

**WG1 Meeting RNAi technology
WG1 Meeting "Comparing siRNA and miRNA
technology and role for improving perennial plants",
July 17-18, 2018**

MINUTE

**1. Number of participants from how many countries
(we can adjust this by checking the signatures)**

A consortium of researchers from Belgium, France, Greece, Italy, Spain, Turkey and UK met in Bordeaux to share some opportunities about their results with perennial plants and fruit crops.

2. Main topics of the presentations.

As indicated upper, partners from different countries broadened diverse RNAi topics from basic research (RNAi production, detection, purification) to viral disease interference (Banana streak virus, plum pox virus). As a molecule involved in gene regulation, research on RNAi in perennials is promising. Using peanuts, grapevines, strawberry, Prunus and banana were viewed as the models showing a diversity of knowledge at the academic level. Among the particular interest was the role of the rapid Alkalinization factor gene that was attempted through silencing and its controversial links with the fungal anthracnose disease (Bologna, Italy). Huge efforts were developed by Turkish teams through RNA-seq experiments used in the analysis of environmental sampling from different cultivars. Exploring map and sequence of peanut genome, a lot of miRNAs were characterized. While neither role nor function of these miRNAs were ruled out, the researchers argued the prospective interest of their results to easily track the correlative gene transfer resulting from their cross hybridisation. Whether banana represented models wherever virus genome (ebanana streak virus) is integrated in host genome, a relevant information was released about the epigenetic mechanisms similarly to a TE (transposable element) involved in the causal effect of BSV parasitism to banana. Such pathosystem was correlatively studied through transcriptomics and notably the distribution of siRNA in plants (Montpellier, France). Plum researchers (French and Spanish) addressing mi and siRNA to tackle the severe and quarantine Plum Pox Virus (PPV) pest commonly splitted the controversial failure of amiRNA and fortunately highlighted the efficiency of siRNA. Disregard to the transgene sizing (from small to big size) that offered up the use of RNAi to directly degrade viral RNA in plants, plant biotechnology

is remaining hopeful. The results shared by researchers made clearer that plant biotechnology is an alternate to the conventional breeding program. Within the open use of RNAi, the results depicted in strawberry model indicated that such correlative studies between gene and promoter should be expanded prior to its exploitation.

3.Outputs from the discussion

While the results gained from peanuts, grapevines, strawberry, Prunus and banana offered some opportunity to better develop academic research about RNAi regulation, efforts about the role or function of these molecules should be expanded. More knowledge about the RNAi/targeted virus genome should be highlighted. While toping technology using RNAi produced from bacteria will be implemented, their efficiency to degrade the pest mRNA in plants would be evaluated. Overall, implemented research should be expanded prior to target the crop exploitation. Attended researchers took advantages to the work plan and should expand more knowledge about the RNAi mechanisms.

4.Planning of next activities for WG1

For GP4, WG1 will organize a meeting in a place to be defined (Antalya-Turkey or Athens-Greece).