

Scritto da Red.

Lunedì 26 Aprile 2021 12:00

Tuesday
April 27, 2021
15:00 (GMT+1)

Computational and Quantitative Biology Lecture Series

The seminar will be held on line using TEAMS. Please register at <https://bit.ly/3oYVzg>
You will receive an invite with the link to the seminar.

Molecular and cellular predictors of response to cancer immunotherapy: beyond Tumour Mutational Burden

Despite the paradigm shift in cancer treatment introduced by immunotherapy, many patients still fail to benefit because of primary or acquired resistance. One of the few clinically approved predictors of response is the tumour mutational burden (TMB), which led to the FDA approval of immunotherapy to all cancers with more than 10 mutations per mega base pairs, irrespective of the site of origin. Still, TMB shows clear limitations. For example, only approximately 50% of colorectal cancers with a hypermutated phenotype show durable response. To dissect the cellular and molecular determinants of response to immunotherapy, we conducted an integrated molecular and cellular profile of colorectal cancer tissue and associated tumour microenvironment from patients treated with immunotherapy. In my talk, I will discuss the results of this study and will illustrate how the integration of multiple layers of molecular and cellular information can provide a better stratification of patients for clinical intervention.

Francesca Ciccarelli is Professor of Cancer Genomics at King's College London and Group Leader of the Francis Crick Institute. Francesca graduated in Pharmaceutical Chemistry at the University of Bologna and received a PhD in Natural Sciences from the University of Heidelberg where she worked under the supervision of Peer Bork at the EMBL. In 2005, Francesca started her independent research group at the European Institute of Oncology in Milan where she applied systems biology to study cancer. In 2014, she moved to King's College London and since 2017 her group is seconded to the Francis Crick Institute. Francesca is co-lead of the patient stratification theme of the Cancer Research UK KHP Centre and of the cancer evolution theme of the CRUK City of London Cancer Centre. Francesca works with a multidisciplinary team of biologists, mathematicians, oncologists, engineers and computer scientists who apply molecular genetics, genetic and imaging data analysis and theoretical modelling to study cancer biology and evolution. The work in her lab is supported by Cancer Research UK, King's Health Partners and the European Union.

 **Prof. Francesca Ciccarelli**
King's College London
Group Leader, Cancer Systems Biology
The Francis Crick Institute

With the contribution of:  Hosted by:    

ARIANO IRPINO – Un recente studio, rivolto ai molti pazienti oncologici afflitti da resistenza primaria o acquisita all'immunoterapia, sarà alla base del prossimo seminario di Biologia computazionale dell'Università di Napoli Federico II, sponsorizzato da Biogem. Ne parlerà Francesca Ciccarelli, professoressa di Genomica del cancro al King's College di Londra, che, con il suo gruppo di ricerca, ha sviluppato una profilazione integrata molecolare e cellulare del tessuto canceroso e del microambiente tumorale associato, prelevati da pazienti trattati con immunoterapia.

Scopo dello studio è andare oltre il Tumour Mutational Burden (Tmb), attualmente uno dei pochi predittori di risposta approvati in ambito clinico, che ha condotto all'approvazione da parte della Fda (Food and Drug Administration) americana, dell'immunoterapia per tutte le forme di cancro con più di 10 mutazioni per coppie di megabasi, a prescindere dal sito di origine. Eppure il Tmb manifesta delle evidenti limitazioni. Per esempio, solo il 50% circa dei cancro al colon retto con un fenotipo ipermutato manifestano una risposta duratura.

Nella sua lezione la professoressa Ciccarelli, attualmente anche Group leader al Francis Crick Institute di Londra, mostrerà come l'integrazione di diversi livelli di informazione cellulare e molecolare possa fornire una migliore classificazione dei pazienti in vista dell'intervento clinico.