Curriculum Vitae MURDOCCA MICHELA

Current position and place of work: RTDa at University of Rome Tor Vergata, Department of Biomedicine and Prevention, Genetic Unit ,Via Montpellier1,00133 Italy

Education and professional experience:

2006 : Degree in Biotecnology, University of Rome Tor Vergata, Italy
2008: Master's Degree in Medical Biotecnology University of Rome Tor Vergata, Italy 2008
2009: Qualified as a Professional biologist
2009-2013: PhD student at University of Rome Tor Vergata, Department of Biomedicine and Prevention, Genetic Unit.
2013-2014: PhD scholar fellowship titled: "Pharmacological treatment of Spinal Muscular Atrophy (SMA) by IPLEX administration"
2014-2015: PhD scholar fellowship titled: "'Molecular mechanisms in the pathogenesis of type 2 diabetes mellitus and its cardiovascular complications"
2015-2017: Research Grant titled: "Countermeasures of the reactions of astronauts"
7-11-2017: Speciality degree in Medical Genetics at University of Rome Tor Vergata,
2017-2019: Research Grant titled "VolaCol" regarding study about LOX-1 (ox-LDL receptor) and human Colorectal cancer .
2019-2022: Research Grant titled "VolaCol" regarding study about LOX-1 (ox-LDL receptor) and human Colorectal cancer
Since March 2023: Researcher (RTDa) in Medical Genetics at the University of Rome "Tor Vergata

Professional training

Since 2007 she has been collaborating as PhD at Medical Genetic laboratory, University of Rome Tor Vergata. Until 2011 she carried out research activities aimed at the study of pharmacological treatments on murine models affected by SMA. From 2011 to date, she has worked personally on the development and in-depth study of the Volacol and "Fondazione Veronesi" projects entitled "Lipid metabolism and cancer: LOX-1 a new potential molecular target in colon cancer therapy" through studies both *in vitro* than *in vivo*. She also collaborates for the study of hiPSCs as models of genetic diseases both in terms of characterization and differentiation. Deepening of rare genetic diseases called Laminopathies both in the diagnostic and research fields. Since March 2023, she has been a Researcher (RTDa) in Medical Genetics at the University of Rome "Tor Vergata" taking care the project regarding the development of gene therapy and drugs with RNA technology.

Languages

Mother tounge: Italian
Other languages: proficient in both spoken and written English.

Computer Competences

Operating Systems: Microsoft Windows 95, 98, 2000, XP
Office: Microsoft Office: Excel, Word, PowerPoint, Access
Communication: Microsoft Outlook, Outlook Express. Various Internet browsers.

Technical skills

Animal experimentation: knowledge and manipulation of *in vivo* models, *xenograft* models.

Cell culture: mouse and human embryonic stem cells (mESCs/hESCs), human induced pluripotent stem cells (iPSc), HEK-293T, primary cultures of human fibroblast, amniotic fluid (AF), chorionic villus sample (CVS) and mouse embryonic fibroblast (MEF), human colorectal cancer cells (DLD1,RKO,HCT8,SW480) and renal cancer cell (SN12C, 786O,A498)

Microbiology: restriction analyses, liquid and solid culture of bacteria, isolation and transformation, preparation and purification of *Lentivirus* (work in class III laboratory).

Microscopy: fluorescence and light microscopy.

Molecular biology: primers design, DNA and RNA extraction, Gel electrophoresis, automated sequencing, reverse transcription (RT),genotyping (Allelic discrimination assays, Copy number assay), gene expression by Taqman probes and Sybr Green (RT-qPCR),NGS.

Biochemistry: IHC, Western blot, ELISA.

Posters/ Abstracts

-Malgieri A, Luchetti A, Sanchez M, Bellocchi M, Spitalieri P, Murdocca M, Novelli G, Sangiuolo F. *Restored SMN1 expression by lentiviral vector in murine EmbryonicStem Cells derived from Spinal Muscular Atrophy (SMAI) mice* .ESGCT, Milan, Italy, 2010

-Minella D, Biancolella M, Murdocca M, Zenobi R, Testa B, Bueno S, Novelli G and Giganti M.G. *The peripheral blood mononuclear cells (PBMC) genomic response related to androgen and insulin metabolism pathway in recreational and agonist athletes*. 59° National congress A.I.Pa.C.Me.M., Rome, Italy, 2009

-Zenobi R, Giganti M.G, Murdocca M, Torriero A, Cerocchi I, Celi M, Tarantino U.
Osteoporosis: cytokines pathway in hip fractures.
59° National congress A.I.Pa.C.Me.M., Rome,Italy, 2009

-D'Arcangelo G, Murdocca M, Grossi D, Sangiuolo F, Tancredi V.
EMG activity reveals characteristic pattern in a mouse model of mild spinal (type III) muscular atrophy.
60° "National Congress of the Italian Physiological Society" Pisa, Italy, 2009

- Murdocca M, Fiorillo C, Trucco F, Pedemonte M, D'Apice M.R, Sangiuolo F.C, Novelli G, Minetti C.
A new case of MDP syndrome caused by recurrent single-codon deletion in the POLD1 gene. ESHG, Milan,Italy, 2014

-Spitalieri P, Talarico V, Marcaurelio M, Murdocca M, Cardani R, Fontana L, Meola G, Novelli G, Sangiuolo F and Botta A.
Generation of induced pluripotent stem cells as cellular model to study the pathogenesis of myotonic dystrophy type 2 (DM2), IDMC10 Paris,France, and ISCT Europe, Regional meeting,2015

- Michela Murdocca, Elena Morini, Federica Sangiuolo, Francesca Amati, Antonio Pizzuti, Chiara Fiorillo, Giuseppe Novelli, Maria Rosaria D'Apice. *NGS APPROACH AS A TOOL TO DEFINE THE COMPLEXITY OF RARE PROGEROID SYNDROMES*. International Meeting on Laminopathies, Bologna 2017

- Talarico RV, Murdocca M, De Masi C, Campione E, Serafino A, D'Adamo M, Sbraccia P, D'Apice MR, Novelli G, Sangiuolo F. Generation of patient-specific hiPSCs model to study POLD1-related MDPL syndrome. ESHG, 2018. Milan, Italy.

-Talarico RV, Spitalieri P, Murdocca M, Sanchez M, De Masi C, Longo G, Novelli G, D'Apice MR, Sangiuolo F. Study of the pathogenetic role of POLD1 gene in Mandibular hypoplasia, Deafness, Progeroid features and Lipodystrophy (MDPL) Syndrome in cellular models. XXI CONGRESSO NAZIONALE SIGU, 2018. Catania, Italy.

-Spitalieri P, Murdocca M, Agolini E, De Masi C, Ferradini V, Cocciadiferro D, Manzo L, Novelli A, Sangiuolo F, Novelli G. Molecular and functional characterization of ZFYVE26 mutations in a

patient affected by spastic paraplegia type 15. XXII CONGRESSO NAZIONALE SIGU, 2019. Rome, Italy.

- De Masi C, Murdocca M, Spitalieri P, Ferradini V, Luciano S, Mannucci S, Parlapiano G, Conte C, Giannella S, Cosma J, Martino AM, Silvetti E, Calò L, Novelli G, Mango R, Sangiuolo FC. Molecular and functional characterization of two LMNA gene variants causing dilated cardiomyopathy. XXII CONGRESSO NAZIONALE SIGU, 2019. Rome, Italy.

-Spitalieri P, Novelli G, Murdocca M, De Masi C, D'Apice R, D'Adamo M, Udroiu I, Marinaccio J, Sgura A, Sbraccia P, Sangiuolo F. Characterization of the Pathogenetic Role of POLD1 Gene in Mandibular Hypoplasia, Deafness,Progeroid Features and Lipodystrophy (MDPL) Syndrome. HUGO HGM, 2020. Virtual Meeting.

-De Masi C, Spitalieri P, Murdocca M, Ferradini V, D'Adamo M, Sbraccia P, Sanchez M, Udroiu I, Marinaccio J, Novelli G, Sgura A, D'Apice MR, Sangiuolo F. Characterization of the pathogenetic role of POLD1 gene in Mandibular hypoplasia, Deafness, Progeroid features and Lipodystrophy (MDPL) Syndrome. ESHG, 2020. Virtual Conference

-Murdocca M, Spitalieri P, Cappello A,Colasuonno ,S. Moreno, E. Candi, M.R. D'Apice G.Novelli, F.Sangiuolo. Mitochondrial dysfunction in Mandibular hypoplasia, Deafness and Progeroid features with concomitant Lipodystrophy Comunicazione orale selezionata per il XXIV CONGRESSO NAZIONALE SIGU 2021. Virtual Conference

Selected Publications

1. **Murdocca M** and Malgieri A, Luchetti A, Saieva L, Dobrowolny G, de Leonibus E, Filareto A, Quitadamo MC, Novelli G, Musarò A, Sangiuolo F. *IPLEX administration improves motor neuron survival and ameliorates motor functions in severe mouse model of SMA*; 2012. Molecular Medicine, 18(7), pp 1076-1085 **(I.F 3.457)**

2. **Murdocca M**, Mango R, Pucci S, Biocca S, Testa B, Capuano RM, Paolesse R, di Natale C, Novelli G,Sangiuolo F.*The lectin-like oxidized LDL receptor-1: a new potential molecular target in colon rectal cancer* ;2016.Oncotarget 7(12):14765-80 **(I.F 3.331)**

3. **Murdocca M**, Ciafrè SA, Spitalieri P, Talarico RV, Sanchez M, Novelli G, Sangiuolo. *SMA Human iPSC-Derived Motor Neurons Show Perturbed Differentiation and Reduced miR335-5p Expression*; 2016. International Journal of Molecular Sciences. 17(8) **(I.F 6.208)**

4. Rizzacasa B, Morini E, Pucci S, **Murdocca M**, Novelli G, Amati F. *LOX-1 and Its Splice Variants: A New Challenge for Atherosclerosis and Cancer-Targeted Therapies;* 2017. Int J Mol Sci. 18(2) **(I.F 6.208)**

5. Lo Castro A and **Murdocca M**, Pucci S, Zaratti A, Greggi C, Sangiuolo F, Tancredi V, Frank C, D'Arcangelo G. *Early Hippocampal i-LTP and LOX-1 Overexpression Induced by Anoxia: A Potential Role in Neurodegeneration in NPC Mouse Model*; International Journal of Molecular Sciences;2017.18(7). **(I.F 6.208)**

6. Maroofian R, and **Murdocca M**, Rezaei-Delui H, Nekooei A, Mojarad M, Sangiuolo, F, Novelli G, Superti-Furga A,D'Apice MR. *A novel in-frame deletion in ZMPSTE24 is associated with autosomal recessive acrogeria (Gottron type) in an extended consanguineous family;* 2018. Clinical Dysmorphology 27(3):88-90. **(I.F 0.81)**

7. **Murdocca M**, Capuano R, Pucci S, Cicconi R, Catini A, Martinelli E, Paolesse R, Orlandi A, Mango R, Novelli G, Di Natale C, Sangiuolo F. *Targeting LOX-1 inhibits colorectal cancer metastasis formation in an animal model;* 2019. Frontiers in oncology; 19;9:927**(I.F 5.738)**

8. De Masi C, Spitalieri P, **Murdocca M,** Novelli G, Sangiuolo F; 2020.Hum Genomics 14(1):25. **(I.F 5.88)**

9. **Murdocca M**, De Masi C, Pucci S, Mango R, Novelli G, Di Natale C, Sangiuolo F. *LOX-1 and cancer: an indissoluble liaison;* 2021. Cancer gene therapy 28, 1088–1098**(I.F 5.854)**

10. **Murdocca M**, Spitalieri P, De Masi C, Udroiu I, Marinaccio J, Sanchez M, Talarico RV, Fiorillo C, D'Adamo M, Sbraccia P, D'Apice MR, Novelli G, Sgura A, Sangiuolo F. *Functional analysis of POLD1 p.Ser605del variant: the aging phenotype of MDPL Syndrome is associated to an impaired DNA repair capacity;*2021. Aging. 13(4):4926-4945 **(I.F 5.955)**

11. **Murdocca M**, Citro G, Romeo I, Lupia A, Miersch S, Amadio B , Bonomo A, Rossi A, Sidhu S, Pandolfi PP, Alcaro S, Sangiuolo F,C, Novelli G. *Peptide platform as a powerful tool in the fight against covid-19*;2021.Viruses. 13(8):1667. **(I.F 5.818)**

12. **Murdocca M,** Torino F, Pucci S, et al. *Urine LOX-1 and Volatilome as Promising Tools towards the Early Detection of Renal Cancer;*2021.Cancers 21;13(16):4213**(I.F 6.575)**

13. Ferradini V, Cosma J,Romeo F, De Masi C, **Murdocca M**, et al. *Clinical features of LMNA-related cardiomyopathy in 18 patients and characterization of two novel variants;*2021.10 (21):5075 J Clin Med. **(I.F 4.964)**

14. Spitalieri P, Centofanti F, **Murdocca M**,*et al*. hiPSCs-*derived lung organoids for the development and optimization of SARS-CoV-2 treatment;* 2022. Cells 2022 11(7), 1235 **(I.F 7.666)**

15. **Murdocca M**, Spitalieri P,Cappello A,*et al*. *Mitochondrial dysfunction in mandibular hypoplasia, deafness and progeroid features with concomitant lipodystrophy (MDPL) patients;* 2022. Aging. 14(4):1651-1664. **(I.F 5.955)**

16. **Murdocca M**, Citro G, Centanini, E *et al. COVID-19: S-Peptide RBD 484–508 Induces IFN-γ T-Cell Response in Naïve-to-Infection and Unvaccinated Subjects with Close Contact with SARS-CoV-2-Positive Patients;2023.* Viruses 15: 1417.**(I.F 5.818)**

17. **Murdocca, M** ,Spitalieri P,D'Apice, MR *et al.*From cue to meaning: The involvement of POLD1 gene in DNA replication, repair and aging;2023 . 111790 Mechanisms of Ageing and Development. **(I.F 5.498)**