

CHARACTERIZATION AND STUDY OF *VITIS VINIFERA* L. SIRTUIN GENES

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Sirtuin, NAD⁺-dependent deacetylases, Vitis vinifera, SRT1, SRT2

The sirtuin/Sir2 (Silent information regulator 2) family of NAD⁺-dependent deacetylases and mono-ADP-ribosyltransferases plays an important role in several cellular processes including gene silencing, cell cycle regulation and life span extension in yeast and animals. Despite the recent explosion in the number of reports on sirtuins in fungi and animals, just few works dealing with plant sirtuins can be retrieved from literature and few is known about their function in plants. Compared to other eukaryotes, plants have relatively fewer *SIR2* related genes and just two putative *SIR2* family proteins, SRT1 a protein SIRT6/SIRT7-like and SRT2 a protein SIRT4-like, can usually be found in plant genomes. Recently, two putative sirtuin genes were identified also in the grapevine annotated genome. Starting from the predicted coding sequences present in the database, we have been able to obtain two truly expressed coding sequences from the start to the stop codon for both sirtuin genes that were named *VvSRT1* and *VvSRT2*. The search for the expressed coding sequences was performed by comparing the predicted sequences with the recently available grape RNAseq database with the aim to develop the primers to be used in reverse transcriptase PCR reactions to amplify the genes of interest. Finally, in order to better understand the physiological role of both sirtuins, we investigated the expression of these genes in young leaves, mature leaves, and berries sampled at different growing stages. In leaves, usually it has been observed that *VvSRT1* is less expressed than *VvSRT2*, moreover in young leaves *VvSRT2* showed the higher expression during setting while in mature leaves during the flowering time. No particular variation have been observed concerning *VvSRT1*. In berries the two genes showed more similar expression level, and they showed the highest expression during the flowering time. Finally, the expression of *VvSRT2* in berries is smaller than in leaves.