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Current position

Apr 2024-Today: AIRC Post-Doctoral fellowship within the project entitled: "Pro-apoptotic role of long non-coding RNA H19 in response to HDAC inhibitors in colon cancer cells", Department of BioMedicine, Neuroscience and Advanced Diagnostics (Bi.N.D) - Laboratory of Biochemistry, University of Palermo (Unipa).

Previous positions

Nov 2020-Feb 2024: Ph.D. Student in Experimental Oncology and Surgery within the project entitled: "Study of the molecular mechanisms by which non-coding RNAs (IncH19 and miR-675) control tumor progression and resistance to drug therapy in colorectal cancer", Dept. Bi.N.D-Unipa. Date of Ph.D. Degree 23/02/2024.

Jan-Oct 2020: Post-graduate researcher fellow within the project entitled: "Study of the interaction between non-coding RNA H19 and its intragenic miR-675-5p: new targets for primary or metastatic colon cancer", Dept. Bi.N.D - Unipa;

Oct-Dec 2019: Postgraduate voluntary internship in cellular and molecular biology laboratory, Biology and Genetics section - Dept. Bi.N.D - Unipa.

Education and training

Nov 2020-Feb 2024: Ph.D. in Experimental Oncology and Surgery - Cycle XXXVI, Dept. Bi.N.D - Laboratory of Cellular and Molecular Biology, Biology and Genetics section, Unipa.

Nov 2023: Licence to practise as a biologist (Section A). Evaluation: 50/50.

2017-19: Master's Degree in Medical Biotechnology and Molecular Medicine (LM-9), School of Medicine and Surgery - Unipa. Date of Master's Degree 18/10/2019, evaluation: 110/110 cum laude.

2014-17: Bachelor's Degree in Biological Sciences (L-13), Unipa. Date of Bachelor's Degree 18/10/2017.

Research awards and grants

Apr 2024: Winner of the Best Oral Communication award at the 96th SIBS (Italian Society of Experimental Biology) Congress.

Dec 2023: Winner of the Best Paper award 2023, first place with the paper entitled "Mir-675-5p supports hypoxia-induced drug resistance in colorectal cancer cells" (preclinical area), Di.Chir.On.S.-Unipa; Winner of AIRC postdoctoral fellowship.

Apr 2023: Winner of the Best Videoposter award at the 95th SIBS Congress.

Apr 2021: Winner of the Best Videoposter award at the 93th SIBS Congress.

Oct 2020: Winner of a doctoral fellowship in Experimental Oncology and Surgery (first place), Unipa.

Jul 2020: Winner of the ISEV (International Society for Extracellular Vesicles) 2020 scholarship, for participation in the ISEV 2020 Virtual Meeting.

Scientific publications

"*Regulatory role of lncH19 in RAC1 alternative splicing: implication for RAC1B expression in colorectal cancer*".

Cordaro A[#], Barreca MM[#], **Zichittella C**, Loria M, Anello D, Arena G, Sciaraffa N, Coronnello C, Pizzolanti G, Alessandro R, Conigliaro A. J Exp Clin Cancer Res. 2024 Aug 5;43(1):217. [#]Contributed equally. Doi: 10.1186/s13046-024-03139-z. PMID: 39098911.

"*Long non-coding RNA H19 enhances the pro-apoptotic activity of ITF2357 (a histone deacetylase inhibitor) in colorectal cancer cells*".

Zichittella C, Loria M, Celesia A, Di Liberto D, Corrado C, Alessandro R, Emanuele S, Conigliaro A. Front Pharmacol. 2023 Sep 28;14:1275833. Doi: 10.3389/fphar.2023.1275833. PMID: 37841928.

"*Mir-675-5p supports hypoxia-induced drug resistance in colorectal cancer cells*".

Zichittella C, Barreca MM, Cordaro A, Corrado C, Alessandro R, Conigliaro A. BMC Cancer. 2022 May 20;22(1):567. Doi: 10.1186/s12885-022-09666-2. PMID: 35596172.

"*Molecular Mediators of RNA Loading into Extracellular Vesicles*".

Corrado C, Barreca MM, **Zichittella C**, Alessandro R, Conigliaro A. Cells. 2021 Nov 30;10(12):3355. Doi: 10.3390/cells10123355. PMID: 34943863.

"*Hypoxia-Induced Non-Coding RNAs Controlling Cell Viability in Cancer*".

Barreca MM, **Zichittella C**, Alessandro R, Conigliaro A. Int J Mol Sci. 2021 Feb 12;22(4):1857. Doi: 10.3390/ijms22041857. PMID: 33673376.

"*Biological Properties of a Citral-Enriched Fraction of Citrus limon Essential Oil*".

Pucci M, Raimondo S, **Zichittella C**, Tinnirello V, Corleone V, Aiello G, Moschetti M, Conigliaro A, Fontana S, Alessandro R. Foods. 2020 Sep 14;9(9):1290. Doi: 10.3390/foods9091290. PMID: 32937843.

"*Hypoxia-Induced miR-675-5p Supports β-Catenin Nuclear Localization by Regulating GSK3-β Activity in Colorectal Cancer Cell Lines*".
Saieva L[#], Barreca MM[#], **Zichittella C**, Prado MG, Tripodi M, Alessandro R, Conigliaro A. Int J Mol Sci. 2020 May 28;21(11):3832. [#]Contributed equally. Doi: 10.3390/ijms21113832. PMID: 32481626.

Scientific Posters and Abstracts/Abstracts in conference proceedings published in journal

Oct 2024: "*Resistance mechanisms to 5-Fluorouracil in colon cancer cells and the sensitizing effects of the HDAC inhibitors ITF2357: the involvement of lipid metabolism and lncRNA H19*".
Chiara Zichittella, Marzia Franzò, Marta Alicò, Riccardo Alessandro, Alice Conigliaro, Sonia Emanuele. Presented at the SIB Congress, Messina (Italy).

Sep 2024: "*Epigenetic tools for potential colon cancer treatment: HDAC inhibitors and lncRNA H19*".
Marzia Franzò[#], **Chiara Zichittella**[#], Marta Alicò, Federica Affranchi, Riccardo Alessandro, Alice Conigliaro, Sonia Emanuele. Presented at the 4th Workshop of the SIB group "Biochemical Dynamics in Tumor Microenvironment: new insights and implications Biochemical Dynamics in Tumor Microenvironment: new insights and implications", Catania (Italy). [#]Contributed equally.

"*Targeting redox balance and autophagy by grape pomace extract: a critical point to decide cancer cell fate*".
Federica Affranchi, Lorenzo V. Chiovaro, **Chiara Zichittella**, Marzia Franzò, Michela Giuliano, Antonietta Notaro. Presented at the 4th Workshop of the SIB group "Biochemical Dynamics in Tumor Microenvironment: new insights and implications Biochemical Dynamics in Tumor Microenvironment: new insights and implications", Catania (Italy).

Jun 2024: "*The Histone Deacetylase Inhibitor ITF2357 (Givinostat) promotes apoptosis in colorectal cancer cells exploiting Long non-coding RNA H19*".
Chiara Zichittella, Marco Loria, Adriana Celesia, Diana Di Liberto, Chiara Corrado, Riccardo Alessandro, Sonia Emanuele, Alice Conigliaro. Presented at the 10th World Congress on Cancer Research and Therapy, Prague (Czech Republic).

Apr 2024: "*LncH19 favours apoptosis induced by the Histone Deacetylase Inhibitor ITF2357 (Givinostat) in colon cancer cells*".
Chiara Zichittella, Marco Loria, Adriana Celesia, Chiara Corrado, Riccardo Alessandro, Sonia Emanuele, Alice Conigliaro. Oral communication presented by CZ at the 96th SIBS-1925 Congress, Aquila (Italy). Abstract published in the Journal of Biological Research (Volume 97, page 43).

"*The lncRNA H19 modulates alternative splicing of GTPase-RAC1 in colorectal cancer cells*".

Maria Magdalena Barreca, Aurora Cordaro, Marco Loria, **Chiara Zichittella**, Nicolina Sciaraffa, Claudia Coronnello, Goffredo Arena, Riccardo Alessandro, Alice Conigliaro. Presented at the 96th SIBS-1925 Congress, Aquila (Italy).

Oct 2023: "*Unveiling new mechanisms of action for the lncH19 in promoting colorectal cancer*".
Maria Magdalena Barreca, Aurora Cordaro, **Chiara Zichittella**, Marco Loria, Claudia Montaldo, Claudia Coronello, Riccardo Alessandro, Alice Conigliaro. Poster presented at the European Molecular Biology Laboratory Symposium, Heidelberg (Germany).

"*Intragenic miRNAs: molecular mechanisms for miR-675 maturation from long non-coding H19*".
Aurora Cordaro, Maria Magdalena Barreca, Marco Loria, **Chiara Zichittella**, Riccardo Alessandro, Alice Conigliaro. Poster presented at the European Molecular Biology Laboratory Symposium, Heidelberg (Germany).

"*The long non-coding RNA H19 regulates RBFOX2-mediated alternative splicing in colorectal cancer*".
Maria Magdalena Barreca, Aurora Cordaro, Marco Loria, **Chiara Zichittella**, Claudia Coronello, Simona Fontana, Riccardo Alessandro, Alice Conigliaro. Presented at the 1st International Cancer Science Congress 2023, Palermo (Italy).

Sep 2023: "*Horizontal transfer of long non-coding RNA H19 transports splicing factors in recipient cells*".
Marco Loria, **Chiara Zichittella**, Maria Magdalena Barreca, Aurora Cordaro, Simona Fontana, Riccardo Alessandro, Alice Conigliaro. Poster presented at the Biennial Congress of ABCD (Association of Cell Biology and Differentiation), Paestum (Italy).

"*The long non-coding RNA H19 regulates alternative splicing in colorectal cancer*".
Aurora Cordaro, Maria Magdalena Barreca, Marco Loria, **Chiara Zichittella**, Simona Fontana, Riccardo Alessandro, Alice Conigliaro. Poster presented at the Biennial Congress of ABCD (Association of Cell Biology and Differentiation), Paestum (Italy).

Jun 2023: "*The long non-coding RNA regulates RBFOX2-mediated alternative splicing in colorectal cancer*".
Maria Magdalena Barreca, Aurora Cordaro, Marco Loria, **Chiara Zichittella**, Claudia Moltalto, Marco Tripodi, Simona Fontana, Riccardo Alessandro, Alice Conigliaro. Presented at the International Conference on Cancer and Oncology Research, Roma (Italy).

May 2023: "*LncH19 enhances the pro-apoptotic activity of histone deacetylase inhibitor ITF2357 in colorectal cancer cells*".

Chiara Zichittella, Marco Loria, Adriana Celesia, Chiara Corrado, Riccardo Alessandro, Sonia Emanuele, Alice Conigliaro. Oral communication presented by CZ at the 7th Cancer World Congress, Trieste (Italy).

Apr 2023: "*LncH19 enhances the pro-apoptotic activity of histone deacetylase inhibitor ITF2357 in colorectal cancer cells*".
Chiara Zichittella, Marco Loria, Adriana Celesia, Chiara Corrado, Riccardo Alessandro, Sonia Emanuele, Alice Conigliaro. Videoposter presented by CZ at the 95th SIBS-1925 Congress.

Feb 2023: "*Effect of colorectal cancer cell-derived exosomal lncH19 on Human umbilical vein endothelial cells: new hypothesis, on the promotion of endothelial to mesenchymal transition*".
Chiara Zichittella, Marco Loria, Maria Magdalena Barreca, Aurora Cordaro, Simona Fontana, Riccardo Alessandro, Alice Conigliaro. Poster presented by CZ in the Venice Winter School, Venezia (Italy).

Apr 2021: "*Hypoxia-induced miR-675-5p controls cell survival by modulating apoptosis and autophagy*". **Chiara Zichittella**, Maria Magdalena Barreca, Chiara Corrado, Aurora Cordaro, Riccardo Alessandro, Sonia Emanuele and Alice Conigliaro. Videoposter presented by CZ at the 93th SIBS-1925 Congress, Palermo (Italy).

Jul 2020: "*Tumor cell-derived small extracellular vesicles modulate macrophage immunosuppressive phenotype associated with PD-L1 expression*".
M. Pucci, **C. Zichittella**, O. Urzì, M. Moschetti, N. Caccamo, M.P. La Manna, R. Alessandro, S. Fontana, S. Raimondo.
Presented at the Virtual Annual Meeting ISEV (International Society for Extracellular Vesicles) 2020, Philadelphia, Pennsylvania (USA). Abstract published in the Journal of extracellular vesicles.

Nov 2019: "*Colon cancer cell-derived exosomes modulate macrophage immunosuppressive phenotype associated to PD-L1 expression*".
M. Pucci, L. Saieva, G. Buscemi, **C. Zichittella**, R. Alessandro, S. Fontana. Poster presented at the 1st EVIta (Italian Society for Extracellular Vesicles) Symposium, Palermo (Italy).

Oct 2019: "*Tumor cell-derived exosomes modulate macrophage immunosuppressive phenotype associated to PD-L1 expression*".
M. Pucci, S. Raimondo, L. Saieva, **C. Zichittella**, O. Urzì, R. Alessandro, S. Fontana. Poster presented at the BESEV (Belgian Society for Extracellular Vesicles) meeting, Leuven (Belgium).

"*Colon cancer cell-derived exosomes induce macrophages to acquire an immunosuppressive phenotype by upregulating PD-L1 expression*".

M. Pucci, L. Saieva, G. Buscemi, **C. Zichittella**, R. Alessandro, S. Fontana. Presented at the XIX AIBG (Associazione Italiana di Biologia e Genetica Generale e Molecolare) National Congress, Milan (Italy).

Professional activity:

2024: Subject expert for the courses "Cell biochemistry and epigenetics of metabolic pathologies", Prof. Sonia Emanuele, Medical Biotechnology and Molecular Medicine, School of Medicine and Surgery, University of Palermo.

Jul 2024: Co-supervisor of the master thesis in Medical Biotechnology and Molecular Medicine, entitled "Analysis of the mechanisms of resistance to 5-Fluorouracil in Colon Carcinoma cells. Effects of the Histone Deacetylase Inhibitor ITF2357 (Givinostat)".

Consistent contribution to teaching Molecular Genetics (2020-2024), Neuroscience (2022-2023) and Biochemistry (2024) laboratories. Consistent contribution to teaching Molecular Genetics (2020-24), Neuroscience (2022-2023) and Biochemistry (2024) laboratories.

Certified courses/training

May 2024: National Legislation and Ethics, modules 1 and 2 DM Aug 5, 2021; Biology and Management of laboratory animals, modules 3.1, 4, 5, 6.1 and 7. DM 5 Aug 2021, rodents and lagomorphs; Ethics and Design of projects, modules 9, 10 and 11, DM 5 Aug 2021.

Feb 2023: Venice Winter School, Extracellular vesicles.

Jun 2022: Experimentation with laboratory animals.

Feb 2022: Confocal imaging.

Apr 2021: Fluorescence microscopy.

Dec 2020: Cytometry.

Dec 2018: Recognition of distress, pain and suffering of rodents.

Nov 2017: 154th Course, Revolving knowledge in the management of solid tumors.

Workshops participation

Sept 2024: AIRC- IROM Joint Meeting 2024 – From Biological Mechanisms to New Therapies.

Jun 2024: Enabling new alternatives to animal models.

Jan 2024: Cellular models: from cell signaling to biotechnological applications.

Oct 2019: Advanced therapy medicinal products.

Sep 2018: Innate Immunity - from insects to humans.

Languages

Italian/English

Membership in scientific societies

2024-25: Young Member of SIB (Italian Society of Biochemistry and Molecular Biology).

2022-24: Ordinary Member of SIBS.

2021-22: Junior Member of EVIta.

Associate editor and reviewer of scientific journals

Associate Editor for the Journal of Biological Research.

Reviewer for the Cellular & Molecular Biology Letters and the International Journal of Cell Biology.

Lay dissemination activities

Nov 2024: Lay dissemination activities during the “Incontri con la Ricerca” event. Participation as AIRC Researcher for oncology dissemination activities in schools. Liceo Scientifico Ruggieri (Marsala, Italy).

Lay dissemination activities during the “Cancro ti boccio” event. Participation as AIRC Researcher for oncology dissemination activities in schools. SMS Morvillo (Monreale, PA).

Lay dissemination activities during the “I Cioccolatini della Ricerca” event. Voluntary participation as AIRC staff for cancer science dissemination and fundraising activities. Piazza Loggia (Marsala, TP. - Italy).

Lay dissemination activities during the “Giornata dei volontari AIRC” event. Participation as AIRC Researcher for oncology dissemination activities. Hotel Villa D’Amato (Palermo, Italy).

May 2024: Lay dissemination activities during the "Research azalea, 40 years with women!" event. Voluntary participation as AIRC staff for cancer science dissemination and fundraising activities. Piazza Loggia (Marsala, TP. - Italy).

May 2021: Lay dissemination activities during the "Research Azalea, Mom You're a Flower!" event. Voluntary participation as AIRC staff for cancer science dissemination and fundraising activities. Corso Calatafimi (Palermo - Italy).

2018-2019: Lay dissemination activities during SHARPER (Sharing Researchers' Passion for education and rights) - European Researchers' Night.

Voluntary participation as AIRC staff in scientific dissemination activities (theoretical-practical) in the scientific field of nutrition and tumors. Complesso Monumentale dello Steri (Piazza Marina n.61 – Palermo, Italy)/Botanico (Via Lincoln n.2 – Palermo, Italy)

Personal skills:

Excellent communication, organization, collaboration and teaching/tutoring skills. Excellent ability to handle stressful situations, problem-solving and effective time management skills. Good flexibility in adapting to changes. Inspired by the challenge of research and experimentation, eager to learn and improve.

Technical skills

Good knowledge and mastery of cell cultures and basic analytical techniques in scientific research.

Cell biology techniques:

Primary and immortalised cell cultures; Bacterial cultures by plasmid amplification; Transient (Attractene/Lipofectamine/RNAi MAX) and stable transfections (lentiviral vectors); Colony

formation assay; Isolation of extracellular vesicles (exosomes); PBMC isolation from peripheral blood (Ficoll); Cell viability assays (MTT Assay, Cell Titer-Glo Luminescent, Celltox Green Cytotoxicity); Cell Cycle Assay; Marking of cells for cytofluorometer reading and preparation of samples for sorter; Annexin V/PI apoptosis assay; Oil-Red O staining.
Molecular biology techniques:
RNA purification from cell cultures and human/murine biopsies (Trizol/RNA Purification kits); Extraction of DNA and plasmid DNA; PCR and agarose gel electrophoresis; cDNA and specific microRNAs transcription; q-RT-PCR; Total and nucleus/cytoplasmic protein extraction; Western Blot; ELISA; RNAScope in situ hybridisation; RIP; RNA pull-down assay; ChIP; Fixation and staining of slides for immunofluorescence analysis under a confocal microscope.
Good planning skills for experimental activities, analysis and interpretation of data and presentation of results.

Digital skills

Good knowledge/use of bioinformatics tools (NCBI, PubMed, miRWalk, DIANA Tools, GeneCards) and Python language for bioinformatics analysis.
Excellent knowledge/use of data analysis software (Image Lab, GraphPad Prism 10), Microsoft Office package (Word, Excel, PowerPoint) and bibliographic software (EndNote).

Palermo, 19th Dec 2024

Signature