

BIOGRAPHICAL SKETCH

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NAME: Nicoletta Cordani

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Tenure Track Assistant Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Parma	MD	07/2002	Biological Sciences
University of Milan	PhD	01/2007	Molecular Medicine
University of Milano	Postdoc	05/2009	KLF4 in keratinocytes
IRCCS Eugenio Medea / Dibit1 Milan	Postdoc	06/2013	Duchenne Distrophy
University of Milano-Bicocca	Postdoc	06/2018	ALK+ ALCL and NCLC
University of Milano-Bicocca	Postdoc	12/2023	ALK+ NCLC and Breast cancer

A. Personal Statement

I am a Tenure Track Assistant Professor at the School of Medicine and Surgery at the University of Milano-Bicocca, specializing in female cancers, gynecology, and breast and lung cancer disease. My research is centered on identifying novel biomarkers and understanding resistance mechanisms to improve therapeutic strategies. With a strong foundation in molecular and cellular biology, I am committed to advancing cancer research through innovative approaches and collaborative efforts. One of my most significant contributions involved investigating resistance to CDK4/6 inhibitors in HR+ HER2-metastatic breast cancer. Supported by the FUV grant in 2019, this study demonstrated that the loss of CDKN2B expression serves as a potential marker of resistance and identified TWIST1 upregulation as a promising therapeutic target for reversing resistance in luminal metastatic breast cancer cells. This impactful work was presented at the San Antonio Breast Cancer Symposium (SABCS) in 2022 (P1-13-21) and published in the International Journal of Molecular Sciences in 2023 (doi: 10.3390/ijms2422). Additionally, I have developed a novel drug delivery technique utilizing mesenchymal stem cell (MSC) conditioned medium loaded with paclitaxel, which can be applied to triple-negative breast cancer (TNBC), endometrial, and cervical cancers. This innovative approach builds upon previous studies on mesothelioma cell lines and was published in the International Journal of Molecular Sciences (Volume 24, Pages 1-16, ISSN: 1422-0067).

Moreover, I contributed to groundbreaking research on the mechanisms underlying tyrosine kinase inhibitor (TKI) resistance in chronic myeloid leukemia (CML), ALK+ anaplastic large cell lymphoma (ALCL), and ALK+ non-small cell lung cancer (NSCLC). Supported by the FUV grant in 2016, these studies were published in high-impact journals, including the American Journal of Hematology (2016), Cancer Research (2018), and the Journal of Thoracic Oncology (2019). Throughout my career, I have

consistently aimed to uncover new therapeutic markers and enhance our understanding of cancer biology.

B. Positions, Scientific Appointments, and Honors

2024– Present	Assistant Professor, Department of Medicine and Surgery, University of Milano-Bicocca, Milano Italy
2018 – 2023	Senior Postdoc fellow, Department of Medicine and Surgery, University of Milano-Bicocca, Milano Italy
2022 – Present	Member, American Association Cancer Research (AACR)
2014– 2018	Senior Postdoc fellow, Department of Medicine and Surgery, University of Milano-Bicocca, Milano Italy
2011 – 2013	Senior Postdoc fellow, Endostem Project IRCCS Eugenio Medea / Dibit1 Milan
2009 – 2010	Maternity leave
2007 – 2009	Postdoc fellow, Epistem Project, University of Milano.
2003 – 2007	Italian Ministry of University and Research, Ph.D. 3-years scholarship

Honors

2003 Fellow for Young Researcher from Italian Ministry of University and Research 6000€

2016 Grant for postdoc fellow Umberto Veronesi 28000€

2019 Grant for postdoc fellow Umberto Veronesi 28500€

2024 A new model to bypass TKI resistance in EML::ALK NSCLC cell lines from OXIAMO charity
PI Cordani Nicoletta,
Co-PI Cortinovis Diego Luigi MD, Oncologist 16000€

C. Contributions to Science

- Early Contributions to Malignant Fibrous Histiocytoma Research:

Dr. Cordani's early research focused on malignant fibrous histiocytoma, contributing to understanding its cellular origin and identifying key gene transcripts. Notable publications include:

- "Malignant fibrous histiocytoma: a proposed cellular origin and identification of its characterizing gene transcripts." Gazziola C, Cordani N, Wasserman B, Carta S, Colombatti A, Perris R. Int J Oncol. 2003 Aug; 23(2):343-51.
- "The relative endogenous expression levels of the IFNAR2 isoforms influence the cytostatic and pro-apoptotic effect of IFNalpha on pleomorphic sarcoma cells." Gazziola C*, Cordani N*, Carta S, De Lorenzo E, Colombatti A, Perris R. Int J Oncol. 2005 Jan; 26(1):129-40.

- PhD Research on Renal Clear Cell Carcinoma and Pleural Mesothelioma:

During her PhD studies, Dr. Cordani made significant contributions to the morphological, growth rate, immunocytochemical, and molecular analysis of renal clear cell carcinoma and pleural mesothelioma. These insights were published in high-impact journals, including:

- Proteomics (2004; 4(8):2252-2260) - cited 68 times
- Proteomics (2005; 5(3):788-95) - cited 22 times
- J Proteome Res (2005; 4(5):1503-10) - cited 35 times
- Lung Cancer (2006; 51(2):207-215) - cited 128 times

- Contribution to Keratinocyte Differentiation Research:

As part of the EPISTEM project, Dr. Cordani clarified the role of p63 in keratinocyte differentiation. This work was published in Oncogene in 2011 and has been cited 33 times.

- Cordani N, Pozzi S, Martynova E, Fanoni D, Borrelli S, Alotto D, Castagnoli C, Berti E, Viganò MA, Mantovani R. Mutant p53 subverts p63 control over KLF4 expression in

keratinocytes. *Oncogene*. 2011 Feb 24;30(8):922-32. doi: 10.1038/onc.2010.474. Epub 2010 Oct 25. PMID: 20972454.

- **Discovery of Fibro Adipogenic Precursor Cells (FAPs):**

During the ENDOSTEM project, Dr. Cordani identified a new type of muscle precursor cell known as Fibro Adipogenic Precursor cells (FAPs), which have the potential to enhance Duchenne therapy. This groundbreaking discovery was published in *Stem Cells* (2014; 32(4), pp. 874–885) and has been cited 63 times.

- Cordani N, Pisa V, Pozzi L, Sciorati C, Clementi E. Nitric oxide controls fat deposition in dystrophic skeletal muscle by regulating fibro-adipogenic precursor differentiation. *Stem Cells*. 2014 Apr;32(4):874-85. doi:10.1002/stem.1587. Erratum in: *Stem Cells*. 2018 May;36(5):810. doi:10.1002/stem2816. PMID: 24170326.

- **Research on TKI Resistance Mechanisms:**

Dr. Cordani contributed to elucidating the mechanisms of tyrosine kinase inhibitor (TKI) resistance in chronic myeloid leukemia (CML), ALK+ anaplastic large cell lymphoma (ALCL), and ALK+ non-small cell lung cancer (NSCLC) at the University of Milano-Bicocca. This research, supported by the FUV 2016 project, was published in:

- *American Journal of Hematology* (2016; 91(1), pp. 67–75)
- *Cancer Research* (2018; 78(24), pp. 6866–6880)
- *Journal of Thoracic Oncology* (2019; 14(11), pp. e257–e259)
- Cordani N, Nova D, Sala L, Abbate MI, Colonese F, Cortinovis DL, Canova S. Proteolysis Targeting Chimera Agents (PROTACs): New Hope for Overcoming the Resistance Mechanisms in Oncogene-Addicted Non-Small Cell Lung Cancer. *Int J Mol Sci*. 2024 Oct 18;25(20):11214. doi: 10.3390/ijms252011214. PMID: 39456995; PMCID: PMC11508910.
- Villa M, Sharma GG, Malighetti F, Mauri M, Arosio G, Cordani N, Lobello C, Larose H, Pirola A, D'Aliberti D, Massimino L, Criscuolo L, Pagani L, Chinello C, Mastini C, Fontana D, Bombelli S, Meneveri R, Lovisa F, Mussolin L, Janikova A, Pospíšilová A, Turner SD, Inghirami G, Magni F, Urso M, Pagni F, Ramazzotti D, Piazza R, Chiarle R, Gambacorti-Passerini C, Mologni L. Recurrent somatic mutations of FAT family cadherins induce an aggressive phenotype and poor prognosis in anaplastic large cell lymphoma. *Br J Cancer*. 2024 Dec;131(11):1781-1795. doi: 10.1038/s41416-024-02881-7. Epub 2024 Oct 30. PMID: 39478125; PMCID: PMC11589140.
- Villa M, Malighetti F, Sala E, Sharma GG, Arosio G, Gemelli M, Manfroni C, Fontana D, Cordani N, Meneveri R, Zambon A, Piazza R, Pagni F, Cortinovis D, Mologni L. New pan-ALK inhibitor-resistant EML4::ALK mutations detected by liquid biopsy in lung cancer patients. *NPJ Precis Oncol*. 2024 Mar 6;8(1):29. doi: 10.1038/s41698-024-00498-w. PMID: 38448512; PMCID: PMC10918084.
- Cortinovis DL, Colonese F, Abbate MI, Sala L, Meazza Prina M, Cordani N, Sala E, Canova S. Harnessing DLL3 inhibition: From old promises to new therapeutic horizons. *Front Med (Lausanne)*. 2022 Dec 1;9:989405. doi: 10.3389/fmed.2022.989405. PMID: 36530878; PMCID: PMC9751403.

- **Novel Drug Delivery Techniques for Cancer Therapy:**

Dr. Cordani pioneered a new technique for administering drugs to triple-negative breast cancer (TNBC) cell lines, which is also applicable to endometrial and cervical cancers. This innovative approach utilized a mesenchymal stem cell (MSC) conditioned medium loaded with paclitaxel, inspired by earlier studies on mesothelioma cell lines. The findings were published in the *International Journal of Molecular Sciences* (Volume 24, Pages 1-16, ISSN: 1422-0067).

- Cordani N, Lisini D, Coccè V, Paglia G, Meanti R, Cerrito MG, Tettamanti P, Bonaffini L, Paino F, Alessandri G, Marcianti A, Giannini A, Villa C, Mauri M, Mologni L, Torsello A, Pessina A, Cazzaniga ME. Conditioned Medium of Mesenchymal Stromal Cells Loaded with Paclitaxel Is Effective in Preclinical Models of Triple-Negative Breast Cancer (TNBC). *Int J Mol Sci*. 2023 Mar 20;24(6):5864. doi: 10.3390/ijms24065864. PMID: 36982938; PMCID: PMC10058623.
- **Advancements in CDK4/6 Inhibitor Resistance Research:**

Dr. Cordani's recent research has focused on resistance mechanisms to CDK4/6 inhibitors in HR+ HER2- metastatic breast cancer. The study identified the loss of CDKN2B expression as a potential resistance marker and demonstrated that TWIST1 upregulation could serve as a therapeutic target for reversing resistance in luminal metastatic breast cancer cells. This work was published in the International Journal of Molecular Sciences in 2023 (doi: 10.3390/ijms2422).

- Cordani N, Mologni L, Piazza R, Tettamanti P, Cogliati V, Mauri M, Villa M, Malighetti F, Di Bella C, Jaconi M, Cerrito MG, Cavaletti G, Lavitrano M, Cazzaniga ME. TWIST1 Upregulation Is a Potential Target for Reversing Resistance to the CDK4/6 Inhibitor in Metastatic Luminal Breast Cancer Cells. *Int J Mol Sci.* 2023 Nov 14;24(22):16294. doi: 10.3390/ijms242216294. PMID: 38003483; PMCID: PMC10671583.
- Malighetti F, Villa M, Villa AM, Pelucchi S, Aroldi A, Cortinovis DL, Canova S, Capici S, Cazzaniga ME, Mologni L, Ramazzotti D, Cordani N. Prognostic Biomarkers in Breast Cancer via Multi-Omics Clustering Analysis. *Int J Mol Sci.* 2025 Feb 24;26(5):1943. doi: 10.3390/ijms26051943. PMID: 40076569; PMCID:PMC11900291.
- Cordani N, Bianchi T, Ammoni LC, Cortinovis DL, Cazzaniga ME, Lissoni AA, Landoni F, Canova S. An Overview of PARP Resistance in Ovarian Cancer from a Molecular and Clinical Perspective. *Int J Mol Sci.* 2023 Jul 25;24(15):11890. doi: 10.3390/ijms241511890. PMID: 37569269; PMCID: PMC10418869.
- Ilari A, Cogliati V, Sherif N, Grassilli E, Ramazzotti D, Cordani N, Cazzaniga G, Di Bella C, Lavitrano M, Cazzaniga ME, Cerrito MG. Differential Expression of NOTCH-1 and Its Molecular Targets in Response to Metronomic Followed by Conventional Therapy in a Patient with Advanced Triple-Negative Breast Cancer. *Biomedicines.* 2024 Jan 25;12(2):272. doi:10.3390/biomedicines12020272. PMID: 38397874; PMCID: PMC10886740.
- Scagliotti A, Capizzi L, Cazzaniga ME, Ilari A, De Giorgi M, Cordani N, Gallazzi M, Bruno A, Pelosi G, Albini A, Lavitrano M, Grassilli E, Cerrito MG. Co-targeting triple-negative breast cancer cells and endothelial cells by metronomic chemotherapy inhibits cell regrowth and migration <i>via</i> downregulation of the FAK/VEGFR2/VEGF axis and autophagy/apoptosis activation. *Front Oncol.* 2022 Nov 30;12:998274. doi: 10.3389/fonc.2022.998274. PMID:36531071; PMCID: PMC9749857.
- Pepe FF, Cazzaniga ME, Baroni S, Riva F, Cicchiello F, Capici S, Cogliati V, Maggioni C, Cordani N, Cerrito MG, Malandrini S. Immunomodulatory effects of metronomic vinorelbine (mVRL), with or without metronomic capecitabine (mCAPE), in hormone receptor positive (HR+)/HER2-negative metastatic breast cancer (MBC) patients: final results of the exploratory phase 2 Victor-5 study. *BMC Cancer.* 2022 Sep 6;22(1):956. doi: 10.1186/s12885-022-10031-6. PMID: 36068484; PMCID: PMC9446532.
- Cazzaniga ME, Capici S, Cordani N, Cogliati V, Pepe FF, Riva F, Cerrito MG. Metronomic Chemotherapy for Metastatic Breast Cancer Treatment: Clinical and Preclinical Data between Lights and Shadows. *J Clin Med.* 2022 Aug 12;11(16):4710. doi: 10.3390/jcm11164710. PMID: 36012949; PMCID: PMC9410269.
- Cogliati V, Capici S, Pepe FF, di Mauro P, Riva F, Cicchiello F, Maggioni C, Cordani N, Cerrito MG, Cazzaniga ME. How to Treat HR+/HER2- Metastatic Breast Cancer Patients after CDK4/6 Inhibitors: An Unfinished Story. *Life (Basel).* 2022 Mar 5;12(3):378. doi: 10.3390/life12030378. PMID: 35330128; PMCID: PMC8954717.
- Cazzaniga ME, Cordani N, Capici S, Cogliati V, Riva F, Cerrito MG. Metronomic Chemotherapy. *Cancers (Basel).* 2021 May 6;13(9):2236. doi: 10.3390/cancers13092236. PMID: 34066606; PMCID: PMC8125766.

Total citations = 828 (scopus)

h-index = 15 (scopus id 6506084693)

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PEER-REVIEWED ARTICLES (n=31)

Submitted and under revisions: 2