Michela Alessandra Denti

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Scopus Author ID: 55295197700

Publications: 36 peer-reviewed articles, 10 reviews, 6 book chapters, 2 patents H-index=23 1523 total citations by 1307 documents (according to Scopus) **PUBLONS identifier** (reviewer and editorial board member): <u>publons.com/a/1512962/</u>

Personal Statement

I am a **Molecular Biologist** with a keen interest in **RNA** as a key player in (human) diseases and as a tool of therapeutical intervention. I am Associate Professor at the University of Trento, where I teach "RNA Biology and Biotechnology" Courses to BSc and PhD students and "Genomics Technologies" to MSc students. I believe that progresses in Science are due to a combination of lucky serendipitous discoveries and technological advances, and I've been always actively seeking a balance between fundamental and applied research.

Since 2008 I am **Group Leader** of the Laboratory of RNA Biology and Biotechnology at the Department of Cellular, Computational and Integrative Biology, Italy, first as Assistant Professor of Molecular Biology (2008 - 2014) and then as **Associate Professor** of Applied Biology (2014 - present). During that time I was on **maternity leave** for the birth of my first child (December 25th 2009 - May 25th 2010) and then again for my second child (September 21st 2014 - February 21th 2015).

My group has two main research interests: **MODULATION OF RNA splicing as a cure for inherited diseases** and **MICRORNAs** as key players and biomarkers in cancer, cardiac and neurodegenerative diseases. I've been working in the field of RNA Molecular Biology since my MSc THESIS at the University of Pisa in 1994, which explored the possibility of using a newt hammerhead **ribozyme** as a tool for the functional inactivation of specific genes. I obtained my PhD in Biological Sciences in 1997 from the Scuola Normale Superiore di Pisa, Italy, working on *in vivo* application, intracellular localisation and association to RNA-binding proteins of a newt hammerhead RIBOZYME. I then went on to do POSTDOCTORAL RESEARCH at the Institute of Molecular Biology and Biotechnology, Heraklion, Greece, under the guidance of Prof. Martin Tabler, studying plant **RNA pathogens** (VIROIDS), their interaction with **RNA-BINDING PROTEINS** and their involvement in **POST-TRANSCRIPTIONAL GENE SILENCING** (1998-2001). During a second POSTDOCTORAL research period in Prof. Irene Bozzoni's laboratory at the Department of Genetics and Molecular Biology, "Sapienza" University of Rome, Italy (2002-2007) I was involved in the development of the antisense-U1snRNA mediated **EXON SKIPPING therapy** for Duchenne muscular dystrophy and in the development and application of DNA vectors for **RNA INTERFERENCE.**

Professional and research experience

Oct/14- present	<u>Associate Professor</u> of Applied Biology (Professore Associato 05/F1), University of Trento, (Italy).
	Maternity leave: September 21st, 2014 - February 21th, 2015
Mar/08- Sep/14	Assistant Professor of Molecular Biology (Ricercatrice Universitaria 05/ F2) University of Trento (Italy) Confirmed on March 1st 2011
	Maternity leave: December 25th 2009 - May 25th 2010
Nov/07- present	Principal Investigator Laboratory of RNA Biology and Biotechnology
Novior - present	<u>Penartment of Cellular Computational and Integrative Biology (CIBIO)</u>
	University of Trento, (Italy).
Nov/09- present	Member of the PhD Committee of the International Doctoral School in
	Biomolecular Sciences of the University of Trento.
Nov/13- present	Member of the Executive Committee of the International Doctoral School
	in Biomolecular Sciences of the University of Trento.
May/20- present	Vice-Director of the PhD Committee of the International Doctoral School
	in Biomolecular Sciences of the University of Trento.
Jun/13- present	Member of the Ethical Committee ("Comitato Etico per la
	Sperimentazione con l'Essere Vivente") of the University of Trento.
Nov/16- present	Organizer of the Trento RNA Salon, an initiative supported by the RNA
	Society. <u>http://www.rnasociety.org/News/successful-2016-2017-rna-</u>
	salon-applications/. https://www.rnasociety.org/rna-salons/#salons
Sep/18 - present	Member of the Management Committee of the COST Action CA17103
	"Delivery of Antisense RNA ThERapeutics (DARTER)". Nominated by
	the COST National Coordinator for Italy. <u>https://antisenserna.eu</u>
Jul/13 - Apr/17	Member of the Management Committee of the COST Action BM1207
	"Networking towards clinical application of antisense-mediated exon
	skipping". Nominated by the COST National Coordinator for Italy. <u>http://</u>
	exonskipping.eu/
Dec/18 - present	Delegate of the CIBIO Department Director for Laboratory Management
Mar/08- May/14	Delegate of the CIBIO Department Director for Laboratory Safety
Nov/07- Feb/08	<u>Visiting Professor</u> , Faculty of Science, University of Trento (Italy).
Jan/02-Oct/07	Postdoctoral Researcher
	Prof. Irene Bozzoni's laboratory at the Department of Genetics and
	Molecular Biology, University of Rome "La Sapienza", Rome, (Italy).
Jan/98 – Dec/01	Postdoctoral Researcher
	Prof. Martin Tabler's and Prof. Mina Tsagris' laboratories at the Institute
	of Molecular Biology and Biotechnology, FORTH, Heraklion, Crete,
Mar/96 – Mar/97	Visiting PhD student
	Prot. Martin Tabler's laboratory at the Institute of Molecular Biology and
	Biotechnology, FORTH Heraklion, Crete, (Greece).

Jul/95 - Sep/95	Visiting PhD student
	Prof. Joseph G. Gall's laboratory at the Department of Embryology,
	Carnegie Institution of Washington, Baltimore, Maryland, (USA).
Dec/93 - Nov/97	PhD project concerning the in vivo application, the intracellular
	localisation and the association to RNA-binding proteins of the newt
	hammerhead ribozyme. Supervisor: <i>Professor G. Barsacchi</i> (University of Pisa)
Jan/92 - Nov/93	<u>Undergraduate project</u> as Degree Thesis concerning the construction of
	a newt hammerhead modified ribozyme to inactivate gene functions in
	mammalian cells in culture. Supervisor: Professor G. Barsacchi

Education/Qualifications

(University of Pisa).

- **1 Aug/18** National Scientific Habilitation as Full Professor (Abilitazione Scientifica Nazionale per l'accesso al ruolo di Professore di Prima Fascia) for Applied Biology (Biologia Applicata, 05/F1) and for Molecular Biology (Biologia Molecolare, 05/E2).
- 22 Jan/14 National Scientific Habilitation as Associate Professor of Applied Biology (Abilitazione Scientifica Nazionale per l'accesso al ruolo di Professore di Seconda Fascia in Biologia Applicata, 05/F1)
- **22 Jan/00** European Doctorate in BioTechnology awarded by the European Association for Higher Education in BioTechnology.
- 24 Nov/97 PhD Degree (Perfezionamento) in Biological Sciences obtained with honours (70/70 cum laude) at the Scuola Normale Superiore of Pisa (Italy) with the Thesis: "A Study on the Newt Hammerhead Ribozyme: *In vivo* Application, Intracellular Localisation and Association to RNA Binding Proteins".
- **Dec/93- Nov/97** PhD Course (Corso di Perfezionamento) in Biological Sciences. Classe di Scienze, Scuola Normale Superiore (Pisa, Italy).
- **4 Nov/93** <u>Graduated with honours</u> (110/110 cum laude) in <u>Biological</u> <u>Sciences</u> at the University of Pisa (Italy) with the Thesis "Strategie per l'uso di ribozimi per l'inattivazione di funzioni geniche: il sistema "newt self-cleaving RNA"/ metilguanina:DNA metiltrasferasi".
- Nov/88-Nov/93 Faculty of Sciences, University of Pisa: Corso di Laurea in Biological Sciences.
 Jul/88 Diploma di Maturita' Scientifica (60/60) at the Liceo Scientifico Statale "E. Fermi", Cosenza, Italy.

Research support

<u>Ongoing</u>

- diaRNAgnosis(Denti, PI) 01/2021-12/2024 -- 135,000 Euro European Commission, Marie Skłodowska-Curie Actions - Reasearch and Innovation Staff Exchange"A novel platform for the direct profiling of circulating cell-free ribonucleic acids in biofluids"
- "An innovative diagnostic device based on microRNA detection from liquid biopsies" (Denti, PI) - 03/2020-02/2022 - 100,000 Euro Fondazione Cassa di Risparmio di Trento e Rovereto

<u>Past</u>

- miRNA-DisEASY (Denti, PI) 12/2015-11/2019 -- 153,000 Euro European Commission, Marie Skłodowska-Curie Actions - Reasearch and Innovation Staff Exchange *"microRNA biomarkers in an innovative biophotonic sensor kit for high-specific diagnosis"*
- **RF-2011-02347694** (Morrone, PI; Denti, Co-PI) -- 09/2014-04/2018 -- 47,000 Euro Italian **Ministry of Health** *"Therapeutic correction of mis-spliced RNA transcripts and of protein conformational defects in Lysosomal Storage Disorders"*
- **TRANSCRAPPLE** (SiAmmour, PI; Denti, Co-PI) 06/2013-03/2017 251,124 Euro **Provincia Autonoma di Trento** Grandi progetti 2012: *"Transcriptional and Post-transcriptional regulation of apple fruit development"*
- APROMU (Ravelli, PI; Denti, Co-PI) 12/2011-10/2014 70,000 Euro "A multiscale approach to the study of the mutifactorial substrate of postoperative atrial fibrillation". Fondazione Cassa di Risparmio di Trento e Rovereto.
- **RBFR-0895DC** (Denti, PI) 12/2010 12/2014 FIRB 2008 Futuro in Ricerca 186,000 Euro Italian Ministry of Education, University and Research "Mechanisms of posttranscriptional regulation of gene expression in dementias"
- **GR-2008-1136933** (Denti, PI) 12/2010-05/2014 Giovani Ricercatori 292,961 Euro Italian **Ministry of Health** "Antisense RNA-mediated gene therapy of retinal dystrophies and dysfunctions"
- **PRIN-2008-W8JTPA** (Denti, National Coordinator) 06/2010-09/2012 59,982 Euro Italian **Ministry of Education, University and Research** "*A functional study of hereditary mutations in the non-coding regions of cancer proneness genes: CDKN2A, MEN1 and PTEN*"
- **GGP08244** (Denti, PI) 01/2009-12/2011 183,400 Euro **Telethon Italia** "Antisense RNAinduced exon skipping for the gene therapy of FrontoTemporal Dementia and Parkinsonism associated with chromosome 17(FTDP-17)"

Memberships

- Società Italiana di Biochimica (SIB, Italian Society of Biochemistry) since 1996.
- Associazione Alunni, Ricercatori e Professori della Scuola Normale Superiore since 1997.
- RNA Society since 2012.
- Società Italiana di Biofisica e Biologia Molecolare (SIBBM) since 2013.
- Associazione Italiana Biologia e Genetica (AIBG) since 2014
- Oligonucleotides Therapeutics Society (OTS) since 2018

<u>Teaching (Since 2008)</u> <u>https://webapps.unitn.it/du/en/Persona/PER0033184/Didattica</u>

- RNA BIOLOGY for the students of Corso di Laurea triennale in Scienze e Tecnologie Biomolecolari. University of Trento (58 hours, since A.Y. 2015/2016)
- HIGH-THROUGHPUT TECHNOLOGIES for the students of the Master in Biotechnology, University of Trento (52 hours, since A.Y. 2013/2014).
- RNA BIOLOGY AND BIOTECHNOLOGY for the students of PhD School in Biomolecular Sciences. University of Trento (12 hours, since A.Y. 2010/2011).
- LABORATORY LIFE for the students of the Master in Communication of Science and Technology, University of Trento (6 hours, since A.Y. 2018/2019).
- MOLECULAR BIOLOGY for the students of the Corso di Laurea triennale in Tecniche di Laboratorio Biomedico. Facoltà di Medicina e Chirurgia, Università di Verona, Polo di Rovereto (20 hours, A.Y. 2012/2013, 2013/2014).
- SYSTEMS BIOLOGY I (BIOMOLECULAR NETWORKS) for the students of Corso di Laurea triennale in Scienze e Tecnologie Biomolecolari. University of Trento (58 hours, A.Y. 2011/2012, 2012/2013).
- BIOPHYSICS (1st unit), for the students of Corso di Laurea triennale in Fisica, Corso di Laurea triennale in Matematica, Corso di Laurea specialistica in Fisica. University of Trento. (42 hours, A.Y. 2008/2009).

<u>Mentoring</u> (since 2008): 5 PostDoctoral Researchers, 7 PhD students, 10 MSc students, 17 BSc students, 3 Fellows, 11 visiting fellows.

Ten most important scholarly publications

- Detassis S, Del Vescovo V, Grasso M, Masella S, Cantaloni C, Cima L, Cavazza A, Graziano P, Rossi G, Barbareschi M, Ricci L, **Denti MA. 2020** "miR375-3p distinguishes low-grade neuroendocrine from non-neuroendocrine lung tumors in FFPE samples." *Front. Mol. Biosci.* 7:86. doi: 10.3389/fmolb.2020.00086
- Detassis S, Grasso M, Tabraue-Chávez M, Marin Romero A, Ilyine H, Ress C, Ceriani S, Erspan M, Maglione A, Díaz-Mochón J, Pernagallo S*, **Denti MA* 2019** "A new platform for the direct profiling of microRNAs in biofluids." *Analytical Chemistry. 91* (9), 5874-5880 DOI: 10.1021/acs.analchem.9b00213. *equally contributing
- Grasso M, Piscopo P, Talarico G, Ricci L, Crestini A, Tosto G, Gasparini M, Bruno G, Denti MA*, Confaloni A*. 2019 "Plasma microRNAs profiling distinguishes patients with frontotemporal dementia from healthy subjects." *Neurobiology of Aging.* 84:240.e1-240.e12 *equally contributing
- Ferri L, Covello G, Caciotti A, Guerrini R, Denti MA*, Morrone A* 2016 "Double-target antisense U1snRNAs correct mis-splicing due to GLA deep intronic mutations in Fabry Disease" *Molecular Therapy Nucleic Acids* 5, e380; doi:10.1038/mtna.2016.88 *equally contributing
- Barbareschi M, Cantaloni C, Del Vescovo V, Cavazza A, Monica V, Carella R, Rossi G, Morelli L, Cucino A, Silvestri M, Tirone G, Pelosi G, Graziano P, Papotti M, Dalla Palma P, Doglioni C, **Denti MA**. **2011** "Heterogeneity of large cell carcinoma of the lung: an immunophenotypic and miRNA based analysis". *Am. J. Clin. Pathol.* 136:773-782. DOI: 10.1309/AJCPYY79XAGRAYCJ
- 6. **Denti MA**, Incitti T, Sthandier O, Nicoletti C, De Angelis FG, Rizzuto E, Auricchio A, Musaro' A, and Bozzoni I. **2008** "Long-term benefit of AAV/antisense-mediated exon skipping in dystrophic mice." *Hum. Gene Ther.* 19:601-608.
- 7. **Denti MA**, Rosa A, D'Antona G, Sthandier O, De Angelis FG, Nicoletti C, Allocca M, Pansarasa O, Parente V, Musaro' A, Auricchio A, Bottinelli R and Bozzoni I **2006** "Bodywide gene therapy of Duchenne Muscular Dystrophy in the *mdx* mouse model". *Proc. Natl Acad. Sci.* 103:3758-3763.
- 8. **Denti MA**, Rosa A, Sthandier O, De Angelis FG, Bozzoni I **2004** "A new vector, based on the pollI promoter of U1 snRNA gene, for the expression of siRNAs in mammalian cells." *Mol. Therapy* 10:191-199.
- Papaefthimiou I, Hamilton AJ, Denti MA, Baulcombe DC, Tsagris M and Tabler M 2001 "Replicating potato spindle tuber viroid RNA is accompanied by short RNA fragments that are characteristic of posttranscriptional gene silencing". *Nucleic Acids Res.* 29:2395-2400.
- 10. **Denti MA**, Martínez de Alba AE, Sägesser R, Tsagris M and Tabler M **2000** "A novel RNA-binding protein from *Triturus carnifex* identified by RNA-ligand screening with the newt hammerhead ribozyme". *Nucleic Acids Res.* 28: 1045-1052.