

DAVIDE CORÀ

Short CURRICULUM VITAE

Work address:

Department of Translational Medicine
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Qualifications:

Laurea degree in Physics

Master degree in Bioinformatics

Ph.D., in “Complex systems applied to post-genomic biology”

Current position:

Associate Professor (s.s.d. BIO/11 – Molecular Biology)

Department of Translational Medicine,

Piemonte Orientale University.

AFFILIATIONS

- Department of Translational Medicine, Piemonte Orientale University.
- Center for Translational Research on Autoimmune & Allergic Diseases – CAAD.
- BITS – Bioinformatics Italian Society.

TEACHING ACTIVITIES

- Course “BIOLOGIA MOLECOLARE”, at corso di Laurea in BIOTECNOLOGIE (48 ore, 6 CFU – Novara).
- Course “BIOCHIMICA – BIOLOGIA MOLECOLARE”, at corso di Laurea Magistrale in MEDICINA E CHIRURGIA (25 ore, 2 CFU – Alessandria).
- Course di “BIG DATA ANALYSIS”, at Laurea Magistrale in MEDICAL BIOTECHNOLOGY (30 ore, 5 CFU –Novara).
- Course “BIOINFORMATICA E APPROCCI DI SYSTEMS BIOLOGY”, at corso di Laurea Magistrale in BIOTECNOLOGIE FARMACEUTICHE (24 ore, 3 CFU – Novara).

SUMMARY OF RESEARCH INTERESTS

My research interests lie broadly in the field of **Computational biology** and **Systems Biology**.

The majority of my research activities have been conducted within the areas of Bioinformatics and Genomics, which encompass the set of techniques and interdisciplinary studies aimed at characterizing the properties of living organisms through integrated approaches derived from computer science, mathematics, and physics.

Keywords:

- Bioinformatics and Computational Biology.
- Regulatory networks, microRNAs, non-coding DNA.
- Cancer and Plant Genomics.
- Metagenomics.
- Big Data Analysis, AI.

In these contexts, I'm collaborating with several experimental laboratories, providing computational and data analysis expertise.

PUBLICATIONS IN international WOS / SCOPUS JOURNALS

- 1) "Computational identification of transcription factor binding sites by functional analysis of set of genes sharing overrepresented upstream motifs."
Cora' D., Di Cunto F., Provero P., Silengo L., Caselle M.
BMC Bioinformatics. 2004 May 11;5:57.
- 2) "Ab-initio identification of putative human transcription factor binding sites by comparative genomics."
Cora' D., Herrmann C, Dieterich C, Di Cunto F., Provero P., Caselle M.
BMC Bioinformatics. 2005 May 2;6:110.
- 3) "Correlated fragile site expression allows the identification of candidate fragile genes involved in immunity and associated with carcinogenesis."
Re A., **Cora' D.**, Puliti AM., Caselle M., Sbrana I.
BMC Bioinformatics. 2006 Sep 18;7:413.
- 4) "Identification of candidate regulatory sequences in mammalian 3' UTRs by statistical analysis of oligonucleotide frequencies."
Cora' D., Di Cunto F., Caselle M., Provero P.
BMC Bioinformatics 2007, May 24;8:174.
- 5) "VRG database: a database of Vascular dysfunctions Related Genes."
Zanivan S. *, **Cora' D.** *, Caselle M., Bussolno F.
Computers & Mathematics with Applications 2008, 55;5:1068-1073.
- 6) "Genome-wide survey of microRNA / Transcription Factor Feed-Forward Regulatory Circuits in Human."
Re A. *, **Cora' D.** *, Taverna D., Caselle M.
Molecular Biosystems Aug;5(8):854-67, 2009.
- 7) "Molecular models for intrastrand DNA G-quadruplexes."
Fogolari F., Haritha Haridas, Alessandra Corazza, Paolo Viglino, **Davide Cora'**, Michele Caselle, Gennaro Esposito and Xodo E
BMC Structural Biology 2009 Oct 7;9(1):64.
- 8) 8) "Nucleation dynamics in 2d cylindrical Ising models and chemotaxis."
Bosia C., Caselle M. and **Corà D.**
Phys. Rev. E 81, 021907 (2010).
- 9) "Identification of functional TFAP2A and SP1 binding sites in new TFAP2A modulated genes."
Orso F. *, **Corà D.** *, Ubezio B., Provero P., Caselle M. and Taverna D.
BMC Genomics. 2010 Jun 3;11:355.
- 10) "CircuitsDB: a database of mixed microRNA / Transcription Factor Feed – Forward Regulatory Circuits in human and mouse."
Friard O., Re A., Taverna D., De Bortoli M. and **Corà D.**
BMC Bioinformatics. 2010 Aug 23;11:435.

- 11) "Identity and divergence of protein domain architectures after the Yeast Whole Genome Duplication event."
Grassi L., Fusco D., Sellerio A., **Corà D.**, Bassetti M., Caselle M., Cosentino-Lagomarsino M.
Mol Biosyst. 2010 Nov 1;6(11):2305-15. Epub 2010 Aug 26.
- 12) "The role of incoherent microRNA-mediated feedforward loops in noise buffering."
Osella M., Bosia C., **Corà D.**, Caselle M.
PLoS Comput Biol. 2011 Mar;7(3):e1001101.
- 13) "A curated database of microRNA mediated Feed-Forward loops involving MYC as master regulator."
El-Baroudi M.*, **Corà' D.***, Bosia C., Osella M, Caselle M.
PLoS One. 2011 Mar 3;6(3):e14742.
- 14) "Genetic and expression analysis of MET, MACC1 and HGF in liver metastases from colorectal carcinomas: assessment of response to Met inhibition in patient-derived xenografts and clinicopathological significance."
Francesco Galimi, Davide Torti, Francesco Sassi, Claudio Isella, **Davide Corà**, Stefania Gastaldi, Dario Ribero, Andrea Muratore, Paolo Massucco, Dimitrios Siatis, Gianluca Paraluppi, Federica Gonella, Francesca Maione, Alberto Pisacane, Ezio David, Bruno Torchio, Mauro Risio, Mauro Salizzoni, Lorenzo Capussotti, Timothy Perera, Enzo Medico, Maria Flavia Di Renzo, Paolo M. Comoglio, Livio Trusolino and Andrea Bertotti.
Clin Cancer Res. 2011 May 15;17(10):3146-3156.
- 15) "Mulcom: a multiple comparison statistical test for microarray data in Bioconductor."
Isella C, Renzulli T, **Corà D**, Medico E.
BMC Bioinformatics. 2011 Sep 28;12:382.
- 16) "A Molecularly Annotated Platform of Patient-Derived Xenografts ("Xenopatients") Identifies HER2 as an Effective Therapeutic Target in Cetuximab-Resistant Colorectal Cancer."
Andrea Bertotti, Giorgia Migliardi, Francesco Galimi, Francesco Sassi, Davide Torti, Claudio Isella, **Davide Corà**, Federica Di Nicolantonio, Michela Buscarino, Consalvo Petti, Dario Ribero, Nadia Russolillo, Andrea Muratore, Paolo Massucco, Alberto Pisacane, Luca Molinaro, Emanuele Valtorta, Andrea Sartore-Bianchi, Mauro Risio, Lorenzo Capussotti, Marcello Gambacorta, Salvatore Siena, Enzo Medico, Anna Sapino, Silvia Marsoni, Paolo M. Comoglio, Alberto Bardelli, and Livio Trusolino.
Cancer Discov. 2011 Nov;1(6):508-23.
- 17) "Transcriptional hallmarks of Noonan syndrome and Noonan-like syndrome with loose anagen hair."
Ferrero GB, Picco G, Baldassarre G, Flex E, Isella C, Cantarella D, **Corà D**, Chiesa N, Crescenzo N, Timeus F, Merla G, Mazzanti L, Zampino G, Rossi C, Silengo M, Tartaglia M, Medico E.
Hum Mutat. 2012 Apr;33(4):703-9.
- 18) "Dynamic Modeling of miRNA-mediated Feed-Forward Loops."
Eduati F, di Camillo B, Karbiener M, Scheideler M, **Corà D**, Caselle M, Toffolo G.
J Comput Biol. 2012 Feb;19(2):188-99.
- 19) "The role of transposable elements in shaping the combinatorial interaction of transcription factors".
Testori A, Caizzi L, Cutrupi S, Friard O, De Bortoli M, **Corà' D*** and Caselle M.*
BMC Genomics. 2012 Aug 16;13(1):400.

- 20) "Gene autoregulation via intronic microRNAs and its functions."
Carla Bosia, Matteo Osella, Mariama El Baroudi, **Davide Cora'** and Michele Caselle
BMC Syst Biol. 2012 Oct 10;6(1):131.
- 21) "IRF-1 expression is induced by cisplatin in ovarian cancer cells and limits drug effectiveness."
Pavan S, Olivero M, **Corà D**, Di Renzo MF.
Eur J Cancer. 2013 Mar;49(4):964-73.
- 22) "Molecular and morphologic characterization of superficial- and deep-subcutaneous adipose tissue subdivisions in human obesity."
Cancello R, Zulian A, Gentilini D, Maestrini S, Barba AD, Invitti C, **Cora' D**, Caselle M, Liuzzi A, Di Blasio AM.
Obesity (Silver Spring). 2013 Dec;21(12):2562-70.
- 23) "MiRNA/gene profiling unveils early molecular changes and NRF2 activation in a rat model recapitulating human HCC."
Petrelli A, Perra A, **Cora D***, Sulas P, Menegon S, Manca C, Migliore C, Kowalik MA, Ledda-Columbano GM, Giordano S, Columbano A.
Hepatology. 2014 Jan;59(1):228-41.
- 24) "Association of polyalanine and polyglutamine coiled coils mediates expansion disease-related protein aggregation and dysfunction."
Pelassa I, **Cora' D**, Cesano F, Monje FJ, Montarolo PG, Fiumara F.
Hum Mol Genet. 2014 Jul 1;23(13):3402-2.
- 25) "Single-cell States in the estrogen response of breast cancer cell lines."
Casale FP, Giurato G, Nassa G, Armond JW, Oates CJ, **Cora' D**, Gamba A, Mukherjee S, Weisz A, Nicodemi M.
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- 26) "Genome-wide activity of unliganded estrogen receptor- α in breast cancer cells."
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- 28) "Interplay of microRNA and epigenetic regulation in the human regulatory network."
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- 29) "BCAM and LAMA5 Mediate the Recognition between Tumor Cells and the Endothelium in the Metastatic Spreading of KRAS Mutant Colorectal Cancer."
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- 32) "MicroRNA-mediated regulatory circuits: outlook and perspectives."
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- 33) "miR-205 mediates adaptive resistance to MET inhibition via ERRFI1 targeting and raised EGFR signaling."
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EMBO Mol Med. 2018 Sep;10(9). pii: e8746.
- 34) "The Epithelial-Mesenchymal Transition, as Hacked by a microRNA Combinatorial Code."
Cora' D, Caselle M.
Cell Syst. 2018 Jul 25;7(1):3-4.
- 35) "TFEB controls vascular development by regulating the proliferation of endothelial cells."
 Doronzo G, Astanina E, **Corà D**, Chiabotto G, Comunanza V, Noghero A, Neri F, Puliafito A, Primo L, Spampinato C, Settembre C, Ballabio A, Camussi G, Oliviero S, Bussolino F.
EMBO J. 2019 Feb 1;38(3). pii: e98250.
- 36) "Compound Dynamics and Combinatorial Patterns of Amino Acid Repeats Encode a System of Evolutionary and Developmental Markers."
 Pelassa I, Cibelli M, Villeri V, Lilliu E, Vaglietti S, Olocco F, Ghirardi M, Montarolo PG, **Corà D**, Fiumara F.
Genome Biol Evol. 2019 Nov 1;11(11):3159-3178.
- 37) "Aldo-keto reductases protect metastatic melanoma from ER stress-independent ferroptosis."
 Gagliardi M, Cotella D, Santoro C, **Corà D**, Barlev NA, Piacentini M, Corazzari M.
Cell Death Dis. 2019 Nov 28;10(12):902.
- 38) A regulatory microRNA network controls endothelial cell phenotypic switch during sprouting angiogenesis."
 Stefania Rosano, **Davide Corà**, Sushant Parab, Claudio Isella, Roberta Porporato, Roxana Maria Hoza, Raffaele A. Calogero, Chiara Riganti, Federico Bussolino, Alessio Noghero.
Elife. 2020 Jan 24;9. pii: e48095.
- 39) "Deciphering the Ets-1/2-mediated transcriptional regulation of F8 gene identifies a minimal F8 promoter for hemophilia A gene therapy."
 Rosella Famà , Ester Borroni , Simone Merlin , Chiara Airoidi, Silvia Pignani, Alessia Cucci , **Davide Corà**, Valentina Brusca, Sharon Scardellato, Stefania Faletti, Giuliana Pelicci, Mirko Pinotti, Gillian E Walker, Antonia Follenzi
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- 40) "Cholecalciferol (vitamin D3) has a direct protective activity against interleukin 6-induced atrophy in C2C12 myotubes".
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Aging (Albany NY). 2021 Feb 22;13(4):4895-4910.
- 41) "TFEB Signalling-Related MicroRNAs and Autophagy."
Corà D, Bussolino F, Doronzo G.
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- 42) "Role of TGFβ1 and WNT6 in FGF2 and BMP4-driven endothelial differentiation of murine embryonic stem cells"
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Angiogenesis. 2021 Sep 3.
- 43) "An Investigation of the Role of Common and Rare Variants in a Large Italian Multiplex Family of Multiple Sclerosis Patients"
Barizzone N, Cagliani R, Basagni C, Clarelli F, Mendozzi L, Agliardi C, Forni D, Tosi M, Mascia E, Favero F, **Corà D**, Corrado L, Sorosina M, Esposito F, Zuccalà M, Vecchio D, Liguori M, Comi C, Comi G, Martinelli V, Filippi M, Leone M, Martinelli-Boneschi F, Caputo D, Sironi M, Guerini FR, D'Alfonso S.
Genes (Basel). 2021 Oct 13;12(10):1607.
- 44) "LSD1-directed therapy affects glioblastoma tumorigenicity by deregulating the protective ATF4-dependent integrated stress response"
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Sci Transl Med. 2021 Dec 8;13(623):eabf7036.
- 45) "Dissecting the Mechanism of Action of Spiperone-A Candidate for Drug Repurposing for Colorectal Cancer."
Antona A, Valalda M, Roy K, Favero F, Mazzucco E, Zuccalà M, Leo G, Soggia G, Bettio V, Tosi M, Gaggianesi M, Riva B, Reano S, Genazzani A, Manfredi M, Stassi G, **Corà D**, D'Alfonso S, Capello D.
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- 46) "Long Non-Coding RNA LINC02802 Regulates In Vitro Sprouting Angiogenesis by Sponging microRNA-486-5p."
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- 47) "TFEB controls integrin-mediated endothelial cell adhesion by the regulation of cholesterol metabolism."
Ariano C, Riganti C, **Corà D**, Valdembri D, Mana G, Astanina E, Serini G, Bussolino F, Doronzo G.
Angiogenesis. 2022 May 11.
- 48) "Proteome and Physiological Characterization of Halotolerant Nodule Endophytes: The Case of *Rahnella aquatilis* and *Serratia plymuthica*."
Novello G, Gamalero E, Massa N, Cesaro P, Lingua G, Todeschini V, Caramaschi A, Favero F, **Corà D**, Manfredi M, Marengo E, Pelagi M, Pangaro L, Caffiero G, Milano F, Bona E.
Microorganisms. 2022 Apr 24;10(5):890.

- 49) "A Metabologenomic approach reveals alterations in the gut microbiota of a mouse model of Alzheimer's disease."
Favero F, Barberis E, Gagliardi M, Espinoza S, Contu L, Gustincich S, Boccafoschi F, Borsotti C, Lim D, Rubino V, Mignone F, Pasolli E, Manfredi M, Zucchelli S, **Corà D ***, Corazzari M*.
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- 50) "The TFEB-TGIF1 axis regulates EMT in mouse epicardial cells."
Astanina E, Doronzo G, **Corà D**, Neri F, Oliviero S, Genova T, Mussano F, Middonti E, Vallariello E, Cencioni C, Valdembri D, Serini G, Limana F, Foglio E, Ballabio A, Bussolino F.
Nat Commun. 2022 Sep 3;13(1):5191.
- 51) "Specific transcriptional programs differentiate ICOS from CD28 costimulatory signaling in human Naïve CD4+ T cells."
Gigliotti CL, Boggio E, Favero F, Incarnato D, Santoro C, Oliviero S, Rojo JM, Zucchelli S, Persichetti F, Baldanzi G, Dianzani U, **Corà D**.
Front Immunol. 2022 Sep 5;13:915963.
- 52) "Polygenic risk modeling of tumor stage and survival in bladder cancer."
Nascimben M, Rimondini L, **Corà D**, Venturin M.
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- 53) "TFEB inhibition induces melanoma shut-down by blocking the cell cycle and rewiring metabolism."
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- 54) "Consensus clustering methodology to improve molecular stratification of non-small cell lung cancer."
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Cell Death Discov. 2023 Jun 29;9(1):201.
- 56) "Role of Diacylglycerol Kinases in Acute Myeloid Leukemia."
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- 57) "Human cytomegalovirus infection triggers a paracrine senescence loop in renal epithelial cells"
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- 58) "Integrative Bioinformatics Analysis Reveals a Transcription Factor EB-Driven MicroRNA Regulatory Network in Endothelial Cells."
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- 59) "Characterization of gut microbiota dynamics in an Alzheimer's disease mouse model through clade-specific marker-based analysis of shotgun metagenomic data"
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* **first or last shared authorship**