Università degli Studi
Magna Græcia di Catanzaro

Dottorato di Ricerca
in Scienze della Vita

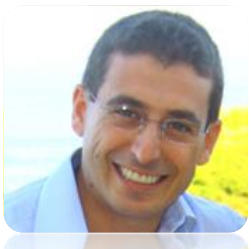
Scuola di Dottorato di Ricerca in Scienze e
Tecnologie della Vita

Università degli Studi *Magna Græcia* di Catanzaro
- Dipartimento di Scienze della Salute -

Stato dell'arte su ricerche di acidi nucleici in conformazione di quadruplesso

MINI CORSO CV_S_017

Il minicorso si propone di stimolare i dottorandi alla conoscenza di ricerche recenti che vedono DNA ed RNA in conformazione di quadruplesso come potenziale target per agenti bioattivi di interesse farmaceutico sia in campo antineoplastico che antivirale.

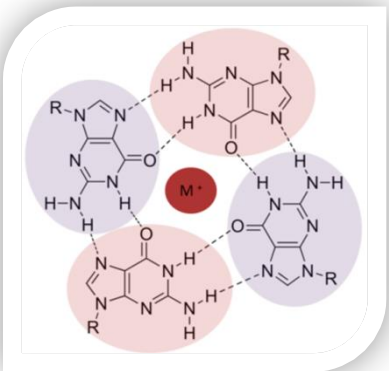


Prof. Antonio Randazzo
Università "Federico II" di Napoli

DNA G-quadruplexes: moving toward a holistic view

Prof. Sara Richter
Università di Padova

Presence, function and targeting of G-quadruplexes in viruses



Dott. ssa Anna Artese
UMG di Catanzaro

***In silico* investigation of G-quadruplexes as non-canonical nucleic structures**

Prof. Mauro Freccerro
Università di Pavia

Chemically Engineered Ligands and Probes Targeting Quadruplex Nucleic Acids

Campus UMG di Catanzaro – Edificio Clinico
aula C1 – Corpo C Livello 3 – 24 Febbraio 2016, ore 9:00

HOST: Setfano Alcaro alcaro@unicz.it

UNIVERSITÀ DEGLI STUDI
MAGNA GRÆCIA DI CATANZARO

DOTTORATO DI RICERCA
IN SCIENZE DELLA VITA

SCUOLA DI DOTTORATO DI RICERCA IN SCIENZE E
TECNOLOGIE DELLA VITA

UNIVERSITÀ DEGLI STUDI *MAGNA GRÆCIA* DI CATANZARO
- DIPARTIMENTO DI SCIENZE DELLA SALUTE -

STATO DELL'ARTE SU RICERCHE DI ACIDI NUCLEICI IN CONFORMAZIONE DI QUADRUPLESSO

MINI CORSO CV_S_017

PROF. ANTONIO RANDAZZO

DNA G-quadruplexes: moving toward a holistic view

DNA G-quadruplexes (G4s) at telomeric level have been shown to have regulatory functions for telomere extension and maintenance, thus playing important roles in cancer biology. Interest in the more general significance of G4s has expanded during the past decade to include G4 structures in oncogene promoter sequences, 5'-UTR regions and introns, as well as in a number of fragile/breakpoint regions. The broad concept of G4s has been recently validated by their direct visualization in human cells, and by the evidence that these structures can be stabilized in cells by small molecules, emerging as a novel approach to cancer therapeutics and other diseases. However, a complete picture of the interactions of G4s with the rest of the cell's components is needed. Starting from the idea that a system should be viewed as a whole and cannot be fully understood looking solely in terms of its component parts, a number of innovative approaches will be presented aimed to give an holistic view of the G4 world.

PROF. SARA RICHTER

Presence, function and targeting of G-quadruplexes in viruses

The involvement of G-quadruplexes (G4s) in the epigenetic regulation of viral genomes has been recently established: in particular, G4s in the human immunodeficiency virus (HIV) and herpes simplex virus (HSV) have been thoroughly studied. The presence of G4s in these viral genomes, G4 function and interaction with proteins, G4 visualization in cells and targeting by small molecules have clearly emerged. All these data indicate the fine regulatory role of viral G4s and the possibility to target viral features currently unavailable to existing drugs.

DOTT. SSA ANNA ARTESE

***In silico* investigation of G-quadruplexes as non-canonical nucleic structures**

In the last decade, it has been well demonstrated that, in addition to the familiar duplex, certain DNA sequences can fold into a four-stranded secondary structure called "G-quadruplex" (G4), localized at the telomeric ends of chromosomes and in other important areas of human genome, such as oncogenes. Stabilization of G4 architecture by small molecules is emerging as a potential anticancer approach. A remarkable effort in this sense has been given by experimental evidences, such as NMR and X-Ray G4 structures deposited in the Protein Data Bank, that have allowed the application of both traditional and enhanced in silico approaches in order to speed up the discovery of new more selective stabilizing agents.

PROF. MAURO FRECCERRO

Chemically Engineered Ligands and Probes Targeting Quadruplex Nucleic Acids.

The design, synthesis and performance of functional quadruplex ligands with a dual binding mode (non-covalent and covalent) and light up upon binding is described, compared, and related to the state of the art in the field. The covalent targeting is achievable in a fully controllable manner by external stimuli (i.e.: reduction, acid-base catalysis and irradiation). The fluorescent detection of quadruplex exhibiting different topologies by multi-chromophoric dyes is very effective and selective. Several potential useful applications, including quadruplex fluorescence tagging and "pull-down" are addressed.

CAMPUS UMG DI CATANZARO – EDIFICIO CLINICO
AULA C1 – CORPO C LIVELLO 3 – 24 FEBBRAIO 2016, ORE 9:00

HOST: SETFANO ALCARO alcaro@unicz.it