Speaker information

General Information

Name	Enzo Tramontano	
Email	tramon@unica.it	
Contact Number	+390706754538	
Affiliation	Chair of the Department of Life and Environmental Sciences - University of Cagliari (Italy)	
Education Background	Master at University of Cagliari (Italy) Visiting Research Scientist Yale University (US)	
Professional Appointment	Full Professor	
Research Interest	Viral replication; drug development; immune system evasion; endogenous retroviruses	
Website	https://web.unica.it/unica/page/it/enzo_tramontano	

Recent Publications

1. Kuzikov M, Reinshagen J, Wycisk K, Corona A, Esposito F, Malune P, Manelfi C, Iaconis D, Beccari A, Tramontano E, Nowotny M, Windshügel B, Gribbon P, Zaliani A. Drug repurposing screen to identify inhibitors of the RNA polymerase (nsp12) and helicase (nsp13) from SARS-CoV-2 replication and transcription complex. Virus Research 343 (2024) 199356 doi: 10.1016/j.virusres.2024.199356
2. Corona A, Madia VN, De Santis R, Manelfi C, Emmolo R, Ialongo D, Patacchini E, Messore A, Amatore D, Faggioni G, Artico M, Iaconis D, Talarico C, Di Santo R, Lista F, Costi R, Tramontano E. Diketo acid inhibitors of nsp13 of SARS-CoV-2 block viral replication. Antiviral Research 217: 105697 (2023) doi: 10.1016/j.antiviral.2023.105697
3. Kojouri M, Bersani M, D'Arrigo G, Siragusa L, Ghinato S, De Andrea M, Gugliesi F, Albano C, Pasquero S, Visentin I, D'Ugo E, Esposito F, Malune, P, Tramontano E, Prandi C, Spyrakis F; Magurano F, Dell'Oste V Strigolactones as broad-spectrum antivirals against β-coronaviruses through targeting the main protease Mpro. ACS Inf Dis 9: 1310-1318 (2023) doi: 10.1021/acsinfecdis.3c00219

4. Stefanelli I, Corona A, Cerchia C, Cassese E, Improta S, Costanzi E, Pelliccia S, Morasso S, Esposito F, Paulis A, Scognamiglio S, Di Leva FS, Storici P, Brindisi M, Tramontano E, Cannalire R, Summa V .Broad-spectrum coronavirus 3C-like protease peptidomimetic inhibitors effectively block SARS-CoV-2 replication in cells: Design, synthesis, biological evaluation, and X-ray structure determination. Eur J Med Chem 253, 115311 (2023). doi: 10.1016/j.ejmech.2023.115311
5. Corona A, Strayer D, Distinto S, Daino GL, Paulis A, Tramontano E, Mitchell WM. Ebola virus disease: In vivo protection provided by the PAMP restricted TLR3 agonist rintatolimod and its mechanism of action. Antiviral Research 212: 105554 (2023) doi: 10.1016/j.antiviral.2023.105554
6. Zaliani A, Vangeel L, Reinshagen J, Iaconis D, Kuzikov M, Keminer O, Wolf M, Ellinger B, Esposito F, Corona A, Tramontano E, Manelfi C, Herzog K, Jochmans D, De Jonghe S, Chiu W, Francken T, Schepers J, Collard C, Abbasi K, Claussen C, Summa V, Beccari AR, Neyts J, Gribbon P, Leyssen P. Cytopathic SARS-CoV-2 screening on Vero-E6 cells in a large-scale repurposing effort. Sci Data 9(1): 405. (2022) doi: 10.1038/s41597-022-01532-x.
7. Corona A, Wycisk K, Talarico C, Manelfi C, Milia J, Cannalire R, Esposito F, Gribbon P, Zaliani A, Iaconis D, Beccari AR, Summa V, Nowotny M, Tramontano E. Natural compounds inhibit SARS-CoV-2 nsp13 unwinding and ATPase enzyme activities ACS Pharm Transl. Sci 5: 226-239 (2022) doi: https://doi.org/10.1021/acsptsci.1c00253
8. Corona A, Elisa Fanunza E, Salata C, Morwitzer MJ, Distinto S, Zinzula L, Sanna C, Frau A, Daino GL, Quartu M, Taglialatela-Scafati O, Rigano D, Reid St.P, Mirazimi A, Tramontano E. Cynarin blocks Ebola virus replication by counteracting VP35 inhibition of interferon-beta production. Antiv. Res. 198: 105251 (2022) doi: https://doi.org/10.1016/j.antiviral.2022.105251
9. Kuzikov M, Costanzi E, Reinshagen J, Esposito F, Vangeel L, Markus Wolf M, Ellinger B, Claussen C, Geisslinger G, Corona A, Iaconis D, Talarico C, Manelfi C, Cannalire R, Rossetti G, Gossen J, Albani S, Musiani F, Herzog K, Ye Y, Giabbai B, Demitri N, Jochmans D, De Jonghe S, Rymenants J, Summa V, Tramontano E, Beccari AR, Leyssen P, Storici P, Neyts J, Gribbon P, Zaliani A Identification of inhibitors of SARS-CoV-2 3CL-Pro enzymatic activity using a small molecule in-vitro repurposing screen. ACS Pharm Transl. Sci – 4, 1096-1110 (2021) doi: 10.1021/acsptsci.0c00216
10. Fanunza E, Carletti F, Quartu M, Grandi N, Ermellino L, Milia J, Corona A, Capobianchi MR, Ippolito G and Tramontano E. Zika virus NS2A inhibits interferon signaling by degradation of STAT1 and STAT2. Virulence 12: 1580–1596, (2021) doi: 10.1080/21505594.2021.1935613

Speaker information

Speech Topic and Abstract

Title:
Development of novel agents acting as RNA virus inhibitors targeted to both viral and cellular proteins

Abstract:
RNA viruses are a continue cause of infections in humans also due to frequent events of viral transmission to humans from animals. Coronaviruses, Flaviviruses and Filoviruses are among the RNA viruses currently threatening humanity that deserve particular attention for their potential for epidemics and pandemics. Among the interventions required for an adequate preparedness to such threats, the development of antiviral agents, possibly with broad-spectrum activity, is an indispensable focus. Strategies for developing novel antiviral agents must involve drug targets that are relevant for viral replication, either among viral coded proteins or cellular proteins.

Platforms to identify small molecules that can inhibit viral replication will be presented, using both biochemical assays and cell-based assays. Example of identification of small molecule against Coronaviruses, targeted to different viral proteins such as proteases, RNA polymerase and RNA helicase will be shown, together with their efficacy on different human pathogenic Coronaviruses such as SARS-CoV-2, MERS and 229E. Other examples of small molecules targeted to cellular proteins such as STING or TLR3, involved in innate immune activation, will be shown.