

CURRICULUM VITAE

Francesca Demichelis, PhD

PERSONAL DATA

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EDUCATION

2005 PhD, University of Trento, Italy (UNITN), Information and Telecommunication.

1996 MSc, Physics Department, UNITN.

1994 Bachelor in Physics, Imperial College of Science, Technology and Medicine, London UK.

CURRENT and PREVIOUS POSITION

2018 Jan–present Professor (BIO11), Head of the Laboratory of Computational and Functional Oncology, Department of Cellular, Computational and Integrative Biology, UNITN.

2014 Oct –2017 Dec Associate Professor (BIO11) with tenure, Head of the Laboratory of Computational Oncology, Centre for Integrative Biology, UNITN.

2011 Feb–present Group Leader, Computational and Functional Oncology, UNITN.

2011 Feb–2014 Sept Assistant Professor in Computational Biology, Head of the Laboratory of Computational and Functional Oncology, Centre for Integrative Biology, UNITN.

2008 July–2011 Jan Assistant Professor in Pathology and Laboratory Medicine, and in Computational Biomedicine, Weill Cornell Medical College, New York, NY.

2007 Oct–2008 June Instructor in Pathology and Laboratory Medicine, and Institute Fellow at Institute for Computational Biomedicine, Weill Cornell Medical College, New York, NY.

2005 Feb–2007 Sep Post-doctoral Fellow at the Department of Pathology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

1997 Sep–2005 Jan Research Associate at ITC-IRST (Fondazione Bruno Kessler) in Medical Informatics, Intelligent Data Analysis in Biomedicine, Automated Reasoning System Unit, Trento, Italy.

1996 Dec- 1997 Aug Scholarship at UNITN from the Istituto Nazionale Fisica della Materia (INFN). Title: Parallel computing for molecular dynamics simulations of monatomic glasses.

TEACHING ACTIVITIES

2016–2019 Course director, Genomics, Master Program in Quantitative and Computational Biology UNITN (0521H);

2013–2015 Course director, Computational Biology, Undergraduate Program in Biomolecular Sciences and Technologies, UNITN (0516G);

2011–2013 Co-director, Systems Biology, Fundamentals of Computational Biology, UNITN (0516G);

Ad hoc classes

2013 European School of Oncology e-oncoreview session on 'Gene profiling and prostate cancer';

- 2012 European School of Oncology Viareggio (Italy), Gene profiling in clinical oncology, Genomic tools in Prostate Cancer;
- 2012 Mini-Course in Next Generation Sequencing Data Management and Analysis in Clinical Research Setting (4 hours), University of Pavia, Pavia, Italy;
- 2009 Graduate Program, Weill Cornell Medical College New York, NY, Quantitative Understanding in Biology;
- 2000–2004 Graduate Program, University of Udine, Italy, Medical Informatics.

SUPERVISION OF STUDENTS AND POSTDOCTORAL FELLOWS

- 2011–2019 UNITN: Postdoctoral fellows, 9; PhD students from International PhD Program in Biomolecular Sciences, 5; Master students: 2 in Science in Cellular and Molecular Biotechnology, 6 in Quantitative and Computational Biology, 1 in Bioinformatics; Bachelor students, 7 in Biomolecular Sciences and Technologies.
- 2008–2010 Weill Cornell Medical University: Postdoctoral fellows, 2; MD/PhD, Post-graduate training in Systems Biology in Prostate Cancer, 1 (co-mentor); PhD student from Physiology, Biophysics, and Systems Biology graduate program, 1; Master student in Science (now MD/PhD student at the University of Pennsylvania), 1.

INSTITUTIONAL RESPONSIBILITIES and AFFILIATIONS

- 2016–2018 Member of CIBIO Executive Committee;
- 2016–present CIBIO Director's Delegate for Health Science Programs (CLAPS);
- 2016–present CIBIO Director's Delegate for Research SUA-RD;
- 2016–present CIBIO Director's Delegate Open Access;
- 2015–present CIBIO Director's Delegate Unitn Library;
- 2013–present Standing Member of the Caryl and Israel Englander Institute for Precision Medicine at Weill Cornell Medicine and NewYork-Presbyterian Hospital, NY;
- 2011–present Faculty member of the International PhD Program in Biomolecular Sciences, UNITN; Member of PhD Program Executive Committee;
- 2017–present President of Transdisciplinary Program in Computational Biology Panel, International PhD Program in Biomolecular Sciences;
- 2012–2014 Plagiarism Prevention Committee member at UNITN;
- 2010–2011 Faculty Member of Weill Cornell Graduate School of Medical Sciences, Program in Physiology, Biophysics, & Systems Biology, New York, NY;
- 2008–2010 Member of Translational Research Committee, Weill Cornell Medicine, New York, NY;
- 2015-2017 Committee Member for RTDa and PTA positions at UNITN and University of Pavia, Italy.

COMMISSIONS OF TRUST and MEMBERSHIPS

Grant reviewer for:

- 2009 National Cancer Institute (NCI, US) Special Emphasis Review Panels 2009/10 ZRG1 OTC-K (58) R. and 2009/10 ZRG1 BDA-A (58) R.;
- 2010 National Medical Research Council, Ministry of Health, Singapore;
- 2010/14/-19 Austrian Science Fund (FWF), Austria;
- 2010 Italian Ministry of Health, Italy;
- 2011/2013/2014 Prostate Cancer UK, UK;
- 2015–2016 Institut National du Cancer – INCa, France;
- 2015–present AIRC, Italy;
- 2017 Interfaculty Research Cooperation Grant, University of Bern, Switzerland;
- 2018 CR-UK, UK.

Manuscript Reviewer for international journals including:

Annals of Oncology, Cancer Cell, Cancer Research, Clinical Cancer Research, Communications Biology, Genome Biology, Genome Research, Human Genetics, JCI, JCO Precision Oncology, Nature Genetics, Nature Medicine, Nature Methods, Nature Reviews Cancer, Oncogene, PLoS Computational Biology, PNAS, Scientific Reports.

Editorial Boards:

- 2018-Present Editorial Board member *European Urology Oncology*;

2010-2018 Associate Editor for *BMC Medical Genomics*;
2005-2010 Editorial Board member of *Diagnostic Pathology*;

Scientific Committee and Research Consortia:

2015–present Italian Association for Cancer Research (AIRC), Scientific Fellowship Committee;
2015–2016 2016 AACR Annual Meeting, Scientific Program Committee;
2015–2017 Società Italiana di Urologia Oncologica (SIURO), Scientific Committee;
2014 KU Doctoral Thesis Jury Member, Leuven University, Dep. of Cellular and Molecular Medicine;
2013–2015 TCGA Prostate Cancer Working Group, Prostate (National Cancer Institute, USA);
2008–2009 Co-chair of MAQC-II Copy Number Variants Analysis Team (FDA, USA);

Memberships, Scientific Societies

2012–present American Association for Cancer Research (AACR);
2012–2014 Società Italiana di Biochimica Clinica e Biologia Molecolare Clinica (SIBIOC);
2013–2014 Società Italiana di Biofisica e Biologia Molecolare (SIBBM);
2008–2010 American Society of Human Genetics;

SCIENCE AWARDS

2005 Prostate Cancer Foundation Competitive Awards, “Fusion of TMPRSS2 and ETS Family of Transcription Factors in Prostate Cancer.”
2007 American Association for Cancer Research (AACR) Team Science Award, University of Michigan-Brigham and Women's Hospital Team.
2008 Pilot Research Award for Translational and Cross-disciplinary Studies, Clinical and Translational Science Center at Weill Cornell Medical College, New York. “Towards the Identification of Germline Risk factors for Lethal Prostate Cancer.”
2009 Dana-Farber Harvard Cancer Center SPORE Developmental Project Award. “Copy Number Variants Predisposing to ETS Rearrangements and Oncogenic Lesions.”
2010 Department of Defense, USA, New Investigator Award. “Towards Understanding the Genetic Predisposition for Signalling Pathway Activation in Aggressive Prostate Cancer.”
2011 Prostate Cancer Foundation Challenge Award. Proposal title: “Recurrent SPOP Mutations in Prostate Cancer: Characterization of a Potentially Targetable Sub-class of Prostate Cancer.”
2014 Prostate Cancer Foundation Challenge Award (with Beltran H, Attard G). Early Detection of Neuroendocrine Prostate Cancer Transformation Using Circulating Genomic Signatures.
2016 Prostate Cancer Foundation Challenge Award (with Beltran H, Attard G, Van Allen E, Chi K., Wyatt A., Rubin, M.A., Maher C.). Development and Qualification of the PCF SELECT (Specific Evaluation in Liquid biopsies of Established prostate Cancer Targets) Plasma DNA Assay.
2018 Accelerator Award 2018 by CRUK-AIRC (with Attard, Basso, Caffo, De Giorgi, Tucci). PRIME for the use of liquid biopsy to accelerate clinical research.

INVITED SPEAKER (TALKS and SEMINARS, selected since 2010)

2019 EMBL Conference, Cancer Genomics, Heidelberg, 4-6 November 2019. Synthetic Lethal candidates search using genomic and methylation features.
2019 PCF 26th Annual Scientific Retreat, 24-26 October, Carlsbad, CA. Genomics of Neuroendocrine prostate cancer (tent).
2019 Associazione di Biologia Cellulare e del Differenziamento (ABCD) National Congress, 19-21 September, Bologna, IT. Cancer evolution studies, one allele at the time.
2019 Gordon Research Conference (GRC) on Hormone-Dependent Cancers, August 4-9, Newry, ME. Hormone-Dependent Cancers Evolution from Unbiased Allele Specific Analyses.

- 2019 Twelfth Annual Prostate Cancer Program Retreat March 3–5, 2019, W Hotel, Fort Lauderdale, Florida. Insights into prostate cancer progression from allele-specific genomics.
- 2018 25th Meeting of the EAU Section of Urological Research (ESUR), Athens. Epigenetic regulation and reprogramming: Neuroendocrine differentiation via epigenetic reprogramming.
- 2018 Nanoinnovation, Microfluidics and Biosystems for personalized medicine symposium, Rome. Emerging opportunities of liquid biopsies in precision oncology
- 2017 AACR Special Conference on Prostate Cancer: Advances in Basic, Translational, and Clinical Research, Orlando.
- 2017 Second Global Summit on Precision Diagnostic, AdMeTech Foundation, Boston, MA Emerging Fluid-Based Molecular Diagnostics.
- 2017 38th World Congress of The International Union of Physiological Sciences, Rio de Janeiro, Cell differentiation and drug pressure. Keynote Lecture.
- 2017 Cancer Research UK Manchester Institute. Prostate cancer evolution.
- 2017 RNGS2 - Revolutionizing Next-Generation Sequencing (2nd edition), VIB Conference, Antwerp. Assessment of metastatic disease burden through the analysis of cfDNA in patients' circulation.
- 2016 TEDx Trento, Combatto il cancro con i numeri.
- 2016 European Meeting on Urological Cancers (EMUC). The genomic evolution of metastatic prostate cancer.
- 2016 Androgens 2016, Innsbruck. The genetics of prostate cancer specific events.
- 2016 Pezcoller Foundation Symposium, Trento. Tumor evolution and cell differentiation.
- 2016 Armenise-Harvard Foundation 16th Symposium, Gubbio. Cell plasticity and divergent evolution in castration resistant prostate cancer.
- 2015 19th International Fritz Bender Foundation Symposium, Cancer Biology for Cancer Therapeutics, Pisa. Driver clones during prostate cancer evolution.
- 2015 Joint session at 2015 AUA Annual Meeting of Society for Basic Urologic Research (SBUR) and the Society of Urologic Oncology (SUO), New Orleans, Louisiana (USA). The Clonality of Prostate Cancer Metastases - Single or Multiple Origins?
- 2015 Heinrich-Warner-Symposium. Genomic and Epigenetic Variations in Prostate Cancer, Hamburg. Clonal Heterogeneity of Advanced Tumors through Allele Specific Quantification
- 2014 Federazione Italiana Scienze della Vita, Pisa (Italy). The multiple facets of genome instability: The dynamics of cancer genomes during disease progression.
- 2014 Towards the identification of cancer driver mutations: insights from clonal evolution. Dept. Cellular & Molecular Medicine, Leuven. Belgium.
- 2013 Cedars-Sinai Medical Center, Los Angeles (USA) - Immunology and Cancer Biology Seminar Series. Quantitative Approaches to Assess the Heterogeneity of the Cancer Genome.
- 2013 Italian Cancer Society, 55th Annual Meeting, Catanzaro, Italy. Molecular archaeology from next generation explorations.
- 2013 Biology, Information, and Computation (BCI), Cancer Bioinformatics Workshop, Trieste, Italy. Tumor evolution from DNA sequencing reads.
- 2012 Garvan Institute, Sydney (Australia). The Heterogeneous Cancer Genome Visualized through Computational Approaches.
- 2012 STARR Cancer Consortium Retreat, Cold Spring Harbor, NY (USA). Determining Germline Risk Factors for Lethal Prostate Cancer: The Role of Copy Number Variations in Cancer Progression.
- 2012 European Molecular Biology Laboratories (EMBL), Heidelberg, Germany. Linking Inherited and Somatic DNA Changes Across Prostate Cancer Progression.
- 2010 Prostate Cancer Foundation Annual Scientific Retreat, Washington D.C., USA.
- 2010 Dana-Farber Cancer Institute, SPORE in Prostate Cancer Meeting, Boston, USA.
- 2010 Harvard Medical School, Brigham and Women's Hospital, Boston, USA. Structural Variants and Prostate Cancer.

DISSEMINATION and REACHING OUT ACTIVITIES

Since 2011, she continuously participated to outreach and science dissemination activities for public

audience and high schools in collaboration with Associazione Italiana per la Ricerca sul Cancro (AIRC) (including at Trieste Next 2018; Galileo Festival dell'Innovazione, Padova 2019), Fondazione Trentina per la Ricerca sui Tumori (FTRT), Lega Italiana per la Lotta contro I Tumori (LILT), Movember, and the University of Trento.

PERSONAL STATEMENT ON RESEARCH

Dr. Demichelis has expertise in the area of cancer genomics that builds on more than ten years of interdisciplinary work with focus in the field of prostate cancer. Since 2011 she leads the Computational and Functional Oncology Laboratory (University of Trento) with 10-12 members (fully funded through competitive grants) including both computational and experimental wet laboratory post-docs and PhD students. Her research focuses on the characterization of cancer evolution and progression and on the identification of germline and somatic diagnostic and prognostic cancer biomarkers. The laboratory recently developed a framework to chart tumor evolution maps exploiting the clonality information of cell populations (Baca S et al, Cell 2013; Prandi D et al, Genome Biology 2014). Application to cell free DNA allowed to monitor lethal prostate cancer dynamics (Carreira S et al, Sci Transl Med. 2014 Sep 17;6(254):254ra125) and to study response to second-generation anti-AR treatment in castration resistant prostate cancer patients (Romanel A, et al. Sci Transl Med. 2015 Nov 4;7(312):312re10.). Her research group significantly contributed to the definition of the molecular determinants of AR-independent prostate cancer across genomics, transcriptomics and epigenetics and of treatment resistance mechanisms in collaboration with Weill Cornell Medicine (NY) and the Broad Institute of M.I.T. and Harvard University (Beltran H, Prandi D et al, Nat Med. 2016 Mar;22(3):298-305) and with Memorial Sloane Kettering (Mu P et al, Science 2017). She also led a pioneering study that bridges the individual's inherited genetics and acquired somatic genomics in the context of cancer development (Romanel A et al, Nat Communications, 2017). This study supports the need to characterize inherited determinants of molecularly defined subclasses of cancers.

She served as active member of international consortia including MAQC-II, TCGA-PRAD, Stand Up 2 Cancer (SU2C) (resulting in publications in Nat Biotechnol. 2010, Cell 2015, Cell 2015, respectively) and currently of the CCG Ancestry Informative Markers AWG (TCGA-NCI) and SU2C-Prostate Cancer Foundation Dream Team for Prostate Cancer. She is Faculty Member of International PhD Program in Biomolecular Sciences (University of Trento), member of its Executive Committee and leader of the Transdisciplinary Program in Computational Biology. Over the past five years she has consistently been an invited speaker at European and U.S. conferences and participated to the Scientific Program Committee of major meetings, including the 2016 AACR Annual Meeting and was invited to contribute to the 30th anniversary edition of Nature Biotechnology (Nat Biotechnol. 2016).

Funding agencies of the Demichelis laboratory research obtained through competitive applications (as Principal Investigator) include the US Department of Defense (DoD), the Associazione Italiana per la Ricerca sul Cancro (AIRC), the Fondazione Trentina per la Ricerca sui Tumori (FTRT), Prostate Cancer Foundation (PCF), the Italian Ministry of University and Research (MIUR), the Fondazione Caritro, the US National Cancer Institute (NCI-NIH, through the WCM Specialized Program for Research Excellence in Prostate Cancer, Co-Leader of Project 1). In 2015, she was awarded a 2M Euros (ERC)-Consolidator grant (SPICE) by the European Research Council. The SPICE project integrates experimental and computational approaches to nominate and validate synthetic lethal pairs. In 2018, she was awarded a 5.7M Euros Accelerator Award to accelerate clinical research by CRUK-AIRC, on the implementation of liquid biopsy in the clinic.

Additionally, funded activities in cancer research in collaboration with the Broad Institute of M.I.T. and Harvard University (MA), the University Hospital Innsbruck (Austria), The Institute of Cancer Research (UK) and Weill Cornell Medicine (NY) are/were funded by the National Cancer Institute (NIH- NIH) and The Prostate Cancer Charity UK.

PUBLICATIONS SUMMARY

See section PUBLICATIONS for publication list.

H-index:	53	Total number of citations (no self-citation):	15,006
Last/Co-last/co-corresponding author:	27	First/co-first author:	15

Subject areas:	Medicine, Genetics and Molecular Biology, Computer Science
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Co-author of more than 120 manuscripts including in: *Cancer Biology, Cancer Research, Cell, Cancer Cell, Nature, Nature Biotechnology, Nature Communications, Nature Genetics, Nature Medicine, Oncogene, PNAS, Science*. Reviews in: *Nature Reviews Genetics, Nature Medicine, Urologic Oncology*. Commentary, news and view in: *Nature Medicine, Cancer Cell, Nature Reviews Urology*.

GRANTED PATENTS

US Patent (7,718,369; 8211645), Recurrent gene fusions in prostate cancer, *licensed to Gen-Probe and Ventana/Roche for diagnostic use world-wide*;

US Patent (7,803,552), Biomarkers for predicting prostate cancer progression;

US Patent (7,981,609), Methods for identifying and using SNP panels;

US Patent (9,678,077), ERG/TFF3/HMWCK Triple Immunostain for Detection of Prostate Cancer;

US Patent (9,951,388), Spectral imaging for measurement of nuclear pathology features in cancer cells prepared for in situ analysis.

RESEARCH SUPPORT (FUNDING) ACTIVE

Role	Funding Agency, ID	Project Title	Duration
Principal Investigator Leading Institution	Accelerator Award 2018, Cancer Research UK (CRUK), C65130/A26321	<i>Multi-modal clinical testing of prostate cancer patient plasma (PRIME)</i>	11/01/18-10/31/23
Principal Investigator	European Research Council, ERC-Consolidator Grant 648670	<i>Synthetic Lethal Phenotype Identification through Cancer Evolution Analysis (SPICE)</i>	10/01/15-09/30/20
Principal Investigator	Associazione Italiana per la Ricerca sul Cancro (AIRC), Investigator Grant 19221	<i>Heritable Triggers of Prostate Cancer Molecular Subtypes</i>	01/01/17-12/31/20
Principal Investigator	Italian Ministry of University and Research (MIUR), Call FARE, R16Z7PSLHN	<i>DNA repair genes vulnerability in prostate cancer (DiVERrSE)</i>	01/01/18-12/31/19
Principal Investigator	Fondazione Caritro	<i>Verso la Biopsia Liquida di Tumori: Un programma di Medicina di Precisione</i>	01/01/16-12/31/19
Principal Investigator	Fondazione Trentina per la Ricerca sui Tumori (FTRT)	<i>The role of DNA repair genes in primary prostate cancer</i>	01/01/18-12/31/19
Co-Principal Investigator (with Dr. Beltran)	Prostate Cancer SPORE (NCI) P50 CA211024-01A1	<i>Non-Invasive Clinical Assay for Early Detection of Treatment Resistance in Patients with Metastatic Prostate Cancer</i>	01/01/18-12/31/23

Co-Principal Investigator (with Dr.s Attard, Beltran, Chi, Wyatt, Van Allen, Maher, Rubin, Amstrong)	Prostate Cancer Foundation, Movember Challenge Award	<i>Development and qualification of the PCF SELECT (Specific Evaluation in Liquid biopsies of Established prostate Cancer Targets) plasma DNA assay</i>	09/01/16-08/31/19
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PAST

Role	Funding Agency, ID	Project Title	Duration
Principal Investigator	Associazione Italiana per la Ricerca sul Cancro (AIRC), Investigator Grant	<i>Defining Heritable Cancer Risk Variants in the Prostate</i>	01/01/13-12/31/16
Principal Investigator	Fondazione Trentina per la Ricerca sui Tumori (FTRT)	<i>Recurrent genomic alterations as biomarkers predictive of the response to brachytherapy treatment in prostate cancer patients</i>	03/01/12-12/31/14
Principal Investigator	Department of Defense (DoD), Synergy Award, PC101020P2	<i>Functional Validation of Prostate Cancer Driving Mutations</i>	05/15/11-05/14/15
Principal Investigator	Department of Defense (DoD), New Investigator, PC094516	<i>Towards Understanding the Genetic Predisposition for Signaling Pathway Activation in Aggressive Prostate Cancer</i>	7/1/10-12/30/12
Principal Investigator	Dana-Farber Harvard Cancer Center Prostate Cancer SPORE, Developmental Project Award	<i>Copy Number Variants Predisposing to ETS Rearrangements and Oncogenic Lesions</i>	04/01/09-03/31/10
Principal Investigator	Clinical and Translation Science Center, New York, UL1RR024996	<i>Towards The Identification Of Germline Risk Factors For Lethal Prostate Cancer</i>	01/02/08-05/31/09
Principal Investigator	Prostate Cancer Foundation,	<i>Fusion of TMPRSS2 and ETS Family of Transcription Factors in Prostate Cancer: A</i>	02/01/06-01/31/07

	Research Award	<i>Bioinformatics Approach to Understand the Molecular Diversity of Prostate Cancer</i>	
Co-Investigator (PI, Dr. Attard G)	The Prostate Cancer Charity UK	<i>Using circulating plasma DNA to identify somatic copy number aberration profiles that differentiate men without from those with aggressive prostate cancer</i>	04/01/13-03/31/16
Co-Investigator (PI, Dr. Rubin MA)	National Cancer Institute (NIH), R01 CA116337	<i>Molecular Signatures of Lethal and Indolent Prostate Cancer</i>	07/23/12-05/31/17
Co-Investigator (PI, Dr. Rubin MA)	National Cancer Institute (NIH), R01 CA152057	<i>Comprehensive Prostate Cancer Characterization by Genomic and Transcriptomic Profiling</i>	08/01/11-07/31/14
Co-Principal Investigator (with Dr.s Beltran, Attard)	Prostate Cancer Foundation, Challenge Award	<i>Early Detection of Neuroendocrine Prostate Cancer Transformation Using Circulating Genomic Signatures</i>	01/01/15-12/12/17
Co-Investigator (PI Rubin MA)	National Cancer Institute (NIH), R01 CA125612-05A1	<i>Towards Understanding Prostate Cancer Heterogeneity</i>	04/01/2013-03/31/18
Co-Investigator (PI Gerstein M)	National Institute of Health (NIH) R01 HG008261 01-1A	<i>Prioritizing rare, non-coding variants associated with cancer using functional annotation</i>	2/1/16 - 1/31/19

SPONSORED RESEARCH AGREEMENT

Principal Investigator	Ventana Medical Systems/Roche Group	<i>Development and Testing of ETS fusion FISH assays for Clinical Application</i>	12/11/08-05/31/11
Co-Investigator	Janssen, through Institute Cancer research (ICR) UK	<i>The study aims at defining the set of genomic changes detectable from CRPC tumor tissue biopsies/plasma specimen</i>	01/01/14-12/31/16

PUBLICATIONS

ORIGINAL MANUSCRIPTS (* co-first; & co-corresponding; # co-seniorship)

2019

1. Nava Rodrigues D*, Casiraghi N*, Romanel A, Crespo M, Miranda S, Rescigno P, Figueiredo I, Riisnaes R, Carreira S, Sumanasuriya S, Gasperini P, Sharp A, Mateo J, Makay A, McNair C, Schiewer M, Knudsen K, Boysen G, **Demichelis F**&#, de Bono JS&#. RB1 Heterogeneity in Advanced Metastatic Castration Resistant Prostate Cancer. *Clin Cancer Res.* 2019 Jan 15;25(2):687-697.
2. Beltran H, Oromendia C, Danila DC, Montgomery B, Hoimes C, Szmulewitz RZ, Vaishampayan U, Armstrong AJ, Stein M, Pinski J, Mosquera JM, Sailer V, Bareja R, Romanel A, Gumpeni N, Sboner A, Dardenne E, Puca L, Prandi D, Rubin MA, Scher HI, Rickman DS, **Demichelis F**, Nanus DM, Ballman KV, Tagawa ST. A phase II trial of the aurora kinase A inhibitor alisertib for patients with castration resistant and neuroendocrine prostate cancer: efficacy and biomarkers. *Clin Cancer Res.* 2019 Jan 1;25(1):43-51.
3. Gandellini P*, Casiraghi N*, Rancati T, Benelli M, Doldi V, Romanel A, Colecchia M, Marengi C, Valdagni R, **Demichelis F**&#, Zaffaroni N&#. Core Biopsies from Prostate Cancer Patients in Active Surveillance Protocols Harbor PTEN and MYC Alterations. *Eur Urol Oncol.* 2019 May;2(3):277-285.
4. Notarangelo M, Zucal C, Modelska A, Pesce I, Scarduelli G, Potrich C, Lunelli L, Pederzoli C, Pavan P, la Marca G, Pasini L, Ulivi P, Beltran H, **Demichelis F**, Provenzani A, Quattrone A, D'Agostino VG. Ultrasensitive detection of cancer biomarkers by nickel-based isolation of polydisperse extracellular vesicles from blood. *EBioMedicine.* 2019 May;43:114-126.
5. Abida W, Cyrta J, Heller G, Prandi D, Armenia J, Coleman I, Cieslik M, Benelli M, Robinson D, Van Allen EM, Sboner A, Fedrizzi T, Mosquera JM, Robinson BD, Beltran H, De Sarkar N, Kunju LP, Tomlins S, Wu YM, Nava Rodrigues D, Loda M, Gopalan A, Reuter VE, Pritchard CC, Mateo J, Bianchini D, Miranda S, Carreira S, Rescigno P, Filipenko J, Vinson J, Montgomery R, Heath EI, Scher HI, Kantoff P, Taplin M-E#, Schultz N#, De Bono JS#, **Demichelis F**#, Nelson PS#, Rubin MA#, Chinnaiyan AM#, Sawyers CL#. Genomic correlates of clinical outcome in advanced prostate cancer. *Proc Natl Acad Sci U S A.* 2019 Jun 4;116(23):11428-11436.
6. Locallo A, Prandi D, **Demichelis F**. TPES: Tumor Purity Estimation from SNVs. *Bioinformatics.* 2019 May 17. pii: btz406.
7. Prandi D and **Demichelis F**. Ploidy and purity adjusted DNA allele specific analysis using CLONETv2. *Current Protocols in Bioinformatics* 67 (1), e81. 2019
8. Persi E*&, Prandi D*, Wolf YI³, Pozniak Y, Barbieri C, Gasperini P, Beltran H, Faltas BM, Rubin MA, Geiger T, Koonin EV&, **Demichelis F**&#, Horn D&#. Proteomic and Genomic Signatures of Repeat-instability in Cancer and Adjacent Normal Tissues. *Proc Natl Acad Sci U S A.* 2019 Aug 20;116(34):16987-16996.

2018

9. McNair C*, Xu K*, Mandigo AC, Benelli M, Leiby B, Rodrigues D, Lindberg J, Gronberg H, Crespo M, De Laere B, Dirix L, Visakorpi T, Li F, Feng FY, de Bono J, **Demichelis F**, Rubin MA, Brown M, and Knudsen KE. Differential impact of RB status on E2F1 reprogramming in human cancer. *J Clin Invest.* 2018 Jan 2;128(1):341-358.
10. Benelli M, Romagnoli D, **Demichelis F**. Tumor purity quantification by clonal DNA methylation signatures. *Bioinformatics.* 2018 Jan 8. doi: 10.1093/bioinformatics/bty011.
11. Casini A, Olivieri M, Petris G, Montagna C, Reginato G, Maule G, Lorenzin F, Prandi D, Romanel A, **Demichelis F**, Inga A, Cereseto A. In vivo screening of highly specific SpCas9 variants. *Nat Biotechnol.* 2018 Mar;36(3):265-271.
12. Armenia J*, Wankowicz SAM*, Liu D*, Gao J, Kundra R, Reznik E, Chatila WK, Chakravarty D,

- Han GC, Coleman I, Montgomery B, Pritchard C, Morrissey C, Barbieri CE, Beltran H, Sboner A, Zafeiriou Z, Miranda S, Bielski CM, Penson AV, Tolonen C, Huang FW, Robinson D, Wu YM, Lonigro R, Garraway LA, **Demichelis F**, Kantoff PW, Taplin M-E, Abida W, Taylor BS, Scher HI, Nelson PS, de Bono JS, Rubin MA, Sawyers CL, Chinnaiyan AM, PCF/SU2C International Prostate Cancer Dream Team, Schultz N#, Van Allen EM#. The long tail of oncogenic drivers in prostate cancer. *Nat Genet.* 2018 May;50(5):645-651.
13. Puca L, Bareja R, Prandi D, Shaw R, Benelli M, Karthaus WR, Hess J, Sigouros M, Donoghue A, Kossai M, Gao D, Cyrta J, Sailer V, Vosoughi A, Pauli C, Churakova Y, Cheung C, Deonarine LD, McNary TJ, Rosati R, Tagawa ST, Nanus DM, Mosquera JM, Sawyers CL, Chen Y, Inghirami G, Rao RA, Grandori C, Elemento O, Sboner A, **Demichelis F**, Rubin MA, Beltran H. Patient derived organoids to model rare prostate cancer phenotypes. *Nat Commun.* 2018 Jun 19;9(1):2404.
14. Aggarwal R, Huang J, Alumkal JJ, Zhang L, Feng FY, Thomas GV, Weinstein AS, Friedl V, Zhang C, Witte ON, Lloyd P, Gleave M, Evans CP, Youngren J, Beer TM, Rettig M, Wong CK, True L, Foye A, Playdle D, Ryan CJ, Lara P, Chi KN, Uzunangelov V, Sokolov A, Newton Y, Beltran H, **Demichelis F**, Rubin MA, Stuart JM, Small EJ. Clinical and Genomic Characterization of Treatment-Emergent Small-Cell Neuroendocrine Prostate Cancer: A Multi-institutional Prospective Study. *J Clin Oncol.* 2018 Jul 9;JCO2017776880.
15. Vagner T*, Spinelli C*, Minciocchi VR, Balaj L, Zandian M, Conley A, Zijlstra A, Freeman MR, Demichelis F, De S, Posadas EM, Tanaka H & Di Vizio D. Large extracellular vesicles carry most of the tumour DNA circulating in prostate cancer patient plasma. *J Extracell Vesicles.* 2018 Aug 7;7(1):1505403.

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REVIEWS

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2. Rubin MA, **Demichelis F**. The genomics of prostate cancer: an update. Mod Pathol. 2018 Jan;31(S1):S1-11. Review.
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COMMENTARIES

1. Fracassi G, Lorenzin F, **Demichelis F**. Better screened than sorry!—an informed panel of inherited DNA repair gene variants for prostate cancer screening and prognostication. Annals of Translational Medicine. Ann Transl Med 2019. doi: 10.21037/atm.2019.06.59. Editorial Commentary.
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6. Barbieri C, **Demichelis F**, Rubin MA. Molecular genetics of prostate cancer: Emerging Appreciation of Genetic Complexity, Histopathology 2012 Jan;60(1):187-98. Review.

BOOK CHAPTERS

1. Rubin MA, Demichelis F. The Genomics of Prostate Cancer: A Historic Perspective. Cold Spring Harb Perspect Med. 2018 Apr 30. pii: a034942. doi:10.1101/cshperspect.a034942. [Epub ahead of print] PMID: 29712681

PROCEEDINGS

1. Veeramachaneni S, **Demichelis F**, Olivetti E, Avesani P. Active Sampling for Knowledge Discovery from Biomedical Data. Proc. Of Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD), Porto, Portugal, October 3-7, 2005.
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	<i>From academic year 2010-2011 to 2012-2013</i>	Cancer Genetics, Bachelor degree in Biomolecular Sciences, University of Trento (6 CFU) –chair of the entire course-
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Esperienze professionali all’estero	
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Lavoro o posizione ricoperti	Ricercatrice-analista chimico-fisico presso il Sincrotrone di Berlino (Germania) Bessy II – beamtime di progetto
Stage formativi	
Date	17/09/2007 → 10/11/2007
Lavoro o posizione ricoperti	Analista chimico-fisico (Spettroscopia di Emissione Ottica e Fluorescenza Indotta da Laser) presso il Laboratorio “Trasferimenti di Energia in Fase Plasma” del CNR di Bari. Responsabile: Dr S. De Benedictis.
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Date	Luglio 2005
Lavoro o posizione ricoperti	Stage formativo in Microscopia a Forza Atomica (AFM) presso il Centro Nazionale di Biofisica e Nanostrutture. Supervisore scientifico: Prof. S. Cannistraro
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Istruzione e formazione	
Data di conseguimento	19/12/2008 (XXI ciclo: novembre 2005 → novembre 2008)
Titolo della qualifica rilasciata	Dottore di ricerca in Fisica
Giudizio finale	Ottimo

Titolo della tesi	Diagnostica di processi molecolari in scariche a pressione atmosferica. Supervisore scientifico: Prof. P. Tosi Correlatore: Dr. G. Dilecce
Nome e tipo d'organizzazione erogatrice dell'istruzione e formazione	Scuola di Dottorato in Fisica, Università degli studi di Trento, via Sommarive 14 - 38123 Povo, Trento
Date	21/05/2007 → 25/05/2007
Titolo della qualifica rilasciata	Diploma di specializzazione della Scuola Nazionale Metodologie Analitiche in Spettrometria di Massa
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Data di conseguimento	08/06/2005 (a.a. 2004-2005)
Titolo della qualifica rilasciata	Laurea magistrale in Fisica (vecchio ordinamento)
Votazione	101/110
Titolo della tesi	Analisi spettroscopiche di complessi di inclusione del farmaco anti-infiammatorio indometacina con ciclodestrine. Relatori: Prof. G. Viliani, Dr. I. Mancini
Nome e tipo d'organizzazione erogatrice dell'istruzione e formazione	Facoltà di scienze matematiche, fisiche e naturali, Università degli studi di Trento, via Sommarive 14 - 38123 Povo, Trento.
Date	Settembre 1990 → Giugno 1995
Titolo della qualifica rilasciata	Diploma di maturità scientifica p.n.i. (piano nazionale informatica)
Votazione	58/60
Nome e tipo d'organizzazione erogatrice dell'istruzione e formazione	Liceo Scientifico Statale "N. Copernico", viale Duca degli Abruzzi 17, 25100 Brescia
Abilitazioni conseguite	<p>Sono abilitata all'utilizzo diretto della seguente strumentazione:</p> <p>microscopia ottica (widefield, confocale):</p> <ul style="list-style-type: none"> • Zeiss Observer Z1 equipaggiato con ApoTome2 e Colibri 1 • Zeiss Imager M2 equipaggiato con tavolino MBF per stereologia • Leica TCS SP5 • Nikon Eclipse Ti2 equipaggiato con spinning disc Crestoptics Xlight V2 e Video Confocal Super-resolution • Till-Photonics iMIC equipaggiato per FRAP, FRET, TIRF • microdissettore Leica LMD 6500 • Leica DMI8 • Nikon Eclipse 90i • Bruker Xtreme I (<i>in vivo</i> imaging) <p>spettroscopia elettronica (AES-XPS-UPS-EELS): PHI Model 545-590</p> <p>gascromatografia - spettrometria di massa (GC-MS): Thermo Finnigan Trace GC Ultra + Trace DSQ</p> <p>microgascromatografia (MGC): Agilent 3000A MicroGC</p> <p>microscopia elettronica a scansione (SEM): Jeol JSM-7001F</p> <p>spettrometria infrarossa a trasformata di Fourier (FT-IR): Bruker Equinox 55</p> <p>spettrometria di massa MALDI-TOF: Bruker Daltonics Ultraflex TOF/TOF</p> <p>Durante il percorso di studi e i periodi di stage ho avuto modo di imparare ad usare anche le seguenti tecniche:</p>

- spettroscopia di emissione ottica (OES)
- fluorescenza indotta da laser (LIF) a uno e a due fotoni
- spettroscopia di risonanza magnetica nucleare (NMR)
- spettroscopia Raman e Raman-SERS
- microscopia a forza atomica (AFM)

Madrelingua(e) **Italiano**

Altra(e) lingua(e) **Inglese (B2b)**

Allegati Elenco delle pubblicazioni scientifiche

Articoli:

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2. N. Patel, R. Jaiswal, T. Warang, G. Scarduelli, A. Dashora, B.L. Ahuja, D.C. Kothari, and A. Miotello, "Efficient photocatalytic degradation of organic water pollutants using V-N-codoped TiO₂ thin films", *Applied Catalysis B – Environmental*, **2014**, *150*, 74-81 (DOI:10.1016/j.apcatb.2013.11.033).
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4. M. Dapor, L. Calliari and G. Scarduelli, "Comparison between Monte Carlo and experimental Aluminium and Silicon electron energy loss spectra", *Nuclear Inst. and Methods in Physics Research B*, **2011**, *269*, 1675-1678 (DOI:10.1016/j.nimb.2010.11.030).
5. D. Haberer, L. Petaccia, M. Farjam, S. Taioli, S.A. Jafari, A. Nefedov, W. Zhang, L. Calliari, G. Scarduelli, B. Dora, D.V. Vyalikh, T. Pichler, C. Woell, D. Alfè, S. Simonucci, M.S. Dresselhaus, M. Knupfer, B. Buechner and A. Grueneis, "Direct observation of a dispersionless impurity band in hydrogenated graphene", *Physical review B*, **2011**, *83*, 165433-1 - 165433-6 (DOI:10.1103/PhysRevB.83.165433)
6. G. Scarduelli, G. Guella, D. Ascenzi and P.Tosi, "Synthesis of liquid organic compounds from CH₄ and CO₂ in a dielectric barrier discharge operating at atmospheric pressure", *Plasma Processes & Polymers*, **2011**, *8*, 25-31 (DOI:10.1002/ppap.201000044).
7. A. Picciotto, D. Margarone, J. Krasa, A. Velyhan, E. Serra, P. Bellutti, G. Scarduelli, L. Calliari, E. Kourosky, B. Rus and M. Dapor, "Laser-driven acceleration of protons from hydrogenated silicon targets", *Europhysics Letters*, **2010**, *92*, 34008-p1 - 34008-p5 (DOI: 10.1209/0295-5075/92/34008).
8. G. Dilecce, P. F. Ambrico, G. Scarduelli, P. Tosi and S. De Benedictis, "CN(B²Σ⁺) formation and emission in a N₂-CH₄ atmospheric pressure dielectric barrier discharge", *Plasma Sources Science and Technology*, **2009**, *18*, 015010-1 - 015010-16 (DOI:10.1088/0963-0252/18/1/015010).
9. G. Scarduelli, G. Guella, I. Mancini, G. Dilecce, S. De Benedictis and P.Tosi, "Methane oligomerization in a dielectric barrier discharge at atmospheric pressure", *Plasma Processes & Polymers*, **2009**, *6*(1), 27-33 (DOI: 10.1002/ppap200800096).
10. B. Rossi, P. Verrocchio, G. Viliiani, I. Mancini, G. Guella, E. Rigo, G. Scarduelli and G. Mariotto, "Vibrational properties of ibuprofen-cyclodextrin inclusion complexes investigated by Raman scattering and numerical simulation", *Journal of Raman Spectroscopy*, **2009**, *40*, 453-458 (DOI: 10.1002/jrs.2150).

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12. B. Rossi, P. Verrocchio, G. Viliani, G. Scarduelli, I. Mancini, G. Guella and F. Rossi, "Vibrational dynamics of inclusion complexes by Raman scattering: an experimental and numerical study", *TPHM: Philosophical Magazine*, **2007**, *87*, 559-567 per Special issue: Tenth international workshop on disordered systems, Molveno-Andalo (Trento), Italy, 18-21 March 2006, Guest Editors: A. Fontana, P. Verrocchio and G. Viliani (DOI 10.1080/14786430600887657).
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