girth. *Networks* Vol. 45(2), (2005) 49-54.
2) C. Balbuena, D. Ferrero, X. Marcote, I. Pelayo. Algebraic properties of line digraphs. *Journal of Interconnection Networks,* Vol.4, No. 4, (2003) 373-393.
3) D. Ferrero. Diameter, Girth, Edge Connectivity and Superconnectivity of Iterated Path Graphs. *Acta Math. Univ. Comenian.,* 72, No.1 (2003) 59-66.
4) C. Balbuena, D. Ferrero. Connectivity and Super-Connectivity of P_2 path graphs. *Discrete Math.,* 269, 1-3 (2003) 13-20.
5) D. Ferrero, F. Harary. Edge sums of deBruijn interconnection networks. *Int. J. Comput. Math.,* 8 No. 80 (2003) 819-824.
6) D. Ferrero, Edge Connectivity of Iterated P_3 Path Graphs, *Congr. Numer.* 155 (2002) 33-47.
7) D. Ferrero, C. Padro. Partial line directed hypergraphs. *Networks* 39, Issue 2, (2002) 61-67.
8) D. Ferrero, C. Padro. Connectivity and fault-tolerance of hyperdigraphs. *Discrete Appl. Math.* 117 (2002) 15-26.
9) D. Ferrero, C. Padro. New bounds on the diameter-vulnerability of iterated line- digraphs. *Discrete Math.* 233/1-3 (2001) 103-113.
10) D. Ferrero, C. Padro. Disjoint paths of bounded length in large generalized cycles. *Discrete Math.*197-198 (1999) 285-298.

The chemistry of the "Coinage" metals with carbon monoxide and ethylene

Mauro Fianchini

Department of Chemistry and Biochemistry,
The University of Texas at Arlington, Arlington, Texas, 76019-0065

The metals of the 11th group (copper, silver and gold) have been known throughout history for being "Coinage" metals. Despite this historically relevant and fundamental role, the chemistry of these elements has been quite unexplored for a long time. The chemical importance of copper, silver and gold has been recognized only very recently.

Especially gold has always been treated as a "pretty, but quite unuseful" element. Nowadays the scientific community not only knows that gold is not so "lazy" as thought, but also that its catalytic potential towards several oxidations and C-C bond formation is quite valuable.

Our work is prevalently focused on the synthesis, the stabilization and the characterization of reactive intermediates of the "Coinage" metals with small molecules, like carbon monoxide, ethylene and acetylene. These intermediates are key steps in industrial catalyzed processes (oxidation of carbon monoxide for example) or formation of C-C bond reactions (cycloadditions of unsaturated substrates like alkenes or alkines). In this paper, some rare adducts of these metals will be presented and discussed based on their structural and spectroscopical characteristics.

Biography

Mauro Fianchini was born the 19th of June 1979 in Camerino (MC), Italy. After completing his high school studies in July 1998, he attended chemistry lectures in the Department of Chemistry, University of Camerino. In February 2004 he received his Master's degree in Inorganic Chemistry discussing a thesis on pyrazole-based ligands. In the summer 2004 he moved to the University of Texas at Arlington where he started a doctoral program under Prof. H.V. Rasika Dias' supervision. He is currently working on his doctoral thesis concerning the chemistry of the metals of 11th group with gases like carbon monoxide and ethylene.

He received several awards during his academic studies: among others, he received the prestigious Dean's Excellence Scholarship and the Award as Outstanding Researcher 2007.

Non genomic effects for thyroid hormone: a rationale for sudden cardiac death syndrome

Saverio Gentile

Many nuclear hormone receptors have physiological effects that are too rapid to be explained by changes in gene expression. Thyroid hormone has an important role for normal cardiovascular function but the molecular mechanism hasn't been comprehensively explained. We recently shown that a nuclear hormone receptor for thyroid triiodothyronine (T3) modulates the voltage gated potassium channel protein Kv11.1 encoded by ether-a-go-go related gene (herg) abundantly and express in cardiac myocite, in a rapid non-genomic dependent mechanism. Here we present evidences that the genomic variation SNP K897T on herg channel which is associated with the cardiac arrhythmia long QT syndrome and sudden cardiac death reverses the stimulatory effect of thyroid hormone by providing a phosphoacceptor for the protein kinase B (AKT). We propose the non genomic effects of thyroid hormone which modulates the herg channel by abnormal reversible phosphorylation or "phosphorylopathies" as a major cause of organ dysfunction like cardiac arrhythmias.

Biography

1998	Laurea thesis (Master's degree) in Biological Sciences, Seconda Università Di Napoli, Caserta, Italy
12/99- 12/02	Doctoral Degree (Ph.D) in Neurobiology and Biophysics, Neurobiology Laboratory, Stazione Zoologica "A. Dohrn", Napoli, and Università Degli Studi Della Calabria, Cosenza, Italy.
10/00 - 5/01	University of Konstanz, Germany Prof. Werner Rathmayer, Laboratory of Neurobiology
12/03 - present	National Institute of Environmental Health of Science (NIEHS/NIH) Dr. David L. Armstrong, Chief, Lab. Neurobiology

Mortality and predictive tumor criteria for survival after OLT in patients with primary liver malignancy (HCC)

Mohamed Kohla, Maurizio Bonacini, Richard Shaw, Garrett Hisatake, Robert Osorio

Department of Transplantation, California Pacific Medical Center, San Francisco

Background

HCC is a frequent indication for OLT. The prognosis is associated with criteria related to number and size of lesions (Milan and UCSF). However, degree of differentiation and efficacy of locoregional therapies may also influence outcome post OLT.

Objective

AIM: . Characterize patients with and without HCC who underwent OLT in a Community Medical Center and to compare outcomes, including causes of death, according to tumor characteristics.

Material &Methods

Retrospective query of an electronic medical record for the last 328 patients transplanted at CPMC in 2001-2007. HCC was defined by pre-OLT listing data as well as finding of a tumor consistent with HCC at explant. Milan criteria and UCSF criteria were applied to the lesions as described by pathology upon explant pathology examination. Survival curves were constructed using the Kaplan Meier method. Causes of death were established according to UNOS database.

Results

328 patients were evaluated, with 109 liver malignancies.

103 patients were females (of which 26 (25%) had HCC).

225 were male (of which 83 (37%) had HCC p= 0.04 v. females).

HCC patients were older (56±7.2 years) than non HCC patients (51±9.2 years, p<0.001). Donor age and cold ischemia time were not different in the HCC vs. non-HCC groups.

Mean survival was shorter in HCC (984± 599 days) vs. non HCC (1103±642) but not statistically significant (p=0.10). Kaplan Maier survivals were superposable when comparing patients with or without malignancy and when patients with low (≤22) vs. high MELD (>22) were compared. Survival curves in patients that fulfilled Milan criteria vs. UCSF criteria were identical in this cohort of patients. However more patients outside Milan criteria died of metastatic disease (27%) vs. those within Milan criteria (6%, p=0.048). Only 3 patients exceeded UCSF criteria at explant, 1 pt died of multiorgan failure.

Cox proportional hazards regression analysis showed that MELD, but not malignancy was associated with mortality; HR=6% (95% C.I. 1-10%) per additional MELD point (p=0.02).

Results

In the Cox model, tumor differentiation and necrosis at explant were not predictors of mortality.

Deaths occurred in 18 (17%) HCC pts, vs. 43 (19%) non HCC pts. However, causes of mortality were different: of 18 HCC patients, 10 (56%) died of HCC/metastatic disease vs. 2 (5%) in 43 non HCC patients (p<0.0001).

Conclusion

In this cohort, survival of HCC patients was comparable to non HCC patients. However, mortality from metastatic disease was significantly higher. Overall mortality was associated with higher MELD scores, but not with tumor necrosis or degree of differentiation at explant. Patients within Milan criteria appear to have survival rates similar to those within UCSF criteria. Our data support the appropriateness of granting additional MELD points to patients with HCC.

Prediction of liver fibrosis in HCV patients: comparison of 4 non invasive tests.

Ira Yu, Andrew Talal, Robert Gish, Maurizio Bonacini

Department of Transplantation, California Pacific Medical Center, San Francisco

Background

Liver fibrosis in hepatitis C (Am J Gastroenterol 2001;96:2438-41). Little is known of the frequency of cirrhosis and its complications in Asians patients in the U.S.

Objective

AIM: To compare 4 non invasive test to predict histological features of hepatitis C

Patients & Methods

Retrospective query of an electronic medical record for HCV-positive patients evaluated between 1999-2005. Race-ethnicity was self reported by questionnaire. We excluded patients who had died or received a liver transplant.

Local pathologists read the slides.

Patients and methods

Histological cirrhosis was defined as either advanced Metavir stage 3 to 4 (Ishak 5) or 4 fibrosis (Ishak 6) at biopsy. **Liver cirrhosis** (LC) was defined as either histological or clinical cirrhosis.

Statistics: Chi-square, t-tests and logistic regression were performed where appropriate (Statview).

Results

657 patients were categorized into 5 racial-ethnic groups:

1. 23 American-Indian (AmInd),
2. 218 Caucasian (C),
3. 147 Hispanic (H),
4. 123 African-American (AA), and
5. 146 Asian (As) patients.

The median age of AA (54 years) and As (53) C (52) was higher than either C (52), H (50) or AmInd (49) ($p<0.05$). The percentage of males varied from 46% to 55% (NS). BMI was significantly lower in Asians (Table 1). AmInd and H had the highest percentage of alcohol abuse (74 and 55%) higher than AA and C (41%) and As (11%) ($p<0.0001$). Favorable genotypes (2, 3) were less frequent in AA table 1).

Results

Liver cancer (HCC) was found in similar percentages in the 5 ethnic groups.

Table 1:

N	Fibrosure	FIB4	APRI	AS/Alt ratio	Platelets
Mean results					
Range					
ROC					

[a] p <0.01 vs. H
[b] p<0.005 vs. AmInd, C, H
[c] p<0.05 vs. AA, As
[d] p<0.0005 vs. AA, As
[e] p<0.0001 vs. all other groups
[f] p<0.01 vs. As, p=0.04 vs. C
[g] p<0.01 vs. AA and As
[h] p<0.001 vs. AA and As

Table 2: Cirrhosis and HCC

N=	HIV pos	HIV neg
Fibrosis Median (range)		
Activity		

Conclusions

In …..

Virtualization Today

Alberto Giammaria

This paper introduces Virtualization, a technology invented on the mainframe world and only lately trickled down to the PC world, and describes how it impacts all of us, from data center administrators to simple PC users.

We all use computers today and we are familiar with the idea that the operating system and the applications running on it use the physical resources of our computer, like the processor, memory and disk.
This bond between hardware and software has been broken by virtualization.
By using virtualization, it is possible to partition the physical resources of a computer into multiple logical ones and run separate, independent virtual computers, called Virtual Machines, on these logical resources. These virtual machines behave exactly like real computers running without any problem your favorite operating systems and almost all applications.

The idea of virtualization is not a new one; the concept of virtual machine goes back to 1966 when IBM created the CP-40 operating system, predecessor of the IBM's famous VM (Virtual Machine) operating system.

That was an operating system for mainframes, those gigantic computers that run in data centers. Now the same technology is available on personal computers as free-ware or for less than 200 dollars.

What are the benefits of a virtual machine over a real computer? Just to name a few:

1. Multiple virtual machines can run on one physical machine in full isolation increasing energy efficiency.
2. Memory capacity and CPU speed of a virtual machine can be changed as needed with few clicks of a mouse.
3. Virtual machines can be paused and resumed.
4. Virtual machines can be moved from a physical computer to another.

I will discuss virtualization benefits for a wide range of users including PC users. I will also include in the presentation a demo where I will show multiple operating systems with their applications running concurrently on a single computer and how I can rapidly reestablish the integrity of a virtual machine attacked by a virus.

Biography

Alberto Giammaria was born in Sarnano (MC), Italy.
He received a degree in Electronic Engineering in 1989 at the University of Ancona.
He joined the IBM Rome Networking Systems Lab in 1989 where he was the architect of a series of software distribution products. In 1996 he moved to IBM Tivoli Lab in Austin, TX, to work as an architect of system management frameworks.
In 2001 he joined the Tivoli Advanced Technology team to lead the development of innovative technologies in the area of application instrumentation and resource discovery. He is currently working on technologies for the management of virtualized environments.

The involvement of the tyrosine kinase c-Src in the regulation of Reactive Oxygen Species (ROS) generation mediated by the NADPH oxidase-1.

Davide Gianni, Bruce Fowler, Gary M. Bokoch
The Scripps Research Institute, Departments of Immunology and Cell Biology, La Jolla, California

ROS have recently been recognized as a novel second messenger molecules that regulate signalling processes in many types of cells. One of the main sources of cellular ROS is represented by the NADPH oxidase family enzymes. To date, 7 members of this family have been described: Nox1-5 and Duox (dual oxidase) 1 and 2. With the exception of Nox2, the regulation of the other Nox enzymes is still poorly understood. Nox1 is highly expressed in the colon and requires for its activity the binding of Rac1 GTPase, as well as two cytosolic regulators, NoxO1 and NoxA1. c-Src is a member of the protein tyrosine kinase family and plays a key role in the genesis and progression of many types of human tumors, including colon carcinomas.

In this study, we investigate the role of the tyrosine kinase c-Src in the regulation of ROS generation by Nox1. First, we show that NIH3T3 cells stably expressing c-Src produce more ROS than wild-type cells. Consistent with this, HT29 human colon cells, in which ROS production is dependent on the Nox1 pathway, produce significantly less ROS when treated with the Src-inhibitor PP2. In addition, in both HEK293 and HT29 cells the overexpression of SrcYF, as well as RacQL, respectively the constitutively active forms of c-Src and Rac1, significantly increases Nox1-dependent ROS production. This increase can be abolished by the NADPH oxidase inhibitor DPI. We also have experimental data indicating that c-Src increases Nox1-dependent ROS generation through Rac1. Consistent with this, the Src-mediated Nox1-dependent ROS generation in HEK293 cells can be blocked: i) by the transfection of Nox1 proteins unable to bind Rac1, and ii) by the transfection of the dominant negative form of Rac1, RacN17. Furthermore, we present evidence that c-Src induces Nox1-dependent ROS generation *in vivo* in HT29 cells by increasing the levels of Rac1-GTP through the activation by phosphorylation of the Rac1-GEFs Vav2. In fact, in HT29 cells i) the transfection of the constitutively active form of Vav2 (Vav2-CA) causes a significant increase in ROS production and ii) the transfection of Vav2 specific siRNA is able to dramatically decrease the Nox1-dependent ROS generation. The Vav2-mediated Nox1-dependent ROS generation can be also blocked in

HEK293 cells by the mutants of Nox1 unable to bind Rac1 or by RacN17, indicating that Vav2 induces the Nox1-dependent ROS production through Rac1.

Taken together, these results provide novel insights into the regulation of Nox1 activity and may provide insight into the mechanisms of tumor formation in colon cancers.

BIOGRAPHY

Davide Gianni was born in Naples (09/25/1977) and he got his Master degree at the University of Naples "Federico II" in 2001 in Medical Biotechnology (110/110 magna cum laude and departmental honors). His Master degree's thesis was entitled "Study of the expression and function of the adapter protein Fe65 in C.Elegans" supervised by Dr. Nicola Zambrano.

In 2001 Davide Gianni started the PhD program in Genetics and Experimental Medicine in the laboratory of Dr. Tommaso Russo at the University of Naples "Federico II", where he was interested in the regulation of the processing of the amyloid precursor protein APP. During his PhD program, he started a collaboration with Dr. Micheal Geoff Rosenfeld at the University of San Diego California, where he conducted part of his PhD thesis.

In 2006 Davide Gianni joined the group of Dr. Gary Bokoch at The Scripps Research Institute, where he is currently employed as post-doctoral fellow interested in the regulation of the activity of the NADPH oxidase-1.

He published the results of his studies in peer-reviewed scientific journals (1) and was recently awarded the 2nd prize for the poster session at the TSRI 2007 Fall Research Symposium in the section "Molecular and Cell Biology".

Selected Publications;

- Kao Y., Gianni D., and Bokoch GM. "Identification of a conserved Rac binding site on NADPH oxidases supports a direct GTPase regulatory mechanism". Submitted to JBC for publication.
- Telese F, Bruni P, Donizetti A, Gianni D, D'Ambrosio C, Scaloni A, Zambrano N, Rosenfeld MG, Russo T. "Transcription regulation by the adaptor protein Fe65 and the nucleosome assembly factor SET." - EMBO Rep. 2005 Jan;6(1):77-82.
- Bimonte M, Gianni D, Allegra D, Russo T, Zambrano N. "Mutation of the feh-1 gene, the Caenorhabditis elegans orthologue of mammalian Fe65, decreases the expression of two acetylcholinesterase genes." - Eur J Neurosci. 2004 Sep;20(6):1483-8.
- Zambrano N, Gianni D, Bruni P, Passaro F, Telese F, Russo T. "Fe65 is not involved in the platelet-derived growth factor-induced processing of Alzheimer's amyloid precursor protein, which activates its caspase-directed cleavage." - J Biol Chem. 2004 Apr 16;279(16):16161-9
- Gianni D., Zambrano N., Bimonte M., Minopoli G., Mercken L., Talamo F., Scaloni A., Russo T. "Platelet – Derived Growth Factor induces the beta – gamma- secretase mediated cleavage of Alzheimer's amyloid precursor protein through a Src-Rac dependent pathway" - J Biol Chem. 2003 Mar 14;278(11):9290-7
- Zambrano N. , Bimonte M., Arbucci S. , Gianni D. , Russo T., Bazzicalupo P. "Feh-1 and apl-1, the Caenorhabditis elegans orthologues of mammalian Fe65 and beta-amyloid precursor protein genes, are involved in the same pathway that controls nematode pharyngeal pumping" - J Cell Sci. 2002 Apr 1;115(Pt 7):1411-22.

Anti-dyskinetic effects of cannabinoids in an animal model of Parkinson's disease

A. Giuffrida[1] , M.G. Morgese[1,2],

[1]Dept of Pharmacology, University of Texas Health Science Center, San Antonio, Texas, 78229.
[2]Dept of Biomedical Sciences, University of Foggia, Foggia, Italy

Since its introduction, L-3,4-dihydroxyphenilalanine (levodopa) has remained the mainstay treatment for Parkinson's disease (PD). Although levodopa alleviates PD symptoms in the early stage of the disease, its long-term administration is accompanied by fluctuations in its duration of action and disabling motor complications (dyskinesias) consisting of abnormal involuntary movements (AIMs). Levodopa-induced dyskinesias can be modeled in rats with a unilateral lesion of the nigro-striatal pathway via chronic administration of low doses of levodopa (6mg/kg, i.p., per day), which induce increasingly severe axial, limb, locomotive and oro-facial AIMs. This model has been pharmacologically validated and represents a cost-efficient alternative to non-human primates for screening drugs with potential anti-dyskinetic properties. Experimental evidence points to the endocannabinoid system as a promising pharmacological target to treat levodopa-associated motor disturbances. Administration of the cannabinoid agonist WIN 55,212-2 significantly attenuated levodopa-induced axial, limb and oral AIMs via a CB_1–mediated mechanism, whereas it had no effect on locomotive AIMs. By contrast, systemic administration of URB597, a potent FAAH inhibitor that elevates the endocannabinoid anandamide in the brain, did not affect AIMs scoring. Unlike WIN, anandamide can also bind and activate transient receptor potential vanilloid type-1 (TRPV1) receptors, which have been implicated in the modulation of dopamine transmission in the basal ganglia. Interestingly, URB597 significantly decreased all AIMs subtypes only if co-administered with the TRPV1 antagonist capsazepine. Our data suggest that: 1) CB_1 and TRPV1 receptors play opposite roles in levodopa-induced dyskinesias; 2) co-administration of a FAAH inhibitor and a TRPV1 antagonist may represent a novel therapeutic approach to reduce levodopa-induced dyskinesias.

Biography

NAME	POSITION TITLE
Giuffrida, Andrea	Assistant Professor

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Catania, Italy	Bachelor	1987	Biological Sciences
University of Catania, Italy	Ph.D.	1992	Biology
University of Siena, Italy	Master	1993	Natural Sciences

Positions and employment

1992-1994	Postdoctoral Fellow, Department of Evolutionary Biology, University of Siena, Italy
1994-1995	Visiting Scientist, Institute of Reproductive Medicine, University of Hannover, Germany
1996	Postdoctoral Fellow, Department of Evolutionary Biology, University of Siena, Italy
1997	Postdoctoral Fellow, The Neurosciences Institute, San Diego, CA
1998	Postdoctoral Researcher, Department of Pharmacology, University of California Irvine, CA.
1998-2000	Assistant Specialist, Department of Pharmacology, University of California Irvine, CA.
2001-2003	Assistant Adjunct Professor, Department of Pharmacology, University of California Irvine, CA.
2003-present	Assistant Professor, Department of Parmacology, University of Texas Health Science Center San Antonio, TX.

The Guenza Group

The Guenza Group works on the theory and simulations of structure and dynamics of complex fluids. The research goal is the development of novel theoretical (statistical mechanics) approaches to describe structure and dynamics of complex macromolecular systems, while including the underlying molecular details. The studies combine simulation and analytical theory in an effort to overcome some long-standing problems in this exciting field of research.

website:
http://darkwing.uoregon.edu/~chem/guenza.html

Selected publications:

"Theoretical coarse-graining approach to bridge length scales in diblock copolymer liquids" E. J. Sambriski and M. G. Guenza *Phys. Rev. E* (2007) (accepted).

"A theory of protein dynamics to predict NMR relaxation" E. Caballero-Manrique, J. K. Bray, W. A. Deutschman, F. W. Dahlquist and M. G. Guenza *Biophysical Journal* (2007) (in press)

"Bridging length scales in polymer melt relaxation for macromolecules with specific local structures" E. J. Sambriski, G. Yatsenko, M. A. Nemirovskaya and M. G. Guenza *J. Phys.: Condens. Matter* 19*, 205115 (2007).*

"Analytical Soft-Core Potential for Macromolecular Fluids and their Mixtures" G. Yatsenko, M. Nemirovskaia, E. Sambriski, and M. Guenza, *Phys. Rev. Lett.* 93, *257803* (2004).

"Cooperative Dynamics in Unentangled Polymer Fluids" M. Guenza *Phys. Rev. Lett.* 88*, 25901-4 (2002).*

Biography

Marina Guenza graduated summa-cum laude in Chemistry at the University of Genoa, Italy, and obtained her Ph. D. from the same University in 1989. Guenza entered the Consiglio Nazionale delle Ricerche in Genoa as a Researcher in 1989. She worked in the United States as a visiting scientist in the James Franck Institute, University of Chicago (1994) and in the Material Science Department, University of Illinois at Urbana-Champaign (1995-1997). From 2002 to 2006 Guenza has been an Assistant Professor in the Chemistry Department at the University of Oregon. In 2006 she was promoted Associate Professor.

THE OBESE HEART
New Risk Factor, Diagnostic Tool and Therapeutic Target

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Associate Professor of Endocrinology, Department of Medicine,
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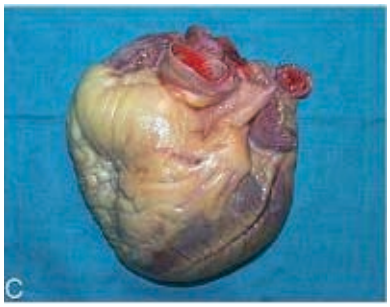
The reason for the growing scientific interest into the fat is the widely-accepted acknowledgement that adipose tissue is not a silent organ, but a very active source of multiple bioactive cytokines, called adipokines. The adipose tissue communicates with almost all other organs through endocrine, paracrine and also autocrine interactions. Hence, both systemic and local regulations of internal organs' function and morphology have been recently attributed to the adipose tissue. Fat tissue is also a potential great responder, by the presence of multiple receptors that can be modulated, stimulated or inhibited by drugs with different mechanisms of action and therapeutic purposes. Of additional and supportive note is the fact that the adipose tissue can now be clinically measured and quantified by simple, accurate and reliable diagnostic tools. Both biological and clinical characteristics of the adipose tissue seem to warrant a successful development of new therapeutic strategies. The concept and importance of proximity of adipose tissue to the organs is also intriguing. In fact, great interest has been recently focused on the visceral adiposity, namely the fat depots that surround the internal organs. The evidences supporting the visceral adiposity as independent cardio-metabolic risk factor are rapidly emerging.

We proposed the epicardial adipose tissue as new cardiovascular risk marker, diagnostic tool and potential therapeutic target. Epicardial adipose tissue is the visceral fat located around the heart (*Figure*).



This small visceral fat, previously neglected or rapidly removed from the cardiac surgeons, seems to play as principal actor, for its proximity to the heart.

Bio-molecular studies in humans show that epicardial fat tissue is clearly metabolically active and an important source of both pro and anti inflammatory adipokines which might significantly affect cardiac function and morphology. Paradoxically, a double role, unfavourable and protective, has been also attributed to the cardiac fat. We validated the direct measurement of epicardial adipose tissue thickness via echocardiography as a simple measure of visceral adiposity. We also previously demonstrated that epicardial fat is clinically correlated with magnetic resonance imaging abdominal visceral adiposity,

atherosclerosis and major anthropometric and metabolic predictors of increased cardio-metabolic risk. The fact that echocardiography is now routinely performed in subjects with metabolic syndrome suggests the great potential of this diagnostic tool and therapeutic target. Given that epicardial fat reflects visceral adiposity, its echocardiographic measurement has been proposed as therapeutic target and also marker of drug effectiveness in subjects in treatment with medications able to modulate and affect adipose tissue, particularly the visceral depots.

BIOGRAPHICAL SKETCH

Medical doctor degree cum laude, University of Roma, La Sapienza, Italy, in 1994; Research Fellow at Centrum for Metabolism & Endocrinology, Huddinge University Hospital Karolinska Institutet, Stockholm , Sweden in 1999; Specialist in Endocrinology and Metabolic Disorders in 2000. PhD in Endocrinology, Metabolic and Cardiovascular Disorders from the University of Roma, La Sapienza in 2004; Post Doctoral Clinical Research Fellow, from the Center for Human Nutrition University of Texas Southwestern Medical Center at Dallas, from 2004 to 2005. Clinical Research Fellow in the Department of Medicine, Cardiovascular Obesity Research & Management, McMaster University , Hamilton General Hospital, from 2005 to 2006. Clinical Fellow Hamilton Health Sciences, CORM Bariatric Clinic from 2005-2006; Recipient of the Internal Career Award, Department of Medicine, McMaster University in 2006 and Pfizer Award for Competitive Awards Program for Cardiovascular Proposals in 2003; Abbot Educational Grant 2007; Currently holding a faculty position as Associate Professor of Medicine, Division of Endocrinology and Metabolism, McMaster University, Hamilton, ON. Consultant Endocrinologist St. Joseph's Hospital, McMaster University, Hamilton, ON, Co-Chief Endocrinology, Diabetes, Obesity Clinic, St. Joseph's Hospital, McMaster University, Hamilton, ON.

Dr. Iacobellis has authored and co-authored more than 60 peer-reviewed papers and 10 textbooks. He recently published a book entitled "Drug-Drug interactions in the Metabolic Syndrome" as Editor. He also lectured widely on the cardiovascular aspects of obesity and metabolic syndrome. Dr. Iacobellis' research interest focuses on the diagnostic, pathogenic and cardiovascular aspects of obesity and metabolic syndrome. He is involved in pursuing epicardial adipose tissue projects that have the potential to open new avenues for cardiac research in the area of obesity and obesity-related cardiovascular diseases. Dr Iacobellis is currently clinical investigator in several clinical studies and pharmaceutical trials. Dr Iacobellis recently became Editor-in-Chief of a new journal "Journal of EndoCardiology" NovaPublishers, In, New York, USA. He is member of endocrinology and cardiology scientific societies and part of the Editorial Board and Reviewer of several cardiology and endocrinology journals.

Geochemical, textural and petrographic indicators for eruptive behavior at Merapi volcano

Sabrina Innocenti

Over the 40,000 years of its activity, Merapi volcano has exhibited a wide variety of eruptive styles. Recent eruptive activity is dominated by growth and subsequent gravitational collapse of small lava domes; however, the geologic record is punctuated by highly explosive events. Merapi geochemical evolution shows a significant variation in K_2O content and eruptive products belonging to both medium- and high-K series. An abrupt change from medium- to high-K lavas occurred with the highly explosive Tegalsruni eruption dated at ~100 A.D. This work indicates that similar compositional shifts occurred in the earlier history of the Merapi system. We have sought to interpret these geochemical and eruptive style shifts in terms of changes to the magmatic plumbing system of Merapi as revealed by petrographic and textural analysis. This study introduces a combined approach of textural analyses (including crystal size distribution) and traditional geochemical analyses.

Mineral phases within Merapi lavas display two contrasting styles of crystal size distributions (CSDs) and compositional zoning patterns, which in turn indicate distinct plumbing systems and magma transport to the surface. Briefly, basaltic lavas from throughout Merapi's history show kinked CSD patterns that suggest magma mixing in at least two crustal chambers prior to eruption. In contrast, recent basaltic-andesite dome lavas have smoothly curving CSD patterns that suggest prolonged residence at near-surface conditions in a steady-state open system. The high crystallinity of recent Merapi basaltic andesites (~60 vol.%) corresponds to a viscosity approaching the critical rheological locking limit. Current Merapi eruptive behavior oscillates about this rheological limit, with temporary crystalline plugs in the eruptive conduit disrupted by repeated efflux of magma
A slight change in the reservoir-conduit dynamics could interrupt this balance and modify the current eruptive style. We propose that this transition from steady-state conditions to highly explosive activity has happened previously during Merapi's history and that such events disrupt the plumbing system to the extent that lavas from different K-affinity are tapped. Textural comparison of Merapi pyroclastic falls, bombs presented here shows evidence in support of multiple distinct plumbing systems consistent with the current geophysical models of magma reservoirs.

Biography

Sabrina Innocenti graduated with a Laurea (Master) in Geological Sciences from the University of Florence in 1998. After a working experience in a Geological and Environmental firm in Pistoia, Italy, she moved to the USA to pursue graduate studies. She received a PhD in Geosciences from The Pennsylvania State University in 2006 with a dissertation on the eruptive behavior of Merapi volcano, Indonesia. She has been working for ExxonMobil as a senior geologist since December 2006.

Clinical application of the latest devices available at the Texas Heart Institute for replacing the function of the failing heart

La Francesca, Saverio, M.D.

Research outline:

The work currently performed at the Texas Heart Institute represents the clinical application of the latest devices available for replacing the function of the failing heart. Heart Failure has an overall prevalence of 2.5% in the U.S. population. Mortality for all ages was 57.700 patients in 2004, with more than 1 million discharges with an estimated total cost of 33.2 billion dollars for 2007. The number of patients that would benefit from a heart transplantation procedure is much larger than the number of available donor hearts.
The so-called second generation of mechanical pumps has been proven effective in patients either as a bridge-to-transplant or as "destination therapy". In contrast to the previous generation these devices are non-pulsatile systems that produce axial flow by means of a single, rotating, vaned impeller and have the advantage of being small, i.e. the size of an AA battery. One of such pumps, the Jarvik 2000, can be positioned inside the heart itself. The longest living recipient ever of an artificial heart pump is a patient in whom the Jarvik system has been continuously supporting his heart since the operation for now more than 7 years.
The Texas Heart Institute is the world leader in the field thanks, also, to its research laboratories that allow studies on large animal models. The results of such experiments can then be translated into clinical practice
To date hundreds of implants of mechanical devices have been performed at the Texas Heart Institute where the first ever artificial heart was inserted by Dr. Cooley in 1969.

Biography

Saverio La Francesca nato a Palermo il 26-09-1961. Nel 1985 si laurea in Medicina e Chirurgia presso l'Universita' di Palermo. Si specializza in Cardiochirurgia nel 1991 presso l'Universita' di Roma "La Sapienza".
Dal 1991 al 1995 e' post-doc fellow prima presso il Texas Heart Institute e poi al Methodist Hospital ad Houston.
Ricercatore dal 1991 e Professore Associato presso "La Sapienza" a Roma dal 2001. Durante tale periodo si occupa di tutta la cardiochirurgia dell'adulto con particolare riguardo per la chirurgia degli aneurismi e della dissezione aortica.

Dal 2006 al Texas Heart Institute presso il St. Luke's Episcopal Hospital di Houston pratica tutta la chirurgia cardiovascolare e si occupa di trapianto di cuore, di pompe cardiache meccaniche e di chirurgia mininvasiva.

Saverio La Francesca was born in Palermo on September 26, 1961. He attends medical school at the University of Palermo where he earns his degree in 1985. Dr. La Francesca is a resident in Cardiovascular surgery at the University of Rome "La Sapienza" from 1986 until 1991. He is a post-doc fellow from 1991 to 1995 at the Texas Heart Institute first and then at the Methodist Hospital.
Assistant Professor from 1991 he becomes Associate Professor in 2001 at the University of Rome "La Sapienza". During this time his clinical practice includes all the aspects of adult cardiac surgery with a special focus on aortic aneurysms and dissection.
From 2006 he is at the Texas Heart Institute at St. Luke's Episcopal Hospital in Houston where he has focused on the surgical treatment of severe heart failure, specifically in the fields of heart transplantation and mechanical assist devices that may be used either to substitute for or to assist the action of the human heart. Dr. La Francesca is very involved in cardiovascular surgical research at the Texas Heart Institute and has authored and co-authored numerous publications during his career.

Predictive factors of Resistance to Therapy with Epidermal Growth Factor Receptor Tyrosine Kinase Inhibitors in Non-Small Cell Lung Cancer

Erminia Massarelli, MD, PhD

Department of Thoracic/Head and Neck Medical Oncology, The University of Texas M. D. Anderson Cancer Center, Houston, TX. Current affiliation: Department of Internal Medicine, The Methodist Hospital, Houston, TX

EGFR gene mutations and increased *EGFR* copy number have been associated with favorable response to epidermal growth factor receptor (EGFR) tyrosine kinase inhibitors (EGFR-TKIs) in patients with non-small-cell lung cancer (NSCLC). In contrast, *KRAS* mutation has been shown to predict poor response to such therapy. We tested the utility of combinations of these three markers in predicting response and survival in patients with NSCLC treated with EGFR-TKIs.
The study included 73 patients, 59 of whom had all three potential markers successfully analyzed. *EGFR* mutation but not increased *EGFR* copy number correlated with favorable response. No survival benefit was detected in patients with either of these features. *KRAS* mutation correlated with progressive disease and shorter median time to progression but not with survival. Therefore, *KRAS* mutation should be included as indicator of resistance in the panel of markers used to predict response to EGFR-TKIs in NSCLC.

Biography

Dr. Erminia Massarelli currently is a clinical resident at the Department of Internal Medicine, The Methodist Hospital, Houston, TX. Dr. Massarelli is a medical oncologist trained at the University of Naples Federico II, Naples, Italy, where she also completed a PhD program in molecular oncology and endocrinology. Dr. Massarelli is involved in translational research in non-small cell lung cancer and has recently completed a research fellowship at the Department of Thoracic/Head and Neck Medical Oncology, The University of Texas M. D. Anderson Cancer Center, Houston, TX.

CRTAP and *LEPRE1* are required for collagen prolyl 3-hydroxylation and their mutations cause recessive osteogenesis imperfecta.

Roy Morello, Ph.D.
Dept. of Molecular and Human Genetics, Baylor College of Medicine, Houston, TX

Autosomal dominant osteogenesis imperfecta (OI) or brittle bone disease is a heritable disorder caused by mutations in the two genes encoding type I collagen (*COL1A1* or *COL1A2*). Although its clinical spectrum of severe to mild OI (clinical types II, III, IV, and I) has been well described, new types of OI (types V, VI, and VII), defined either genetically or histologically, have emerged. We hypothesized that this group of OI phenotypes may include recessive forms arising from dysregulation of components of the collagen processing machinery. We generated *Crtap* null mice and found that they exhibit osteochondrodysplasia characterized by rhizomelia, kyphosis, and severe osteopenia. In vivo histomorphometric analyses showed significantly decreased bone mass and decreased bone formation rate, but normal numbers of osteoblasts and osteoclasts. Moreover, *Crtap-/-* mice synthetize very little osteoid and have decreased mineralization lag time. We demonstrate that CRTAP exists in a protein complex with prolyl 3-hydroxylase-1 protein and *Crtap-/-* mice lack fibrillar collagen prolyl 3-hydroxylation by tandem mass spectrometric analysis. Finally, we identified *CRTAP* mutations in two families with recessive OI. In the original family with OI type VII, we detected a C>G transversion in intron 1 that created a new splice donor site and activated a cryptic exon in most transcripts. However, normal residual CRTAP mRNA and protein were still detected suggesting the hypomorphic nature of this mutation. In the second, consanguineous family with a very severe form of OI (type II), we identified a single nucleotide deletion in exon 4 that led to a premature termination codon, and virtually complete lack of mRNA and protein. More recently, *LEPRE1* (coding for prolyl 3-hydroxylase1, P3H1) mutations have also been associated with recessive forms of OI. In our subsequent study of 72 OI subjects we report on a spectrum of recessively-inherited phenotypes, including OI types II and III, resulting from mutations in either CRTAP (4 patients) or P3H1 (16 patients). Patients with *CRTAP* or *LEPRE1* loss of function mutations were indistinguishable clinically, as both groups presented with multiple fractures at birth, decreased bone modeling (especially of the femur), extreme low bone mineral density and poor prognosis. These results expand the genotype-phenotype correlations for the recently described recessive OI and support a DNA based approach to the diagnosis of OI.

Biography

Medical Education or Graduate Education: University of Brescia, Italy – Ph.D. – 1995- 1999. Dissertation defense discussed on 2/28/2000. Title: "A novel gene family regulated during vertebrate development", advisor Prof. Ranieri Cancedda.

Postgraduate Training: Research Post-doctoral fellow in the Dept. of Molecular and Human Genetics, Baylor College of Medicine, Houston, TX.3/2000 – 9/2005. Advisor: Brendan Lee, M.D., Ph.D.

Current faculty position(s): Assistant Professor in the Laboratory of Dr. Brendan Lee, Dept. of Human and Molecular Genetics, Baylor College of Medicine, Houston, TX, 9/2005 – present

Honors or Awards:
Travel award, 8th International Workshop on Developmental Nephrology, 2001
Telethon Foundation Postdoctoral Fellowship Award from Italy, 2001 –2004
UT-TORCH, Comprehensive Research Training Program at UTHSC 12/2004 – 9/2005
ASBMR, Young Investigator Award for Best Annual Meeting Abstract, 2005
2006 Lawrence Research Award from The Bone Disease Program of Texas
Michael Geisman Research Fellowship from the Osteogenesis Imperfecta Foundation 7/2006
2007 John Haddad award from the AIMM/ASBMR societies

Professional societies:
2002 – present American Society of Human Genetics (ASHG)
2002 – present American Society of Nephrology (ASN)
2005 – present American Society for Bone and Mineral Research (ASBMR)

Acute thrombocytopenia after liver transplant: Role of platelet activation, thrombopoietin deficiency and response to high dose intravenous IgG treatment.

[1]Nascimbene A, Iannacone M, Brando B, De Gasperi A.

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Thrombocytopenia is common after liver transplantation due to platelet sequestration secondary to hypersplenism. The aim of this study was to further investigate the causes of this condition, as well as the response of thrombocytopenia to high dose intravenous immunoglobulins. We retrospectively studied 73 patients who underwent liver transplantation. Out of these 73 patients, 27 had severe thrombocytopenia and were treated with high dose intravenous immunoglobulin. Additionally, we retrospectively studied 8 patients undergoing liver transplantation.

Our data suggest that splenomegaly is not the only factor responsible for thrombocytopenia after liver transplantion and two additional phenomena, namely, reduced platelet production due to reduced thrombopoietin levels and sustained platelets activation take part in the pathogenesis of this condition. The infusion of high dose immunoglobulins induced a safe, prompt, complete and persistent resolution of severe thrombocytopenia in more than 70% of patients. Based on these findings, treatment with high dose intravenous immunoglobulins should be considered in the management of severe thrombocytopenia after liver transplant, although additional randomized trials are warranted.

Biography

Department of Cardiovascular Surgery, Milano, Italy
Department of Cardiovascular Gene and Cell Therapy Clinical Program, Centro Cardiologico Monzino IRCCS, Milan, Italy
Post Doctoral Fellow, Cardiovascular Res Institute, NYMC, Valhalla, New York, USA
Internal Medicine Program, UT-HSC, Houston, TX 77030

Industrial R&D in the age of globalization

Ernesto Occhiello

Multinational companies are challenged to deliver innovation faster. At the same time entire industries moved to new geographies and the world as grown flatter, thanks to the global accessibility of information. Potential consequences include:
- maintaining key skills/capabilities where cutting edge academia is present and therefore top talent is made available
- proactively reposition centers of excellence close to the "brain" of each specific application.

Ricerca industriale nell'epoca della globalizzazione.

Le multinazionali sono di fronte alla sfida di offrire innovazione in una scala dei tempi sempre piu' ravvicinata. Lo spostamento di interi segmenti industriali in nuove geografie e l'accessibilita' globale dell'informazione costituiscono ulteriori condizioni al contorno.
La tesi che verra' discussa e' che e' al tempo stesso necessario:
- essere presenti sulle competenze fondamentali in geografie che dispongano di universita' e offerta di talento di massimo livello
- identificare in modo proattivo la localizzazione dei "cervelli" di ogni applicazione e scegliere di conseguenza la localizzazione dei centri di eccellenza per lo sviluppo applicativo

Biography

Global R&D Director, The Dow Chemical Company
Laurea in Chimica con Lode presso l'Universita' degli Studi di Torino. Periodi di Post-doc/visiting scientist presso la University of Kent (UK) e l'IBM Almaden Research Center. Esperienze lavorative in Montedison, EniChem, TDCC, con ruoli in ricerca, assistenza tecnica, produzione. Negli USA dal 2002.
Coutore di due libri, piu' di 40 brevetti, piu' di 100 tra pubblicazioni e comunicazioni a congresso. Professore a contratto presso l'Universita' di Torino, 1996-2001.

Global Software Development

Paolo Papi

Manager of Project Management,
Software Group, IBM Corporation
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12920 Majestic Oaks Dr, Austin, TX, 78732

Global Development is the specialization for software development of what is commonly defined as offshoring. Offshoring is a type of outsourcing and simply means having the outsourced business functions done in another country. Global Development takes care of all aspects involved with a successful offshoring of software development. The main reasons behind the the decision to move a project entirely or partially to a Global Development site in a different country are the following:

- Bring products and developers closer to customers, especially in growth markets such as Asia and Central/Eastern Europe .
- Continue to embrace global development methodology.
- Modular design of products enabling parallel development across several global development sites .
- Freeing up skilled personnel to do high value add tasks .
- Maximize time zone coverage .
- Reduce development expense to allow for more investment and better profit margins. The determination of the best candidate among all possible software development sites is based on the following critical areas:

- Technical skills: platforms, databases, information technology infrastructure, logistics and other specific technical knowledge.
- Specialization skills: management, architecture, development, test, information development, customer support, project management.
- Efficiency skills: quality of results, respect of delivery schedule, productivity.
- Judicious selection of cost-benefit analysis .
- Environmental aspects: time zone, language, proximity with customers, cultural approach. It is very important this subject is carefully considered based upon the transfer mission.

This paper has the goal to describe the above areas in details, for an easier and more complete analysis in case offshoring alternatives should be considered.

Biography

Paolo Papi was born in Rome, Italy. After obtaining a degree in Electronic Engineering at "La Sapienza" University in Rome and completing the military service as Officer in the Italian Navy, he joined IBM in 1991. He started his career as software developer, to evolve in a few years into technical leadership roles. In 1998 moved from Rome to Austin, assuming managerial and project management responsibilities in different organizations in the IBM Software Group. He is currently directing a project management team involved in several projects across the globe, including sites in United States, Poland, Italy, Australia and Brazil. Paolo lives in Austin, is married with Patrizia and has a ten months old son, Pierfrancesco.

Kinase domain defective mutants of Bcr enhance Bcr-Abl oncogenic effects

Bastianella Perazzona, Hui Lin,Tong Sun, Yan Wang, and Ralph Arlinghaus. Department of Molecular Pathology, University of Texas M.D. Anderson Cancer, Houston, Texas 77030

Bcr-Abl acquires its transforming ability through its up-regulated Abl tyrosine kinase activity. Bcr is a phosphoprotein with a novel serine/threonine kinase activity encoded by its first exon. In chronic myelogenous leukemia (CML) cells, Bcr-Abl phosphorylates Bcr on tyrosine residues reducing its kinase activity. Over-expression of BCR in BCR-ABL+ cells produces a phosphoserine form of Bcr, which inhibits the oncogenic effects of BCR-ABL. To investigate the inhibitory effects of Bcr on Bcr-Abl, we expressed BCR/GFP in TonB210 cells, in which BCR-ABL is controlled by a tetracycline-inducible promoter. In nude mice injected with cell clones of TonB210/BCR-GFP, tumor formation was delayed, and tumors were 50% smaller compared to the TonB210/GFP. In addition, TonB210/ BCR-GFP cells had little colony-forming ability in soft agar compared to TonB210-GFP cells. In contrast, a point mutant of BCR (Y360F), which disrupts its kinase activity, not only blocked Bcr's inhibitory effects but enhanced the oncogenic effects of BCR-ABL in a solid tumor model and in soft agar colony assays. Similar effects were observed with a second BCR kinase domain mutant, S354A. These results indicate that the inhibitory function of Bcr directed towards Bcr-Abl requires its kinase function and that the kinase defective Bcr functions as a dominant-negative form of Bcr.

Biography

Bastianella Perazzona, Ph.D. is instructor in the department of Molecular Pathology at University of Texas M.D. Anderson Cancer Center in Houston, TX.

Selected Publications;

Deletion mapping of the sites on the HtrI transducer for sensory rhodopsin I interaction. **B Perazzona**, EN Spudich, JL Spudich - Journal of Bacteriology, 1996 - Am Soc Microbiol

Identification of Methylation Sites and Effects of Phototaxis Stimuli on Transducer Methylation. **B Perazzona**, JL Spudich - Journal of Bacteriology, 1999 - Am Soc Microbiol

The Role of cAMP Response Element-Binding Protein in Drosophila Long-Term Memory. **B Perazzona**, G Isabel, T Preat, RL Davis - Journal of Neuroscience, 2004 - Soc Neuroscience.

Entry of pyelonephritogenic Escherichia coli into HEp-2 cells due to actin polymerization. S Zanetti, L Sechi, A Angioi, **B Perazzona**, G Fadda - Microbiologica, 1992 - ncbi.nlm.nih.gov.

The role of CREB in Drosophila long-term memory. **B Perazzona**, G Isabel, T Preat, RL Davis - J. Neurosci, 2004

INSTALLATION AND OPERATION OF A NETWORK OF STERILIZING SOLAR PLANTS FOR THE TOTAL DESINFECTION OF THOUSANDS OF BODIES/CARCASSES AND WASTES OF BIRDS INFECTED WITH ANY KIND OF AVIAN INFLUENZA

Edio Ricci

Emerging new infectious diseases, such as avian influenza, are major threats to global security because they endanger the health of individuals and the stability of economies and societies. Global surveillance of influenza viruses is a critical element of the new framework for preventing, controlling and responding to the international spread of a pandemic flu. The timely sharing of influenza viruses and the associated genetic and antigenic information, of course, is essential for developing the diagnostic tests, vaccines, and strategies necessary to protect populations.

One of the best tools that fits well into this framework/process is the STERILIZATION of any kind of wastes in the farms or domestic yards where hundreds or thousands of birds are killed by avian flu. Our centralized solar sterilization plants attack the propagation problem at its origin, where the disease potentially begins to spread again. Possibly some migratory birds are now directly spreading the H5N1 virus in its highly pathogenic form. I can show that it is technically easy to kill all kinds of influenza viruses by sterilizing all kinds of generated infected waste. These viruses and wastes are very sensitive to heat and to certain temperature levels generated by our solar integrated technologies.

Although the H5N1 virus has not yet acquired the capacity for sustained human-to-human transmission, it may continue to undergo genetic changes and thus has a potential to be transmitted and because of SARS, we know that a virus can spread throughout the world in a matter of months, if not weeks. So any technology that limits such a possibility must be considered a welcomed tool; such as massive, clean, safe and efficient solar sterilization technologies. The last decisions are an urgent duty and responsibility of Governments, World Health Institutions and Private Sectors.

Solar Ovens for Sterilizing Bio-Infectious Waste

Edio Ricci

OBJECTIVE

To pilot an environmentally-sound and cost-effective method of processing hazardous infectious-contagious waste, thereby reducing disease dissemination, contamination of municipal landfills and energetic waste caused by incinerators and autoclaves.

RATIONALE

When correctly treated, the environmental pollution and diseases caused by infectious-contagious waste from medical procedures are minimal. Unfortunately, the methods most often used in developing countries are inadequate as modern technology is not available and other forms, such as incinerators or autoclaves, lack the capacity to be effective and cost-efficient. As a result, hazardous/infectious waste is usually thrown in the common landfills without any special treatment, resulting in environmental and human health hazards.

INNOVATION/EFFECTIVENESS

This project introduces the use of a solar oven that can guarantee temperatures of 180 to 200 ºC, the temperature necessary for sterilization of hospital biological waste. Poor and remote communities will benefit from improved environmental and human health as this technology does not produce toxic compounds, such as furans, dioxins, diphenyls, that result from combustion processes. This low-cost process sterilizes onsite, thereby avoiding the dangerous waste transportation, and hospitals can dispose of the waste as common biological inert waste. The solar oven is also low-cost to maintain and durable - lasting approximately 25 - 30 years. Another clear benefit is the significant conventional energy savings.

Biography

TITOLI ACCADEMICI:

- LAUREA IN FISICA
- CATTEDRATICO CON ONORI NELLA UNIVERSIDAD NACIONAL, COSTA RICA.

1. PREMI, RICONOSCIMENTI, BORSE DI RICERCA:

- Por 26 anni, Professore nel REGIME SPECIALE DI DEDICAZIONE ESCLUSIVA, Dipartimento di Fisica, Universidad Nacional, Heredia, Costa Rica
- Borsa di Ricerca: " ICTP SCHEME FOR TRAINING AND RESEARCH IN ITALIAN LABORATORIES ", Conphoebus, Catania, Italia, 9 mesi , 1990
- " CERTIFICATO DI ONORE " come Cattedratico, Universidad Nacional, Costa Rica (1991)
- " CERTIFICATO DI ONORE " come uno dei migliori docenti dell' anno 1993, Universidad Nacional, Costa Rica
- Vincitore del 2do PREMIO LIGURIA, TECNOLOGIA PER LO SVILUPPO, ROMA/GENOVA, ITALIA, OTTOBRE 1993
- Vincitore di uno dei PREMI NAZIONALI PER IL MIGLIORAMENTO DELLA QUALITA' DI VITA DEL COSTARRICENSE, Istituto di Ingegneria Industriale, UCR, 1994, Costa Rica
- " CERTIFICATO DI ONORE " come uno dei migliori docenti del 1995, Universidad Nacional, Costa Rica
- Vincitore di uno dei Premi sulla INFORMAZIONE DELLA TECNOLOGIA, PRIMO CONGRESSO DELLA RICERCA *CONINVES 2000*, CENAT, San José, Costa Rica, Marzo 2000
- Vincitore del 4° Premio del DEVELOPMENT MARKETPLACE 2005 con il Progetto No. 3485: " FORNI SOLARI CONCENTRATORI PER LA STERILIZZAZIONE DEI RESIDUI BIO-INFETTIVI OSPEDALIERI ", Washington D.C., USA, Maggio 24 – 26, 2005
- Riconoscimento a livello mondiale con il CERTIFICATO ENERGY GLOBE 2006, dato dall' Istituto Energy Globe, Austria, Aprile 2007, per il Progetto: " FORNI SOLARI CONCENTRATORI PER LA STERILIZZAZIONE DEI RESIDUI BIO-INFETTIVI OSPEDALIERI.

Role of Ras/Raf-MAPK and PI3K/Akt pathways in anaplastic thyroid cancer

Libero Santarpia, MD, PhD
Department of Endocrine Neoplasia & Hormonal Disorders, University of Texas M.D. Anderson Cancer Center, Houston, TX, U.S.A.

Background Ras/Raf-MAPK and PI3K/Akt pathways play a crucial role in differentiated thyroid tumorigenesis but their role in dedifferentiation of anaplastic thyroid cancer (ATC) is still unclear.

Objective was to evaluate the role of the aforementioned pathways in ATC.
Materials & Methods 36 ATC (18 with a matched differentiated (D) component) were analyzed. DNA samples isolated from paraffin-embedded tissue of undifferentiated (U) and D components were examined for *BRAF*, *PIK3CA*, *H-*, *N-*, *K-RAS* (exon 1 and 2) and *PTEN* (exon 5, 6, 7, 8) by direct sequencing.
Results *BRAF* mutations were found in 9 cases (25%), 7 of which had identical mutations in matched U and D areas. *PIK3CA* mutations were found in 5 cases (16%), 4 of which were restricted only to the U area. *RAS* and *PTEN* mutations were found in 2 cases (6%) and were confined to the U component.
Conclusions Our finding confirms that ATC can arise from anaplastic transformation of differentiated tumors because of an increasing of genetic alterations in both Ras and PI3K pathways during ATC dedifferentiation. *PIK3CA* mutations may play an important in the later stages of ATC. PI3K and Ras pathway should be both targeted as potential therapeutic therapy for ATC.

Biography

Libero Santarpia was born in Messina, Italy, 05 March 1974. He received both his MD and PhD in Italy. He trained within Roberto Di Lauro's group (University of Naples Federico II, Naples, Italy) studying the molecular basis of congenital hypothyroidism.
He continued his interest in thyroid disease, and currently, he is working on the elucidation of the molecular basis cause of thyroid cancer, at the Department of Endocrine Neoplasia (Chair, Dr Steven I Sherman) at the University of Texas, M.D. Anderson Cancer Center, Houston, TX, USA

Comparison of Clarithromycin, Dexamethasone, or Combination Therapy for Experimental *Mycoplasma pneumoniae* Respiratory Infection

Claudia Tagliabue, M.D.

Institute of Pediatrics, University of Milan Fondazione IRCCS "Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena", Milan, Italy and The University of Texas Southwestern Medical Center, Dallas, Texas (Office: F3.202), 5323 Harry Hines Blvd, Dallas, TX 75390-9063

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Background: *Mycoplasma pneumoniae* (Mp) respiratory infection is frequently associated with exacerbations of asthma. Macrolide therapy is often given for Mp infection, while steroids are given for substantial exacerbations of asthma. We evaluated the efficacy of clarithromycin (CL), dexamethasone (DX), or CL/DX combined therapy for Mp respiratory infection in a mouse model.

Methods: 9-12 week-old BALB/c mice were intranasally inoculated with 107 CFU Mp. Groups of mice were treated with CL, DX, CL/DX combined, or placebo (PL) daily for 6 days, starting 24 hours after inoculation. Groups of 3 to 10 mice were evaluated at baseline and after 1, 3, and 6 days of therapy (DOT). Outcome variables included quantitative bronchoalveolar lavage (BAL) Mp culture; lung histopathologic score (HPS); 25 BAL cytokine, chemokine and growth factor concentrations by ELISA; and plethysmography before and after aerosolized methacholine, to assess airway obstruction (AO) and airway hyperreactivity (AHR), respectively.

Results: CL and CL/DX treated mice had lower BAL Mp concentrations compared with placebo and with DX at DOT 6 ($p<0.05$). Treatment with CL/DX decreased lung HPS at DOT 6 ($p<0.05$) compared with placebo and with DX. AHR was lower in CL, DX, and CL/DX treated mice compared with placebo at DOT 3 ($p<0.05$). BAL concentrations of RANTES were significantly reduced in CL/DX treated mice: compared to DX at DOT 1; compared to PL, DX and CL at DOT 3; compared to PL and DX at DOT 6 ($p<0.05$). IL-12 p40 was significantly reduced in CL/DX treated mice compared to PL, DX and CL at DOT 3, and compared to PL and DX at DOT 6 ($p<0.05$). KC was significantly reduced in CL/DX treated mice compared to DX

treated mice at DOT 3 ($p<0.05$). MCP-1 was significantly reduced in CL/DX treated mice compared to PL and DX treated mice at DOT 3 ($p<0.05$). No significant differences were found for the other cytokines, chemokines and growth factors.

Conclusions: While both CL and CL/DX therapy significantly reduced BAL concentrations of Mp, only CL/DX significantly reduced histologic pulmonary inflammation as measured by HPS. Combined macrolide/steroid therapy should be evaluated for exacerbations of asthma associated with Mp.

BIOGRAPHY

Dr. Claudia Tagliabue holds a Laurea Degree in medicine from Universita' degli Studi di Milano, Italy. Currently, she is a 3rd year Resident in Pediatrics at Institute of Pediatrics, University of Milan Fondazione IRCCS "Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena", Milan, Italy (Nicola Principi, Susanna Esposito) and she is doing a research collaboration from december 2006 as a post-doctoral research fellow at The University of Texas Southwestern Medical Center, Dallas, Texas, Department on Pediatric Infectious Diseases (Department 's chief: George H. McCracken).

Her research interest are in the area of pediatric infectious diseases and she is currently working with doctor R. Doug Hardy (Associate professor of Internal Medicine and Pediatrics, UT Southwestern Medical Center) on *Mycoplasma pneumoniae* (Mp), an atypical bacteria with a relevant role in respiratory tract infections. In particular she is working on murine model of Mp pneumonia (and on the possible role for steroids in the therapy) and on the creation of a mouse model of Mp oropharyngeal infection (and effects of an antimicrobial therapy on this model).

Further projects will regard: 1) investigation into pharmacodynamic properties associated with antimicrobial therapy's modulation of respiratory cytokines and chemokines in murine model of Mp pneumonia and 2) analysis for cytokine and chemokine concentrations in human respiratory samples from children with a diagnosis of chronic asthma or with acute wheezing episodes.

A multistage nanodelivery system for therapeutic applications and medical imaging

Ennio Tasciotti[1], Rohan Bhavane[1], Kevin Plant[1], Xuewu Liu[1], Ashley D. Leonard[4], B. Katherine Price[4], Mark Cheng[1], Paolo Decuzzi[1,5], James M. Tour[4], Fredika Robertson[2], Mauro Ferrari[1,2,3] *
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and The Smalley Institute for Nanoscale Science and Technology, Rice University, Houston TX 77005
5- Center of Bio-/Nanotechnology and -/Engineering for Medicine, The University of Magna Graecia, Catanzaro - Italy

In the development of any targeted therapeutic approach, *in vitro* tests for evaluation of specific biological binding and efficiency of delivery are frequently applied. It is assumed that the *in vitro* affinity to biological targets can be used to predict the *in vivo* binding and consequently specificity and therapeutic activity. In reality, *in vitro* binding specificity does not reflect actual *in vivo* localization because of an array of factors and of complex pharmacokinetic/pharmacodynamic relationships arising from the presence of numerous biological, physiological, enzymatic and chemical obstacles. As a result, in most cases, the main limiting factor is the inability of the delivery vector to reach the binding site. Consequently, delivery systems capable of circumventing these barriers by preventing chemical and enzymatic degradation and bearing the vector to the site of its action would be clearly beneficial. Nano-sized particulate systems are being developed to increase the concentration of therapeutic agents at target sites. The typical embodiment of these systems includes a nano-scale carrier, which is decorated on its surface with biological recognition agents as well as molecules that protect against their rapid uptake by the RES. These observations point to the opportunities offered by the ability to design delivery systems capable of circumventing the multiple complex series of biological barriers aforementioned. We developed a multi-stage delivery system that can load, carry, release over time and deliver into primary human endothelial cells multiple types of molecules, and second stage nanoparticles (S2NPs) including quantum dots and single walled carbon nanotubes. The first stage carrier

particle (S1NP) consisted of biodegradable, biocompatible nanoporous silicon, with exquisite shape and size control obtained by photolithographic methods. The S1NPs size and shape as well as the surface chemical-physical properties can be tailored to avoid recognition and uptake by the RES and to enhance selective adhesion to the target vascular wall. The major physical, chemical, and electrostatic mechanisms controlling the loading and releasing of S2NPs or molecules were identified. Finally, we showed that after release, S2NPs were taken up by cultured primary human endothelial cells and compartmentalized. Taken together, these studies provide evidence that silicon nanoporous particles can be used as carriers for the intracellular delivery of different S2NPs and molecules. This multi-stage system offers opportunities to achieve delivery of multiple therapeutics and contrast agents to cells, and means to overcome the multitude of biological barriers that adversely affect the biodistribution of injected particulates and molecules for medical imaging and therapeutic applications.

BIOGRAPHICAL SKETCH

NAME

Ennio Tasciotti, PhD

POSITION TITLE

Postdoctoral Fellow at the NanoMedicine Laboratory, The Brown Foundation Institute of Molecular Medicine, The University of Texas Health Science Center at Houston under the supervision of Prof. Mauro Ferrari.

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Pisa, Italy	MSc	2000	Biological Sciences
Scuola Normale Superiore Pisa, Italy	MSc	2000	Molecular Biology
Scuola Normale Superiore Pisa, Italy	PhD	2005	Molecular Medicine
International Centre for Genetic Engineering and Biotechnology (ICGEB)	Postdoc	2006	Molecular Imaging

Metamaterials: Applications, Design Procedure and Manufacturing Limitations

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Recently, there has been a growing interest in the studies of the double-negative (DNG) materials in the electromagnetics' community due to the numerous potential applications related to them. The DNG materials have simultaneously negative permittivity and permeability over a certain frequency band and are artificially engineered. They show several interesting properties that can not be found in nature. Due to the progress of the fabrication technologies, the DNG materials are widely used in the components and apparatuses, such as filters, absorbers, lens, microwave components and antennas, etc. Furthermore, many researchers continue to study the properties and potential applications of DNG materials. This work will show a panoramic of applications of DNG materials accounting for design procedure and manufacturing limitations. Several numerical simulations will be shown and discussed.

Biography

Dr. Fabio Urbani holds a Laurea degree and a Ph.D. in Electronics Engineering both from the University of Rome La Sapienza, Italy. Currently, he is an Assistant Professor of Electrical Engineering at the University of Texas at Brownsville. Previous to that he spent five years as project manager for national and international telecommunication firms.

His research interest are in the areas of design and characterization of multi-band microstrip antennas loaded with unconventional material for compactness and performance improvement, design of RF/MMIC devices for telemetry applications, synthesis of filtering structures for microstrip active antennas using non uniform transmission lines and metamaterials approach, efficient analysis of electromagnetic wave interaction with multilayered metamaterials and design of microwave components for telecommunications.

Toward the understanding of the molecular basis of arrhythmogenesis in heart failure

Matteo Vatta, PhD

Assistant Professor
Associate Director-Pediatric Cardiac Genetic Research
Baylor College of Medicine, Houston, TX
Texas Children's Hospital

Heart failure represents the abnormal cardiac pump function, which every year affects 5 million of subjects in the US alone. In addition to an insufficient amount of blood pumped throughout the body, the individual with heart failure has high risk of cardiac rhythm disorders due to electrical imbalance. Genetic variants are known to cause heart failure, but the mechanism leading to electrical imbalance is still elusive. We have generated animal models to study how electrical and structural abnormalities develop during time. Our investigation has identified a structural-electrical connection at the molecular level, which could help refining both diagnostic and prognostic tools for the prevention of heart failure progression.

Key words: heart failure, cardiomyopathy, arrhythmia, ion channels, scaffolding protein

Biography

Matteo Vatta, PhD is an Assistant Professor of Pediatrics (Cardiology) and the Associate Director of Pediatric Cardiac Research at Baylor College of Medicine. Dr. Vatta is a basic scientist in cardiovascular research and his research interests focused on the genetic and molecular basis of sudden cardiac death. In particular, Dr. Vatta is investigating the mechanism of cardiac structural and electrical remodeling.

In 1993, Dr. Vatta has obtained his B.Sc. at the University of Trieste and completed his Ph.D in Molecular Genetics in 1997 at SISSA/ISAS in Trieste.

In 1998 Dr. Vatta joined Baylor College of Medicine (BCM) as Postdoctoral Fellow/Associate, and joined the BCM Faculty in 2001. In 2003 he was promoted to Assistant Professor of Pediatrics, and in 2006 he become the Associate Director of Pediatric Cardiac Research.

RECOGNITION MEMORY FOR EMOTIONAL AND NON EMOTIONAL PICTURES

Francesco Versace[1], Margaret M. Bradley[2] & Peter J. Lang[2]
[1]University of Texas M.D. Anderson Cancer Center
[2]University of Florida

In this experiment, recognition memory for pictures differing in valence and arousal was tested and Event Related Potentials (ERPs) were recorded using a dense sensor array (256 sensors). At encoding, 72 pictures from the International Affective Picture System (IAPS) were presented for 3 seconds each. Half of the pictures were high arousing (18 pleasant, 18 unpleasant), half were low arousing (18 pleasant, 18 unpleasant). During the recognition task 20 minutes later, the 72 previously presented pictures were intermixed with 72 new pictures and each was shown for 3 seconds. Study participants classified each image as "new" or "old". Behavioral results from 27 participants showed a better recognition performance (discrimination index "Pr") for low arousing pictures compared to high arousing ones ($p<.01$). ERPs from correctly classified old (hits) and new images (correct rejections) were computed and analyzed in two time windows (early window 300-500 ms and late window 500-700 ms). Each electrode was tested for the presence of the "memory effect" (the voltage difference between hits and correct rejections), the "arousal effect" (the voltage difference between emotionally arousing and neutral images), and the interaction between these two factors. The significance levels were determined by means of a randomization procedure.
Both arousal (more cortical positivity for high arousing stimuli compared to low arousing ones) and memory (more positivity for hits than correct rejections) effects were reliably present in both time windows, and the two effects did not interact. The results show how in a recognition memory task that uses pictures varying in emotional arousal, memory and emotion contribute additively to the ERPs between 300 and 700 ms after stimulus onset.

Biography

Francesco Versace got his Ph.D. in Experimental Psychology at the University of Trieste with a dissertation about the effects of sleep deprivation on spatial attention. After his Ph.D. he spent four years at the NIMH Center for the Study of Emotion and Attention at the University of Florida. There he ran experiments using both functional (MRI) and physiological correlates (EEG, ECG, etc.) to investigate mental imagery and memory recognition for emotional stimuli. He recently moved to the University of Texas M. D. Anderson Cancer Center where he is studying the psychophysiological aspects of nicotine dependence.

Chemotherapy with Bevacizumab Does Not Affect Liver Regeneration After Portal Vein Embolization in the Treatment of Colorectal Liver Metastases

Daria Zorzi, MD.

Department of Surgical Oncology, The University of Texas M.D. Anderson Cancer Center

Introduction

Blockage of vascular endotelial growth factor (VEGF) in murine models has been shown to impair liver regeneration after partial hepatectomy. The aim of this study was to evaluate the effects of chemotherapy with or without bevacizumab (monoclonal antibody anti-VEGF) on liver regeneration after portal vein embolization (PVE) in the treatment of colorectal liver metastases (CLM) and its possible effect on postoperative outcome after major liver resection.

Methods

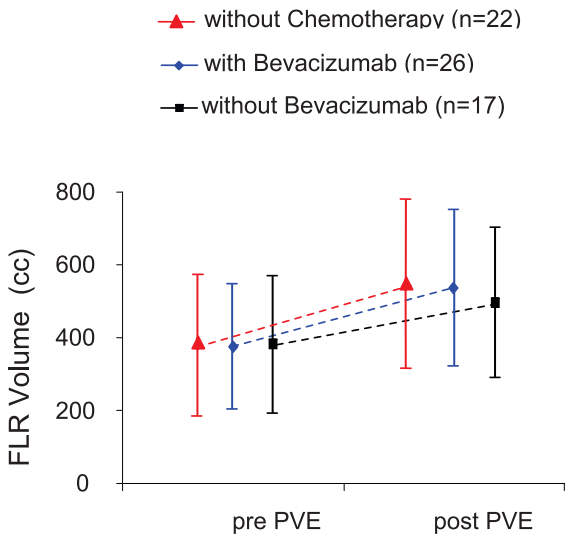
Records of 65 consecutive patients treated with or without preoperative chemotherapy (+/- bevacizumab) and PVE for CLM from September 1995 to February 2007 were reviewed from a prospective database. Future liver remnant (FLR) volume, degree of FLR hypertrophy (DH) after PVE, morbidity, mortality, and survival were analyzed.

Results

Preoperative PVE was performed after chemotherapy in 43 patients and without chemotherapy in 22 patients. Among the 43 patients treated with chemotherapy, 26 received concurrent bevacizumab. After a median of 4.1 weeks after PVE, there was no difference in increase in FLR volumes among patients treated with or without chemotherapy (+/- bevacizumab, figure). Similarly, there was no statistically significant difference in DH among patients treated without chemotherapy (mean 10.3%) and with chemotherapy, with or without bevacizumab (8.8% and 6.8%) ($p = 0.11$). Forty-eight of the 65 (74%) patients underwent extended right or right hepatectomy after PVE, including 19 patients with a median of 7.9 weeks after the last dose of bevacizumab. No differences in morbidity and mortality were observed among patients treated with or without preoperative chemotherapy (+/- bevacizumab). With a median follow up of 13 months the median survival for the resected patients was 35 versus 55 months for the patients who underwent PVE with or without chemotherapy, respectively ($p=0.2$).

Conclusions

Preoperative chemotherapy with bevacizumab does not impair liver regeneration after PVE. Patients with CLM can safely undergo chemotherapy with bevacizumab and PVE before major liver resection.



Biography

Daria Zorzi is a clinical research fellow in Surgical Oncology at the UT M.D.Anderson Cancer Center. Daria is surgeon trained in Torino, with a specific interest and practice in hepato-biliary surgery. Daria is primarly involved in the liver cancer (primary and metastatic) research field. Her mentor is Dr. Jean-Nicolas Vauthey chief of the Liver Tumor Study Group in MDACC.

Capsaicin-Induced Inflammation Within Temporomandibular Joint Involves TRPV1 Receptor Mechanisms

P.M. FIORENTINO, B.E. CAIRNS, B.J. SESSLE, J.W. HU
(Faculty of Dentistry, University of Toronto, Toronto, Ontario, M5G 1G6, Canada)

Recent evidence indicates that capsaicin (CAP), the active and pungent ingredient of hot red peppers, can induce inflammation and pain when it is applied to peripheral tissues. It has been shown to excite small-diameter afferent nerve fibers supplying the tissues by acting on a specific membrane receptor, the TRPV1 (or VR1) receptor. Since it is unclear how CAP application produces an inflammatory action in temporomandibular joint (TMJ) tissues, the aim of this study was to determine if CAP application to the rat TMJ region induces inflammatory changes such as oedema through an action on the TRPV1 receptor. In eight groups of anesthetized rats (each group, n=8), CAP (0.001%, 0.01%, 0.1%, or 1%) was injected into the TMJ region and was preceded by injection of vehicle or the TRPV1 receptor antagonists capsazepine or ruthenium red (Caterina and Julius, 2001, Annu. Rev. Neurosci., 24:487-517). Oedema was monitored by expansion of the TMJ tissues (Fiorentino et al., 1999, Arch. Oral. Biol., 44:27-32). Compared with vehicle controls, CAP 1%, 0.1% and 0.01% induced significantly greater oedema ($p<0.05$, ANOVA) in a dose-dependent manner. The oedema became apparent as early as 15 minutes after the CAP injection, and lasted over 120 min. Both the competitive antagonist capsazepine and the non-competitive antagonist ruthenium red could significantly reduce the CAP-induced oedema ($p<0.05$, ANOVA). These findings indicate that CAP can induce a significant inflammatory response within the TMJ region in a dose-dependent fashion, and that this effect is mediated, at least in part, by TRPV1 mechanisms. Supported by NIH grant DE-11995.

Biography

Professore a contratto, Facolta' Medicina e Chirurgia, Universita' degli Studi di Torino PhD Candidate
Fellow, Faculty of Medicine & Dentistry, University of Rochester
Si occupa di dolore craniofacciale con particolare riguardo alle disfunzioni dell'articolazione temporomandibolare. E' transitato attraverso la University of Toronto (con la quale ancora collabora) completando un master e un programma in neuroscience, fino ad arrivare alla University of Rochester (USA) dove si occupa anche di ricerca sulla terapia genetica del dolore con l'utilizzo di un virus carrier. Sempre negli USA sta per completare il suo PhD in co-tutela grazie a una borsa dell'Universita' di Torino.

Giovanni Armenise-Harvard Foundation

Since 1996, the Giovanni Armenise-Harvard Foundation has established Armenise Centers for Cancer Biology, Structural Biology, Neuroscience, Microbial Pathogenesis & the Host Response, Integrative Biology & Physiology, Systems Biology and Genomics & Post-Genomics at Harvard Medical School, as well as supported collaborative programs between these Centers and Italian scientific institutions. The Foundation has also sponsored a series of international symposia that have brought together hundreds of American and Italian scientists to share their work and ideas.

Programs Funded by the Foundation

- Biomedical centers at Harvard Medical School in Boston
- Grant and fellowship programs supporting individual scientists at Harvard Medical School and in Italy
- Foundation symposia enabling dialogue, debate and education about scientific and medical developments
- Fellowship program for young Italian science writers

For further information, please consult our web site
http://www.hms.harvard.edu/armenise/home.html

PrometeoNetwork, a free network for medical doctors and researchers in life sciences: activities and tools for members

Authors: Saverio Gentile[1], Davide Gianni[2], Giovanni Abbadessa[3]

[1] PrometeoNetwork Neuroscience
[2] PrometeoNetwork West Coast Life Science
[3] PrometeoNetwork Italian Life Science

PrometeoNetwork (www.PrometeoNetwork.com) is a free, online community of medical doctors and researchers involved in Life Sciences in partnership with the company leader in this field, Within3, which provides a platform allowing members, among other things, to: create a personal profile connected to Pubmed; search for colleagues by keywords (e.g. scientific field or article, institution, location); contact colleagues for consultations, collaborations, patients referrals; search/publish job offers; be contacted only by allowed colleagues through an internal mailbox with no size limit, being only notified on the personal email address; ask questions on a forum open to the entire community; originate and participate in discussions in group managed channels; be updated on scientific news and grants offered by the community; and find/divulge clinical trials managed by members of the community. PrometeoNetwork involves different topic-, area-, and nationality-based based groups. The Neuroscience Online group gathers scientists worldwide interested in different areas of neurosciences and provides opportunities for scientific collaborations including sharing reagents, technical and intellectual skills. Promoting discussions and collaborations is one of the activities of the Neuroscience Group that has yielded compelling results, including many fruitful scientific collaborations. Furthermore, a journal club on-line allows group members to collegially discuss scientific articles. In order to offer a comprehensive service, activities are also developed in coordination with managers of different groups from the PrometeoNetwork community. An example is the launch of the PrometeoNetwork Travel Award (PNTA), which will benefit Members from all the Prometeo-Groups. Future plans envision funding for Grants applications, Fellowships, and providing assistance for organizing topic-based meetings, such as a "PrometeoNetwork East Coast - Neuroscience meeting" or geographical area-based meetings (e.g., "Conferenza dei Ricercatori Italiani"), in collaboration with other organizations.

Professional networking in science: reasons and aims

Davide Gianni[1] , Saverio Gentile[2] and Giovanni Abbadessa[3]
[1] PrometeoNetwork West Coast Life Science
[2] PrometeoNetwork Neuroscience
[3] PrometeoNetwork Italian Life Science

Professional networking can be defined as "the process of establishing a mutually beneficial relationship with colleagues" and it serves many purposes. One of the most common is to help searching for jobs and promoting collaborations. When employers search for candidates, they often rely on their own network of professionals. Moreover, network members can help to identify job openings, make introductory phone calls and write letters of recommendation. Most importantly, professional networking also serves to build one's own professional identity which is impacted by the number and the background of the contacts within the person's network.

For professionals wishing to be successful in the fields of science and healthcare, actively networking is imperative. With the rapid growth of modern science and medicine, not only does networking set the stage for researchers to initiate scientific collaborations with others in the same or even different disciplines, it also helps physicians to give better diagnosis and therapies to their patients.

A classical level of professional networking for physicians and researchers is represented by the attendance to scientific meetings and membership to scientific societies. The Internet is improving the process of transferring knowledge among professionals in healthcare and science by giving (i.e. through PubMed) the possibility to access to a great variety of scientific papers at anytime and from anywhere. However, professional networking can still be improved, especially with the development of modern technologies to help the process of updating and categorizing the contacts of one's network over the time.

Here we present PrometeoNetwork, a free, on-line, worldwide network of medical doctors and researchers who can interact with each other, promoting the transfer of knowledge and scientific collaborations. PrometeoNetwork consists of several interconnected groups managed by a pool of volunteering researchers. Such groups are location-based, nationality based or topic-based such as the "US West Coast Life Science Online", the"Italian Life Science Online" or the "Multidisciplinary Oncology and Cancer Research Online". These groups provide medical doctors and researchers working in a specific area with a tool to interact with each other and with other groups of different colleagues in PrometeoNetwork. In fact, it often happens that, even if such professionals are geographically close to each other,

they do not network with each other just because they do not know about each other's presence in the area.

Technology evolves fast, with a continuous need for innovative equipment and trained researchers. This need can rarely be satisfied inside a single institution. Therefore, by using this network, researchers and clinicians have the possibility to reach beyond and achieve their professional goals. Moreover, with the intent of enriching professional and educational experience available to the members and of increasing the visibility to members' work, PrometeoNetwork is also pursuing i) the formation of new groups in the community; ii) collaborations with Press Agencies; and, iii) fund raising to give grants and scholarships to scientists who want to continue their training and research in different countries.

ISSNAF,

Italian Scientists and Scholars in North America Foundation

Background

Scientific and technological research and development (R&D) is evolving at an extremely fast pace and is the basis for the astonishing progress of human kind. Future progress is tightly linked to our ability to unravel new discoveries through R&D, which has become progressively more complex requiring multidisciplinary and multi-institutional collaboration with no boundaries. In fact, in the era of globalization, efficient interchange among scientists in different countries has become an essential ingredient for technological progress.

In the past, both Italy and the United States have drawn enormous benefits from reciprocal collaboration. At the grass roots of this collaboration are the visits and exchanges of scholars. The ISSNAF initiative wants to assure the continuing success of this collaboration through a "Network of Italian Scientists" that will facilitate scientific exchanges in both directions of the Atlantic.

Mission Statement

The **ISSNAF** (**I**talian **S**cientists and **S**cholars in **N**orth **A**merica **F**oundation) is a nonprofit organization aimed at promoting R&D interaction among those Italians active in North-American and Italian Academic and non-Academic Institutions, in the fields of Biological, Human, Medical, Mathematical, Physical and Social Sciences, Engineering and Information Technology.

To realize this mission and vision, ISSNAF has set the following primary objectives:

1. Provide networking opportunities to facilitate contacts between Italian Academic and non-Academic Institutions and those Italians who have demonstrated scientific and technological ability in North America
2. Facilitate sharing of know-how and information between Italians involved in R&D and other constituencies in academia, government, industry, and the public at large both in Italy and in North America.
3. Facilitate joint R&D projects between Italian and North American Scientists and Scholars.
4. Foster the creation of fellowship programs for an exchange of Scientists and Scholars.
5. Act as interface between ISSNAF member and Italian organizations on R&D activities and issues of competitiveness.
6. Identify significant research opportunities yet untapped in Italian industry and academia, and help stimulate their growth
7. Create an on line journal to:

- Report to the Italian public and to policy makers outstanding scientific, technological and academic achievements of fellow Italians;
- List the R&D opportunities and position openings announced by ISSNAF members.

From ISSNAF Website