

*Curriculum vitae*  
**Daniele Di Carlo, Ph.D.**

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## Education

**2021 Ph.D.**, Molecular Medicine, Virology – "La Sapienza" University of Rome

**2020** Qualification as a professional Biologist – "La Sapienza" University of Rome

**2016 M.S.**, Medical Biotechnologies, biomolecular curriculum – "La Sapienza" University of Rome

**2013 B.S.**, Biotechnologies – "La Sapienza" University of Rome

## Research experience

**05/2021 – current** Post-doctoral fellow – Italian Pasteur Institute; Laboratory of Prof. John Hiscott.

Enhancement of VSV $\Delta$ M51 oncolytic activity in pancreatic ductal adenocarcinoma through the KEAP1-NRF2 signaling pathway modulation; Impact of SARS-CoV-2 infection on the nuclear factor erythroid 2-related factor 2 (NRF2)-regulated antioxidant cell response.

**11/2017 – 20/04/2021** Ph.D. student – Laboratory of Molecular Virology, Prof. Ombretta Turriziani, dept. Molecular Medicine, "La Sapienza" University of Rome. Research activities in the field of HIV/AIDS. Tesis "HIV-1 infection: role of antiretroviral drugs and cell-associated microRNA in the control of viral replication".

**01/2018 – 12/2018** Research fellow – Virology laboratory, Prof. Ombretta Turriziani, dept. Molecular Medicine, "La Sapienza" University of Rome. Subject: Evaluation of virological and inflammatory markers in HIV-positive individuals treated with integrase inhibitors.

**10/2016 – 10/2017** Visiting graduate student – Virology laboratory, Prof. Ombretta Turriziani, dept. Molecular Medicine, "La Sapienza" University of Rome. Subject: Analysis of DNA damage-response genes expression profile during HIV infection.

**2013 – 2016** M.S. – Virology laboratory, Prof. Ombretta Turriziani, dept. Molecular Medicine, "La Sapienza" University of Rome. Subject: Dynamics of HIV-DNA and inflammation markers levels in treated HIV-positive individuals.

**2012 – 2013** B.S. – Dept. of Physiology, "La Sapienza" University of Rome. Subject: Role of NMDA-receptor activation during the development and in the adult brain.

## Professional competences

**Molecular and cellular biology techniques:** PBMC isolation from whole blood; Nucleic acids analysis (RNA, microRNA and DNA); Spectrophotometric determination of DNA and RNA concentration; Retrotranscription; Qualitative PCR; Electrophoresis in agarose and polyacrylamide gel; Transfection; Plasmid preparation, ligation, transformation; Quantification of HIV-RNA and HIV-DNA by Real-Time PCR; Stem-loop RT-PCR for microRNA expression profiling; Sanger-based sequencing of HIV-1 genome; Protein analysis (Western blot); Propagation and maintenance of continuous and diploid cell lines; Virus isolation, titration and propagation; Cytotoxicity assays; Neutralization assays; ELISA assay; Immunochromatographic assays; Flow cytometry (basics);

## Peer-reviewed publications

- **Di Carlo D**, Falasca F, Mazzuti L, Guerrizio G, Migliara G, Santori M, Lazzaro A, Mezzaroma I, D'Ettorre G, Fimiani C, Iaiani G, Antonelli G, Turriziani O. *MicroRNA Expression Levels in Peripheral Blood Mononuclear Cells from Human Immunodeficiency Virus Type 1 Positive Individuals and Relationship with Different Levels of Viral Suppression*. AIDS Res Hum Retroviruses. 2023 Jul 31. doi: 10.1089/aid.2022.0165. Epub ahead of print. PMID: 37523231.
- Palermo E, Alexandridi M, **Di Carlo D**, Muscolini M, Hiscott J. *Virus-like particle - mediated delivery of the RIG-I agonist M8 induces a type I interferon response and protects cells against viral infection*. Front Cell Infect Microbiol. 2022 Dec 14;12:1079926. doi: 10.3389/fcimb.2022.1079926.
- Calabretto M, **Di Carlo D**, Falasca F, Mazzuti L, Meacci A, Donato G, Greco N, Mezzatesta L, Morrone A, Turriziani O, Picarelli A. *Analysis of viral nucleic acids in duodenal biopsies from adult patients with celiac disease*. Eur J Gastroenterol Hepatol. 2022 Nov 1;34(11):1107-1110. doi: 10.1097/MEG.0000000000002404. Epub 2022 Jul 14. PMID: 35830367.
- Zevini A, Palermo E, **Di Carlo D**, Alexandridi M, Rinaldo S, Paone A, Cutruzzola F, Etna MP, Coccia EM, Olganier D, Hiscott J. *Inhibition of Glycolysis Impairs Retinoic Acid-Inducible Gene I-Mediated Antiviral Responses in Primary Human Dendritic Cells*. Front Cell Infect Microbiol. 2022 Jul 18;12:910864. doi: 10.3389/fcimb.2022.910864.

- Vicenti I, Dragoni F, Giannini A, Casabianca A, Lombardi F, Di Sante L, Turriziani O, Racca S, Paolucci S, Lai A, Bon I, Abbate I, Rozera G, Belmonti S, Scutari R, Alteri C, Saladini F, Zazzi M; Italian HIV DNA Network: Orlandi C, Magnani M, Di Giambenedetto S, Longo R, Menzo S, **Di Carlo D**, Mazzuti L, Ardemagni A, Clementi M, Baldanti F, Giardina F, Bergna A, Balotta C, Bertoldi A, Capobianchi MR, Ceccherini-Silberstein F, Antonello M, Perno CF, Andreoni M. *External quality assessment of HIV-1 DNA quantification assays used in the clinical setting in Italy*. Sci Rep. 2022 Feb 28;12(1):3291. doi: 10.1038/s41598-022-07196-2.
- **Di Carlo D**, Mazzuti L, Sciandra I, Guerrizio G, Oliveto G, Riveros Cabral RJ, Zingaropoli MA, Turriziani O. *Comparison of FTD SARS-CoV-2 Assay and RealStar RT-PCR kit 1.0 for the detection of SARS-CoV-2*. J Virol Methods. 2021 Dec;298:114276. doi: 10.1016/j.jviromet.2021.114276.
- Carter-Timofte ME, Arulanandam R, Kurmasheva N, Fu K, Laroche G, Taha Z, van der Horst D, Cassin L, van der Sluis RM, Palermo E, **Di Carlo D**, Jacobs D, Maznyi G, Azad T, Singaravelu R, Ren F, Hansen AL, Idorn M, Holm CK, Jakobsen MR, van Grevenynghe J, Hiscott J, Paludan SR, Bell JC, Seguin J, Sabourin LA, Côté M, Diallo JS, Alain T, Olganier D. *Antiviral Potential of the Antimicrobial Drug Atovaquone against SARS-CoV-2 and Emerging Variants of Concern*. ACS Infect Dis. 2021 Nov 12;7(11):3034-3051. doi: 10.1021/acscinfecdis.1c00278.
- Palermo E, **Di Carlo D**, Sgarbanti M, Hiscott J. *Type I Interferons in COVID-19 Pathogenesis*. Biology (Basel). 2021 Aug 26;10(9):829. doi: 10.3390/biology10090829.
- **Di Carlo D**, Falasca F, Palermo E, Mezzaroma I, Fimiani C, Siccardi G, Celani L, Di Campli FM, d'Ettorre G, Antonelli G, Turriziani O. *Dolutegravir-Based Regimen for Maintenance of Viral Suppression in People Living with HIV: 48-Week Results in Real-Life Setting*. AIDS Res Hum Retroviruses. 2021 Jun;37(6):478-485. doi: 10.1089/AID.2020.0196.
- Paoli D, Pallotti F, Nigro G, Aureli A, Perlorca A, Mazzuti L, **Di Carlo D**, Turriziani O, Lenzi A, Lombardo F. *Sperm cryopreservation during the SARS-CoV-2 pandemic*. J Endocrinol Invest. 2021 May;44(5):1091-1096. doi: 10.1007/s40618-020-01438-8.
- Scagnolari C, Pierangeli A, Frasca F, Bitossi C, Viscido A, Oliveto G, Scordio M, Mazzuti L, **Di Carlo D**, Gentile M, Solimini A, Ceccarelli G, Pugliese F, Mastroianni CM, d'Ettorre G, Turriziani O, Antonelli G; Virology and Infectious Diseases COVID-19 Study Group of Sapienza University. *Differential induction of type I and III interferon genes in the upper respiratory tract of patients with coronavirus disease 2019 (COVID-19)*. Virus Res. 2021 Apr 2;295:198283. doi: 10.1016/j.virusres.2020.198283.
- Turriziani O, Sciandra I, Mazzuti L, **Di Carlo D**, Bitossi C, Calabretto M, Guerrizio G, Oliveto G, Riveros Cabral RJ, Viscido A, Falasca F, Gentile M, Pietropaolo V, Rodio DM, Carattoli A, Antonelli G. *SARS-CoV-2 diagnostics in the virology laboratory of a University Hospital in Rome during the lockdown period*. J Med Virol. 2021 Feb;93(2):886-891. doi: 10.1002/jmv.26332.
- Calabretto M, **Di Carlo D**, Maggi F, Antonelli G. *Diagnosis: Future Perspective on Direct Diagnosis*. Reference Module in Life Sciences, Elsevier 2020 Dec, Encyclopedia of Virology. doi: 10.1016/B978-0-12-814515-9.00133-8
- Sciandra I, Falasca F, Maida P, Tranquilli G, **Di Carlo D**, Mazzuti L, Melengu T, Giannelli G, Antonelli G, Turriziani O. *Seroprevalence of group B Coxsackieviruses: Retrospective study in an Italian population*. J Med Virol. 2020 May 30. doi: 10.1002/jmv.26096.
- Falasca F, Sciandra I, **Di Carlo D**, Gentile M, Deales A, Antonelli G, Turriziani O. *Detection of SARS-COV N2 Gene: Very low amounts of viral RNA or false positive?* J Clin Virol. 2020 Dec;133:104660. doi: 10.1016/j.jcv.2020.104660.
- Palermo E, Acchioni C, **Di Carlo D**, Zevini A, Muscolini M, Ferrari M, Castiello L, Virtuoso S, Borsetti A, Antonelli G, Turriziani O, Sgarbanti M, Hiscott J. *Activation of Latent HIV-1 T Cell Reservoirs with a Combination of Innate Immune and Epigenetic Regulators*. J Virol. 2019; 93:e01194-19. doi: 10.1128/JVI.01194-19.
- Falasca F, De Vito C, Mazzuti L, **Di Carlo D**, Celani L, Fimiani C, d'Ettorre G, Mezzaroma I, Antonelli G, Turriziani O. *Copy Years Viremia and Risk of Virological Failure in Long-Term-Treated HIV Patients*. JAIDS 2019 Apr 1;80(4):423-428. doi: 10.1097/QAI.0000000000001931.
- Falasca F, **Di Carlo D**, De Vito C, Bon I, d'Ettorre G, Fantauzzi A, Mezzaroma I, Fimiani C, Re MC, Vullo V, Antonelli G, Turriziani O. *Evaluation of HIV-DNA and inflammatory markers in HIV-infected individuals with different viral load patterns*. BMC Infect Dis. 2017 Aug 22;17(1):581. doi: 10.1186/s12879-017-2676-2.
- **Di Carlo D**, Fantauzzi A, Melengu T, Maida P, Serafino S, Giustini N, Tozzi S, Antonelli G, Falasca F, Turriziani O. *Analysis of the mRNA expression of DNA damage response genes in HIV infected patients*. ESCV 2016: P140. J Clin Virol 2016; 82:S90-S91. doi: 10.1016/j.jcv.2016.08.180.