

The eye as a miRror

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Valorization

- **Socio-economic relevance**

Vision impairment and blindness affect 2.2 billion people worldwide and, in Europe, its estimated cost is 25.83 billion euros. Moreover, besides their large contribution to the global healthcare system cost, vision impairment and blindness can have a profound psychological impact on affected individuals, as well as on their quality of life. The use of available cost-effective treatment and prevention strategies may significantly reduce both financial and social burdens. However, developing more efficient and less expensive drugs may also help with reducing vision impairment and blindness contribution to public health. In particular, despite a great progress in AMD and DR treatment since the approval of anti-VEGF therapy, these two retinal diseases are still not curable. Thus, a better understanding of AMD and DR biology is needed for the development of innovative drugs. In this regard, a close collaboration between basic scientists and clinicians is required, and will in the end be beneficial for patients.

- **Target groups**

The content of this doctoral work is broadly relevant for the scientific and academic communities. It may be of particular interest for other scientists working in the field of experimental ophthalmology, as well as for any other researcher whose area of study includes microRNAs. Since miR-142-3p implication in inflammation and microglia activation has been demonstrated in this doctoral work, it may also interest any scientists focused on other inflammatory or neurodegenerative diseases, such as Alzheimer's disease. In a larger extent, it may also be of particular interest for biopharmaceutical companies whose are aiming to develop new DR and AMD drugs.

- **Innovation**

This project highlights the potential of microRNAs as therapeutic targets in the context of two highly prevalent ocular diseases, namely age-related macular degeneration and diabetic retinopathy. Therefore, implementing specific microRNA inhibitors and/or mimics for the treatment of ocular diseases in a patent protection could be relevant if stronger proof of efficiency is provided.

- **Future directives**

Translation of the findings of this doctoral work to the clinic will be the most challenging goal for future directives. A big gap exists between basic research and clinical research, and future studies will have to build the bridge between them by addressing the questions of AMD and DR molecular regulation by microRNAs, as well as the safety, target optimization and pharmaco-kinetics and dynamics of the use of oligonucleotide molecules as therapeutic agents.