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## Pharmacologic therapy targeting endogenous miRNAs by dietary components

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The large amount of non-protein coding DNA in higher organisms (humans ~98%) are suggested to be involved in the evolution of multicellular complexity of higher eukaryotes. Indeed, the pervasive transcription (~76%) of our human genome gives rise to a large amount of different type of noncoding RNAs (ncRNAs) that shape the function of our complex organism. microRNAs (miRNAs) are small endogenous ncRNAs that have emerged as important regulators of gene expression. Although their major role is to 'fine-tune' gene expression, their function becomes specially pronounced under stress conditions, underscoring their role in health and disease. An interesting feature of miRNA function is that they target multiple genes, sometimes functionally related, which allows to control an entire biological pathway. This unique characteristic offers a new therapeutic opportunity to treat a variety of disorders where miRNAs are deregulated, by endogenous modulating miRNA expression. Emerging evidence suggest that minor dietary components, i.e. micronutrients, can modulate the expression of specific miRNAs. Thus, through miRNA modulation some dietary component could explain their beneficial effects of their consumption. In this presentation, novel therapeutic opportunities arising from miRNA modulation by dietary components consumption will be discussed. In addition, specific examples of how certain dietary polyunsaturated fatty acids or polyphenols could modulate the expression of miRNAs and thus regulating different aspects of cellular metabolism will also be presented. Alteration of miRNA levels by specific dietary components in support of their pharmacological modulation might be valuable in adjunct therapy of certain diseases.

### Biography

Alberto Davalos earned his PhD of Pharmacy at the Universidad Complutense de Madrid working with dietary antioxidants. Prior to joining IMDEA Food Institute, he conducted research on cholesterol metabolism and atherosclerosis, vascular biology and miRNAs in cholesterol metabolism. His main research is focused on dissecting the role of novel miRNAs and other ncRNAs that regulate cholesterol and lipid metabolism. He is also interested in studying the effects that minor dietary components may exert on the expression of miRNAs and other ncRNAs that regulate key aspects of cholesterol, lipid metabolism and cardiometabolic disease.

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