EROS DI GIORGIO, PhD

Academic position

Assistant Professor in Biochemistry

Research Interests

Involvement of epigenetic regulators in cellular processes related to genetic diseases, aging and cancer.

Education

2015 PhD in Biomedical Sciences and Biotechnology, University of Udine, 2015. Thesis: The repression of MEF2 transcription factors exerted by class IIa HDACs and their degradation stimulated by CDK4 determine the acquisition of hallmarks of transformation in fibroblasts.
2011 Degree in Functional Genomics (LM Biology) at University of Trieste. Italy. 110 out of 110 with merit.
Thesis: Demonstration of the oncogenic properties of HDAC4, a class IIa Histone Deacetylase
Internship at Brancolini Research Unit, University of Udine
2009 Bachelor Degree in Biology at University of Trieste. Italy. 110 out of 110 with merit.
Thesis: Demonstration of the pro-apoptotic properties of EMILIN2, an ECM glycoprotein, by using an adenoviral system of over-expression
Internship at Colombatti Research Unit, Oncologia Sperimentale 2, CRO Aviano (PN), Italy.
2006 Scientific High School Degree at Liceo Scientifico G.Marinelli, Udine Italy. 100 out of 100.

Research experience

November 2021 RTDB Assistant Professor (Biochemistry, BIO/10), University of Udine.
October 2019- 2020
PhD Fellow at University of Udine, Italy, working in senescence and aging, Epigenetics.
February 2019- October 2019
PostDoc Fellow at Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine. Travel grant sponsored by Gold for Kids, Fondazione Umberto Veronesi and University of Udine.
February 2016- February 2019
AIRC researcher at University of Udine, Baruchello - Scalabrin Fellowship, Volontari Jesolo Fellowship
January 2015- January 2016
PhD Fellow at University of Udine, working with class IIa HDACs and their impact on Epigenetics. Application and setting up of CRISPR-Cas9 technology.
January 2012- December 2014
PhD course in Biomedical Sciences and Biotechnology at Brancolini Research Unit in Udine (supervisor prof. Claudio Brancolini). Characterization of Class IIa HDACs oncogenic potential and modulation of MEF2 TFs.
July 2010- December 2011
Internship at Brancolini Research Unit in Udine. Characterization of the oncogenic potential of class IIa HDACs.
November 2008-August 2009
Internship at Colombatti Research Unit at CRO of Aviano (PN), Italy

Technical Skills and competences

Molecular Biology and Proteomics: classical cloning techniques (PCR-based, restriction based, Gateway, SLICE, recombination-based); DNA, RNA and protein electrophoresis; western-blotting (semi-dry and wet) also on tissue samples; protein production and purification in bacteria; IP, COIP, GST-pull down assays for protein-protein interaction; RNA and DNA extraction and purification; PCR and qRT-PCR (real time); promoter studies with endogenous and artificial promoters; ChIP-seq and ATAC-seq; In vitro assays: HDAC assay, Phosphorylation-assay; poly-ubiquitination assay. Flow cytometry: BrdU and PI staining to assay proliferation and cell-cycle, fluorescence and cell-death measurements on populations and sub-populations, immunophenotyping, cell sorting.
Cellular Biology: standard cultivation techniques of adherents and non-adherent cells (fibroblasts and epithelial cells and lymphocytes) in 2D and 3D and colon cancer organoids; gene delivery (transfection and retro-, adeno-, lentiviral infections); gene silencing (siRNA, lentiviral shRNA delivery, CRISPR-Cas9 technology); immunofluorescence; assay of vitality: MTT, trypan blue, caspase-activation, TUNEL; assays of *in vitro* tumorigenesis: soft-agar assay, foci formation, random-motility measurement, cell-growth measurements; assays of senescence and DNA damage: SA-βgal assay of senescence, SAHF visualization, BrdU assay, γH2AX assay, comet-assay. FPLC, HPLC. ELISA, Luminex multiplex cytokine analysis. Immunology: Immunophenotyping and subpopulation purification (Miltenyi and cell-sorting); Treg suppression assay; CD4+ and CD8+ activation assay; Homeostatic proliferation in *Rag1*$^{-/-}$ mice, tumor cytotoxicity assay.
Microscopy: epifluorescence, confocal and time-lapse, FRAP, FRET.
In vivo skills: mice handling, injection of tumor cells, minor surgery; *in-vivo* imaging on mice.
Informatics: Applications: Microsoft Office Suite, Internet Explorer, Paint Shop Pro, Dreamweaver, GraphPad and several e-mail packages. Programming Languages: Java and HTML. Some experience with R. Operating Systems: Windows Vista, Windows XP, Windows 7, 8, Mac.
Bioinformatics: interpretation, computing and analysis of DNA microarray and ChIP-seq; GSEA experiments; analysis of survival; analysis of correlation. MEME-suite, PAPST, TCGA data, CBioPortal.
Languages: Italian, English (oral and written C1).
Work in team: Good capability to work in a team.

Participation to funded grants:
AIRC (Associazione Italiana per la Ricerca sul Cancro) 2013-2017; Regione Friuli-Venezia Giulia ATENA_POR_FESR_2014-2020; MIUR: PRIN 2019-2022; Sarcoma Foundation of America 2019-2020.

PI of funded grants:
AIRC MFGA (ID25000 Di Giorgio, 474000 EU), 2021-2025, Targeting cancer epigenetics
COFIN_UNIUD (Di Giorgio, 25000 EU), 2022. Unconventional chromatin structures regulate the metabolism during aging and premature aging
PRIN 2022 (2022J34FLP, Presenting PI: Marinello Jessica, 76230EU)
PRIN_PNRR 2022 (P2022THRT3, Presenting PI: Nicole Grandi, 111000EU)

Congresses
- Therapeutic applications of nitric oxide in cancer and inflammation – September 2023. Talk "NRF2 interacts with distal enhancer and inhibits Nitrix Oxide Synthase 2 expression in KRAS-driven pancreatic cancer cells"
- G4 Meeting – October 2022, Naples. Talk "The plastic epigenetic remodeling of R-loops favors the maintenance of genomic integrity"

- Pezcoller Symposium - June 21-22, 2021 "AGING AND CANCER". Talk:" "Identification of an epigenetic mechanism that controls genomic stability and epigenetic plasticity and protects from premature cellular senescence.
- American Association for Cancer Research 2021. Philadelphia (online) 11 April 2021. Talk: "A biological circuit involving Mef2c, Mef2d and Hdac9 controls the immunosuppressive functions of CD4+Foxp3+ T-regulatory cells and anti-cancer immunity".
- American Association for Cancer Research, 27-28 April 2020.
- Abramson Cancer Center, Seminars on Immunology and Cancer microenvironment, Philadelphia 2019. Talk: "Mef2d Regulation of Immune Homeostasis and Anti-Cancer Immunity", 4 September 2019.
- AIBG annual meeting, Ferrara 2018. Talk: "Class IIa HDACs revolution: from neglected epigenetic regulators to drivers of malignancy".
- The Second PreCanMed Workshop, Udine gennaio 2018.
- The 6th EU-US DNA Repair Meeting 2017, Udine, 24-28 September 2017.
- Gordon Research Conference, Barga, 23-28 April 2017. Poster presentation: "The co-existence of transcriptional activator and transcriptional repressor MEF2 complexes influences tumor aggressiveness".
- Pezcoller symposium, Trento, 20-21 June 2016.
- ABCD annual meeting, Bologna 2015. Talk: MEF2s: true oncogenes or "re-thought" tumor suppressors?
- PhD annual meeting, Pesaro 2014. Talk: MEF2-HDACs-SKP2: a dangerous mènage à trois
- PhD symphosium, Grado 2013. Talk: MEF2 as a regulator of cell-cycle.
- SIC Catanzaro, 2013. Talk: MEF2 is a converging hub for HDAC4 and PI3K/AKT mediated transformation.
- FISV Rome, 2012. Talk: Demonstration of the pro-oncogenic properties of HDAC4.

Prizes and awards

- Pezcoller – Maria Begnudelli Award, Trento 2021.
- Fellowship Fondazione Umberto Veronesi, 2019. Gold for Kids, Children's' Hospital Of Philadelphia, USA
- Travel prize for young scientists, Ferrara, 2018.
- Annual fellowship Volontari Jesolo, AIRC, 2017.
- Biennal fellowship Alberta Baruchello e Maurizio Scalabrin, AIRC, 2015.
- Travel prize for young scientists, Bologna 2015.
- Best Journal Club, Udine, 2014.
- Travel prize for young scientists, Pesaro 2014.
- Best Journal Club, Udine 2013.
- Travel prize for young scientists, Catanzaro 2013.
- Fellowship: Fellowship "Federica Ziller", Trieste 2012.

Teaching

360 hours of teaching at University of Udine (Italy): Biology, Molecular Biology, Epigenetics, Biochemistry

Degree course: Medicine, Molecular Biotechnology, Motor Sciences, Physiotherapy and Nursing.

Collaboration with Scientific Journals

Official reviewer of BMC journals, MDPI, NAR and Aging.

Associate editor of BMC Molecular and Cell Biology and Frontiers in immunology.

Pubblications

31 Research Articles, H-index: 16, IF: 245. Citations: 653. Scopus ID: 55446204300 ORCID: https://orcid.org/0000-0003-0202-2222

- Di Giorgio E, …, Xodo S, De Marco R. Frontiers in Pharmacology. IF 5.9
- Xodo S, …, Di Giorgio E, Londero A. Histochemistry and Cell Biology. IF 5.25
- Di Giorgio E, …, Xodo LE, Brancolini C. International Review of Cell and Molecular Biology. IF 7.325
- Di Giorgio E*, Xodo LE. Front Immunol. 2022. IF 8.786 *Corresponding Author
- Di Giorgio E, …, Xodo LE. Journal of Photochemistry and Photobiology B: Biology, 231, 2022. IF 6.813
- Renzini A, …, Di Giorgio E, …, Moresi V. J Cachexia Sarcopenia Muscle. 2022 Feb 15. IF 12.063
- Minisini M, Di Giorgio E*, …, Brancolini C. Nucleic Acids Research, 2022 1–21. IF 19.16 *Co-first Author
- Di Giorgio E, …, Hancock WW. Front. Immunol., 2021 July 5. IF 8.786
- Di Giorgio E, …, Brancolini C. Genome Biol. 2021 May 10;22(1):129. IF 17.906
- Di Giorgio E, …, Brancolini C. Epigenomics 2021 May;13(9):683-698. IF 4.357
- Iuliano L, …, Di Giorgio E, …, Brancolini C. Mol Cancer Ther 2021 Mar 31. MCT-20-0521. IF 6.009
- Brancolini C, Di Giorgio E, Formisano L, Gagliano T. Life (Basel). 2021 Jan 27;11(2):90. IF 3.251
- Di Giorgio E, …, Hancock WW. J Clin Invest. 2020 Aug 13:135486. IF 19.456
- Xiong Y, Wang L, Di Giorgio E, …, Hancock WW. J Clin Invest. 2020 Jan 9. IF 19.456
- Paluvai H, Di Giorgio E, Brancolini C. Cells 2020, 9, 466. IF 7.66
- Ciotti S, …, Di Giorgio E, Brancolini C. Cell Death Dis. 2020 Jan 2;11(1):2. IF 9.685
- Di Giorgio E, Paluvai H, Picco R, Brancolini C. Int J Mol Sci. 2019 Dec 12;20(24). IF 6.208
- Di Giorgio E, …, Brancolini C. Nucleic Acids Res. 2020 Jan 24;48(2):646-664. IF 19.16
- Cutano V, Di Giorgio E, …, Brancolini C. Mol Oncol. 2019 May 12. doi: 10.1002/1878-0261.12503. IF 7.449
- Paluvai H, Di Giorgio E*, Brancolini C. Mol Oncol. 2018. Dec;12(12):2165-2181 *Co-first Author IF 7.449
- Di Giorgio E, Hancock WW, Brancolini C. Biochim Biophys Acta Rev Cancer., 2018 Dec;1870(2):261-273 IF 11.414
- Di Giorgio E, …, Brancolini C. PLoS Genet. 2017 Apr 18;13(4):e1006752. IF 6.02
- Kleinschek A, Meyners C, Di Giorgio E, Brancolini C, Meyer-Almes FJ. ChemMedChem. 2016 Dec 6;11(23):2598-2606. IF 3.54
- Peruzzo P, Comelli M, Di Giorgio E, Franforte E, Mavelli I, Brancolini C. Cell Cycle. 2016 Oct;15(19):2656-2668. IF 5.173
- Di Giorgio E, Brancolini C. Epigenomics. 2016 Feb;8(2):251-69. IF 4.357
- Clocchiatti A, Di Giorgio E, …, Brancolini C. J Cell Sci. 2015 Nov 1;128(21):3961-76. IF 5.235
- Di Giorgio E, …, Brancolini C. Mol Cell Biol. 2015, May;35(9):1633-47. IF 5.069
- Di Giorgio E, Gagliostro E, Brancolini C. Cell Mol Life Sci. 2015 Jan;72(1):73-86. IF 9.207
- Di Giorgio E, …, Brancolini C. Mol Cell Biol. 2013, Nov;33(22):4473-91. IF 5.069
- Clocchiatti A, Di Giorgio E, …, Brancolini C. FASEB J. 2013, Mar;27(3):942-54. IF 5.834
- Clocchiatti A, Di Giorgio E, Demarchi F, Brancolini C. Cell Signal. 2013, Jan;25(1):269-76. IF 4.85

Udine, 4th June 2023