**Introduction**

Grafting is an old technique that has been used for the production of individuals with higher resistance to stresses, precocious flowering plants, controlling of plant architecture, and or …. (Kondhare et al., 2021; Yang et al., 2015). In fact, grafting causes changes in the heterograft traits that the molecular mechanisms behind that had been unknown for decades (Kondhare et al., 2021). In order to respond to the environmental signals and transportation developmental cues plants need to develop communications between different compartments within cells, adjacent cells, and different organs (Spiegelman et al., 2013; Turnbull & Lopez‐Cobollo, 2013; Xia & Zhang, 2020). Long-distance transportation occurs in the vasculature system transporting different molecules, including sugars, hormones, proteins, amino acids, and RNAs (Turgeon & Wolf, 2009). Unlike other long-distance transport molecules, the biological functions of mobile RNAs have not been completely identified. Different methods have been utilized to detect the mobile RNAs (small RNAs or mRNAs), however, transcriptome profiling of scions and rootstocks has efficiently appeared (Li et al., 2022).

**Material and method**

De novo assembly

Before running analysis on the raw sequence data, the quality control of samples were checked for adaptor pollination and the law quality bases using FastQC package. Afterwards, trimming of the raw sequences were conducted using Trimmomatic with parameters: SLIDINGWINDOW:4:15, CROP:50, and HEADCROP:10.

To have an assembly for SNP calling and RNAsrq analysis, we created two assemblies, one using only homograft samples from both root and shoot, and another from all samples of root and shoot.

Kondhare, K. R., Patil, N. S., & Banerjee, A. K. (2021). A historical overview of long-distance signalling in plants. *Journal of experimental Botany*, *72*(12), 4218-4236.

Li, W., Chen, S., Liu, Y., Wang, L., Jiang, J., Zhao, S., Fang, W., Chen, F., & Guan, Z. (2022). Long-distance transport RNAs between rootstocks and scions and graft hybridization. *Planta*, *255*(5), 96.

Spiegelman, Z., Golan, G., & Wolf, S. (2013). Don’t kill the messenger: long-distance trafficking of mRNA molecules. *Plant Science*, *213*, 1-8.

Turgeon, R., & Wolf, S. (2009). Phloem transport: cellular pathways and molecular trafficking. *Annual review of plant biology*, *60*, 207-221.

Turnbull, C. G., & Lopez‐Cobollo, R. M. (2013). Heavy traffic in the fast lane: long‐distance signalling by macromolecules. *New phytologist*, *198*(1), 33-51.

Xia, C., & Zhang, C. (2020). Long-distance movement of mRNAs in plants. *Plants*, *9*(6), 731.

Yang, Y., Mao, L., Jittayasothorn, Y., Kang, Y., Jiao, C., Fei, Z., & Zhong, G.-Y. (2015). Messenger RNA exchange between scions and rootstocks in grafted grapevines. *BMC Plant Biology*, *15*(1), 1-14.