Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA
Università degli Studi di Napoli Federico II

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
Toward development of a gene therapy approach for Inherited Retinal Dystrophies due to mutations

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):
University of Campania Luigi Vanvitelli – Multidisciplinary Department of Medical, Surgical and Dental Sciences

TUTOR:
Prof. Francesca Simonelli

PROPOSED RESEARCH ACTIVITIES (max 300 words):
The research activity aims to support the clinical development of advanced strategies based on gene therapy approaches for inherited retinal dystrophies.
Important for the success of emerging clinical trials will be the ability to evaluate the efficacy of the prospective treatments with high sensitivity. Measures of visual function are commonly accepted as primary endpoints for clinical trials by regulatory agencies because they describe the impact of disease and treatment on the patient's perception of the world. However, in several patients with inherited retinal dystrophies, the severity of the retinal degeneration often leads to poor retinal function, which

extremely reduces the sensitivity of conventional ophthalmological tests to evaluate further disease progression and, consequently, therapy efficacy. For example, electrophysiological responses are below the noise level, the visual field is markedly constricted, and visual acuity is difficult to evaluate; therefore, they are not suitable to monitor changes in visual functionality, which is of particular relevance to evaluating disease progression and therapy safety and efficacy. Therefore, there is a great deal of effort in the development and validation of surrogate endpoints for ocular gene therapy clinical trials.

To achieve this aim, the research activity will include the conduct of a longitudinal natural history study involving patients with inherited retinal dystrophies, designed to explore novel endpoints based on advanced imaging techniques, and psychophysical and objective tests.