

**PNRR Missione 4, Componente 2, Investimento 1.4 “Potenziamento strutture di ricerca e creazione di "campioni nazionali di R&S" su alcune Key Enabling Technologies”**  
*Iniziativa finanziata dall'Unione europea — NextGenerationEU.*

**National Center for Gene Therapy and Drugs based on RNA Technology**  
**Sviluppo di terapia genica e farmaci con tecnologia a RNA**

Codice progetto MUR: **CN00000041** – CUP UNINA: **E63C22000940007**

**Doctorate of National Interest**  
**RNA THERAPEUTICS AND GENE THERAPY**

**TITLE OF THE RESEARCH PROJECT**

Identification of tumor-stroma interactions: from spatially resolved molecular analysis to pharmacological modulation.

**SELECT ONE OF THE FOLLOWING RESEARCH AREA:**

- ☒ **Mechanisms of Diseases and Drug Target Identification**
- ☐ **Design and Delivery of New Gene Therapy and RNA-Based Medicines**
- ☐ **Validation and Safety In Preclinical and Clinical Studies**

**LOCATION OF THE RESEARCH ACTIVITY (INSTITUTION/DEPARTMENT):**

Department of Medical Sciences, University of Torino, Italy

**TUTOR:**

Prof Benedetta Bussolati

**PROPOSED RESEARCH ACTIVITIES (max 300 words):**

The stimuli exerted by the tumor microenvironment to the cancer cell severely modulate the tumor evolution and patient clinical fate (PMID:29651130). Novel high-throughput methods based on next-generation sequencing, including spatially resolved RNA sequencing, can extensively measure the co-occurrence of these interactions (PMID:34725363). Our first aim is to spatially resolve tumor-stroma connections, both exploiting archival human samples across several cancer types and mouse models. Subsequently, we aim to pharmacologically modulate the tumor-stroma connections, mainly focusing on the role of extracellular vesicles and their molecular cargo (including non-coding RNA), and to assess the effects at molecular and functional level. Drugs affecting EV release, uptake and endosomal escape will be also studied.