

2023  
**3<sup>rd</sup>**  
JULY

Dept. CIBIO  
University of Trento  
via Sommarive, 9  
Polo Ferrari 2, Room B107

**TRENTO**

# **NON-CODING RNAs AS EMERGING BIOMARKERS FOR HUMAN DISEASES:**

**NEW INSIGHTS AND ANALYTICAL STRATEGIES**



## ORGANIZING COMMITTEE

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THE DIARNAGNOSIS PROJECT RECEIVES FUNDING  
FROM H2020-EU.1.3.3. UNDER GA NO 101007934

## SUPPORTERS:

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## PATRONIZED BY:

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## AGENDA

## INVITED SPEAKERS

- ▶ **Circulating microRNAs as biomarkers in neurodegenerative diseases** - M. A. Denti 6
- ▶ **Blastocoel Fluid MicroRNAs: from biological function to biomedical application** - C. Di Pietro 7
- ▶ **Chemical probes for detecting nucleic acids for molecular diagnostic** - J. Diaz-Mochon 8
- ▶ **Noncoding Landscapes of Uveal Melanoma** - M. Ragusa 9

## SHORT TALKS

- ▶ **Circulating microRNAs as biomarkers in Medullary Thyroid Carcinoma patients** - Besharat Zein Mersini 11
- ▶ **The emerging roles of circSMARCA5 in glioblastoma** - D. Barbagallo 12
- ▶ **Interfering with hnRNPA2B1-RNA interaction to modulate RNA sorting in extracellular vesicles** - V. D'Agostino 14
- ▶ **MiR-193a-3p and miR-23b-3p in human hepatocellular carcinoma: from biological function to potential biomedical application** - I. Grossi 15
- ▶ **MiR-21 as novel strategy for screening of hyperglycemia-induced damage** - L. La Sala 16
- ▶ **Circular RNAs as potential biomarkers in huntington's disease pathogenesis** - M. Pellegrini 17
- ▶ **Confidence, significance, p-values: how much trust do biomarkers deserve?** - L. Ricci 18

## POSTER

- ▶ **LncRNA LINC00518 Acts as an Oncogene in Uveal Melanoma by Regulating an RNA-Based Network** - C. Barbagallo 20
- ▶ **miRNAs deregulated in human iPSC-derived FTDP-17 MAPT IVS10+16 mutated neurons** - I. Brentari 21
- ▶ **Zebrafish melanoma-derived interstitial EVs are carriers of ncRNAs that induce inflammation** - F. Busi 22
- ▶ **miR-210 knock-out leads to retinal degeneration in Drosophila melanogaster and mice** - D. Colaianni 23
- ▶ **A new platform for the direct profiling of nucleic acids in biofluids** - S. Detassis 24
- ▶ **Deregulated microRNAs in Alzheimer's and Frontotemporal Dementia patients' extracellular vesicles** - R. Di Gherlando 25
- ▶ **Phenotype-specific gene expression patterns in unmutated sporadic ALS patients** - F. Dragoni 26
- ▶ **Multiplexed micro-RNA biomarker detection using lifetime filtering imaging and dynamic chemistry labeling** - E. García Fernández 27
- ▶ **TERRA ncRNA as biomarker for Neurologic disorders** - S. Maturi 28
- ▶ **Telomeric lncRNA TERRA as a potential target for ALT-positive tumors** - C. Oss Pegoraro 29
- ▶ **SnoMatcheR: Identification of Candidate Guide snoRNAs for Newly-Discovered 2'-O-methylations** - C. Ramirez Amarilla 30
- ▶ **Bead-Based Diagnostic Platforms for Liquid Biopsy Detection of Tumor Biomarkers** - Rosario M. Sánchez-Martín 32
- ▶ **Prognostic stratification of ARTA-treated metastatic prostate cancer patients: role of circulating free microRNAs** - E. Sharova 33

## LIST OF PARTICIPANTS



# MiR-193a-3p and miR-23b-3p in human hepatocellular carcinoma: from biological function to potential biomedical application

**Grossi I.**<sup>1</sup>, Ferracin M.<sup>2</sup>, Guerriero P.<sup>3</sup>, Negrini M.<sup>3</sup>, Manganeli M. 1, Molfino S.<sup>4</sup>, Nazario P.<sup>4</sup>, Salvi A.<sup>1</sup>, De Petro G.<sup>1</sup>

Hepatocellular carcinoma (HCC) is the most common liver cancer and the third cause of cancer related death. The identification of molecular biomarkers useful in the early diagnosis and prognosis of HCC remains a challenge. MicroRNAs (miRs) play roles in almost all aspects of cancer biology and have emerged as valuable candidates with clinical potential in cancer. Previously, we have demonstrated that miR-193a-3p and miR-23b-3p exert tumor-suppressor functions and DNA methylation is involved in the down-regulation of miR-23b-3p in HCC cell lines. Further we explored the potential clinical significance of miR-193a-3p and miR-23b-3p in HCC. To this purpose, we evaluated the levels of miR-23b-3p and miR-193a-3p in tissue and liquid biopsies from HCC patients.

The expression levels of miR-23b-3p and miR-193a-3p were significantly down-regulated in HCC tissues versus their matched peritumoral tissues (PT) in a cohort of HCC patients (n=59, n=67, respectively). Interestingly, high miR-193a-3p level in HCCs was associated with longer OS and DFS of patients.

In addition, in a subset of 30 HCC cases, we found a negative trend between miR-23b-3p (but not miR-193a-3p) expression and DNA methylation confirming that miR-23b-3p is partially down-regulated by DNA methylation in HCC. Concerning the circulating levels of the selected miRs, we used the droplet digital PCR for the detection of miR-23b-3p and miR-193a-3p in the plasma from untreated HCC patients (n=25) and healthy subjects (n=37). The plasmatic level of miR-23b-3p was significantly lower in HCC patients respect to controls, it was associated with tumor grading, and the ROC curve indicated its diagnostic relevance (AUC=0.68).

miR-193a-3p was undetectable in the plasma samples. Overall, these data highlight the promising translational value of miR-193a-3p and miR-23b-3p in HCC. A multicentric study has already been planned and the recruitment of HCC patients is ongoing to determine the levels of tissue miR-193a-3p and circulating miR-23b-3p in a larger cohort of HCC patients and to sustain the prognostic and diagnostic value of these miRs in HCC.

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