

Propositions of the thesis:

The Role of MicroRNAs in Age-Related Disorders

From population-based genetic studies to experimental validation

1. The availability of large-scale GWAS data provides a valuable resource for the identification of miRNAs involved in complex disorders. (This thesis)
2. Genetic variants in non-coding RNAs should not be overlooked in interpretation of GWAS results. (This thesis)
3. MiRNA transcripts need to fulfill structural and sequences prerequisites in order to result in expression of the correct mature miRNAs. (Sophia Cammaerts et al. *Frontiers in Genetics*, 2015)
4. Sequence variability in miRNA genes may influence both expression level and function of a miRNA, which is dependent on the position of the variant in the miRNA. (This thesis)
5. A functional mechanism underlying associations of genetic variants in gene 3'UTRs with diseases can be allele-specific regulation of gene expression by miRNAs. (This thesis)
6. Up-regulation of miR-142 at chromosome 17q22 may contribute to increased risk of Alzheimer's disease. (This thesis)
7. MiRNAs can be a source of pleiotropy in biological processes by regulating distinct target mRNAs that have cell type and even cell developmental stage-specific expression profiles. (This thesis)
8. Genetic variants in the non-coding but functional elements in our genome (e.g. non-coding RNAs) might add important contribution to the missing heritability of complex disorders. (This thesis)
9. The linkage of population-based studies to functional validation is crucial for both basic science and the advancement of these findings to clinical applications; this step should no longer be overlooked in epidemiological studies if we are to unravel the implications of these networks in human disease. (Brid M. Ryan et al. *Nature Reviews Cancer*, 2010)
10. "The more I discovered, the more I realized how little I know!" (Avicenna "Ibn-Sīnā", Persian polymath, 980-1037)
11. "Think you know how miRNAs work? Think again!" (Joel D. Richter. *Nat Struct Mol Biol*, 2008)

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5 July 2017