

Genome-wide Analysis of the WRKY Family Genes and their Responses to Cold Stress in Watermelon

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Electronic Supplementary Material (ESM)

Group 1N

AtWRKY20N : ADDGYNWRKYGQKHVKGSEFPRSYYKCTHPNCEVKKLFERSHDGQITDIIYKGTTHDHPKP : 60
 ClWRKY10N : SEDGYNWRKYGQKLVKGNVFRSYYRCTHPTCMVKKQLERTHDGKITDITVYFGQHDHPK- : 59
 ClWRKY13N : TEDGFNWRKYGQKVVKGSENPRSYKCTYPNCPVRRKQVERSLNGQITEIVYKSKHNHPK- : 59
 ClWRKY14N : SDDGYNWRKYGQKQVKGSENPRSYKCTFPNCPVRRKQVERSLDGQITEIVYKSENHPK- : 59
 ClWRKY17N : SEDGYNWRKYGQKQVKGSEYPRSYKCTHSNCPVRRKQVERSLDGQITEIIVYKGAHNHPK- : 59
 AtWRKY20N : ADDGYNWRKYGQKHVKGSEFPRSYYKCTHPNCEVKKLFERSHDGQYTDIIYKGTTHDHPKP : 60
 ClWRKY10N : SEDGYNWRKYGQKLVKGNVFRSYYRCTHPTCMVKKQLERTHDGKITDITVYFGQHDHPK- : 59
 ClWRKY13N : TEDGFNWRKYGQKVVKGSENPRSYKCTYPNCPVRRKQVERSLNGQITEIVYKSKHNHPK- : 59
 ClWRKY14N : SDDGYNWRKYGQKQVKGSENPRSYKCTFPNCPVRRKQVERSLDGQITEIVYKSENHPK- : 59
 ClWRKY17N : SEDGYNWRKYGQKQVKGSEYPRSYKCTHSNCPVRRKQVERSLDGQITEIIVYKGAHNHPK- : 59
 ClWRKY49N : SDDGYNWRKYGQKHVKGSEFPRSYYKCTHPNCEVKKLFERSHDGQITADIIYKGTTHDHPK- : 59
 ClWRKY53N : SYDGYNWRKYGQKQVKGSEYPRSYKCTHPSCPVRRKQVERSLDGKVAEIVYKGEHNHPK- : 59
 AtWRKY20N : ADDGYNWRKYGQKHVKGSEFPRSYYKCTHPNCEVKKLFERSHDGQITDIIYKGTTHDHPKP : 60
 ClWRKY10N : SEDGYNWRKYGQKLVKGNVFRSYYRCTHPTCMVKKQLERTHDGKITDITVYFGQHDHPK- : 59

Group 1C

AtWRKY20C : -DDGYRWRKYGQKVVVRGNPNPRSYKCTAHGCPVRRKHVERASHDPKAVITTYEGKHHDHVP : 60
 ClWRKY10C : VNDGYRWRKYGQKLVKGNPNPRSYRCSPPGCPVRRKHVERASYPKVVLTITYEGQHDHDM : 60
 ClWRKY13C : LDDGYRWRKYGQKVVKGNPNPRSYKCTYAGCGVRRKHIERASHDIRAVITTYEGKHNEV : 60
 ClWRKY14C : LDDGYRWRKYGQKVVKGNPNPRSYKCTNPGCPVRRKHVERASHDLRAVITTYEGKHNDV : 60
 ClWRKY17C : LEDGYRWRKYGQKVVKGNPNPRSYKCTSAQCLVRRKHVERASHDLKCVITTYEGKHNEV : 60
 ClWRKY29C : LDDGYRWRKYGQKIVKGNPYPRSYKCTTPGCPVRRKHVERASTDPKAVITTYEGKHNDV : 60
 ClWRKY32C : SGDGYRWRKYGQKVVKGNPNPRSYRCSPPGCPVRRKHIESAVENPNAVIITYYKGVHDHDM : 60
 ClWRKY48C : LDDGYRWRKYGQKVVKGNPNPRSYKCTNPGCTVRRKHVERASHDLKSVITTYEGKHNDV : 60
 ClWRKY49C : LDDGYRWRKYGQKVVVRGNPNPRSYKCTNVGCPVRRKHVERASHDPKAVITTYEGKHNDV : 60
 ClWRKY53C : SGKGIWRKYGQKVVKGNLYPRSYRCSPPGCTGLKCKARKYVERASEDPSFITTYEGKHNGI : 60
 ClWRKY54C : LPDGYRWRKYGQKVVKGNPNPRSYKCTSLGCPVRRKHIERAANDMRVITTYEGKHNEV : 60
 ClWRKY57C : LDDGYRWRKYGQKVVKGNPNPRSYKCTSAQCNVRRKHVERSSDTSKAVVTTYEGKHNDV : 60

Group 2a

AtWRKY40 : VKDGYQWRKYGQKVTRDNPSPRAYFKCACAPSCSVKKKQVRSVEDQSVLVATYEGEHNHPMP : 62
 ClWRKY27 : VKDGYQWRKYGQKVTRDNPSPRAYFKCASSAPNCPVKKKQVRSLEDPTILVATYEGEHSAS- : 61
 ClWRKY43 : VKDGYQWRKYGQKVTKDNPSPRAYFKCSFAPSCPVRRKQVRSVEDPSYLIATYEGEHNHAK- : 61
 ClWRKY52 : VKDGFQWRKYGQKVTRDNPCPRAYFKCSFAPSCPVKKKQVRSVEDQSVLVATYEGEHNHPH- : 61

Group 2b

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AtWRKY72 : MNDGCQWRKYGQKIAGKNFCPRAYYRCTVAPGCPVRKQVQRCADDMSILITTYEGTHSHSLP : 62
ClWRKY3  : MNDGCQWRKYGQKIAGKNFCPRAYYRCTGSPTCLVRKQVQRCADDMSILITTYEGNHNHPL- : 61
ClWRKY5  : ISDGCQWRKYGQKMAKGNFCPRAYYRCTMAVAGCPVRKQVQRCADERTILITTYEGNHNHPL- : 61
ClWRKY8  : ITDGCQWRKYGQKMAKGNFCPRAYYRCTMAAGCPVRKQVQRCADKTLITTYEGNHNHPL- : 61
ClWRKY25 : MNDGCQWRKYGQKIAGKNFCPRAYYRCTVAPGCPVRKQVQRCLEDMSILITTYEGTHNHPL- : 61
ClWRKY34 : MNDGCQWRKYGQKIAGKNFCPRAYYRCTGAPTCPVRKQVQRSVDDISILITTYEGTHNHPL- : 61

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Group 2c

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AtWRKY75 : LDDGYRWRKYGQKAVKNNKFRSYYRCTYGGCNVKKQVQRLTVDQEVVVTTYEGVHSHPI : 60
ClWRKY6  : LEDGYRWRKYGQKAVKNSAYPRSYRCTTQKCGVKKRVERSFEDPSIVITTYEGCHNHVPV : 60
ClWRKY9  : LDDGYRWRKYGQKVVKNTQHPRSYRCTQDHCVRVKKRVERLAEDPRMVIITTYEGREHSHSP : 60
ClWRKY12 : LEDGYRWRKYGQKAVKNSPFPRSYRCTSQNCVKKRVERSEDPCFVITTYEGKHNYC : 60
ClWRKY18 : ADDGYRWRKYGQKSIKNSPNPRSYRCSNPRCSAKKQVERSIDPDTFIITTYEGHHLHFA : 60
ClWRKY19 : LDDGYRWRKYGQKVVKNSLHPRSYRCTHSNCRVKKRVERLSEDCRMVITTYEGREHSHSP : 60
ClWRKY21 : LDDGYRWRKYGQKAVKNSLHPRSYRCTYLTGNVKKQVQRLSKDTSIVVTTYEGTHNHPS : 60
ClWRKY23 : LDDGYRWRKYGQKAVKNSPFPRSYRCTTAGCRVKKRVERSSGDHSHVTTYEGCHHQS : 60
ClWRKY31 : LDDGYRWRKYGQKAVKNSPYPRSYRCTTAGCGVKKRVERSSDDPSVVTTYEGCHHQS : 60
ClWRKY42 : LDDGFRWRKYGKVMKNSPNPRNYKCSVEGCPVKKRVERDREDPKYVITTYEGVETHES : 60
ClWRKY44 : LEDGYRWRKYGQKAVKNSPFPRSYRCTSVACNVKKRVERCLKDPSIVMTTYEGCHHPS : 60
ClWRKY47 : LEDGYRWRKYGQKAVKNSPYPRSYRCTSQKCVKKRVERSYQDPSVVITTYEGCHNHHC : 60
ClWRKY51 : LEDGYRWRKYGQKAVKNSPFPRSYRCTASACNVKKRVERSFADPTVVVTTYEGCHHPS : 60
ClWRKY56 : LDDGYRWRKYGQKAVKNDKFRSYYKCSHGCGVKKKQVQRLTNDQEVVVTTYEGVHSHPI : 60

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Group 2d

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AtWRKY74 : PPDEYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKHVERCVEETSMLIVTYEGEHNHSRI : 62
ClWRKY4  : PPDDYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKHVERAVDDPTMLVVTYEGEHNHTL- : 61
ClWRKY11 : PPDDYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKHVERASDDPSMLIVTYEGDHNHSQ- : 61
ClWRKY30 : PPDEYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKHVERDPNDPAMLIIVTYEGEHRHTQ- : 61
ClWRKY33 : PSDEYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKKVERARDDPTMLLVTYDGDHRRHPH- : 61
ClWRKY36 : PSDDYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKHVERCLEDPSMLIVTYEGEHNHPK- : 61
ClWRKY45 : PPDDYSWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKHVERCLEEPSMLIVTYEGEHNHPR- : 61

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Group 2e

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AtWRKY65 : PSDSWAWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKQVERSRDDPTMILITYTSEHNHPWP : 62
ClWRKY1  : STDMAWRKYGQKPIKGSPPHPRNYRCSVVRGCGARKQVERSNADPETFIITYTGDHHTHPR- : 61
ClWRKY7  : PSDLWAWRKYGQKPIKGSPPHPRGYKCSVVRGCSARKQVERSRDTPNMLVITYTSEHNHPW- : 61
ClWRKY15 : PSDAWAWRKYGQKPIKGSPPHPRGYKCSVVRGCPARKQVERNRLDPTMLLITYSCEHNHSG- : 61
ClWRKY16 : PSDLWAWRKYGQKPIKGSPPHPRGYKCSVVRGCSARKQVERSRTPNMLVITYTSEHNHPW- : 61
ClWRKY22 : SSDIWARWRYGQKPIKGSPPHPRGYKCSVVRGCMARKQVERNRSDPGMFIVTYTAEHNHHPA- : 61
ClWRKY35 : PSDPWARWRYGQKPIKGSPPHPRGYKCSVVRGCPARKQVERSRVDPTKLVITYAFDHNHQL- : 61
ClWRKY50 : PPDFWSWRKYGQKPIKGSPPHPRGYKCSVVRGCSAKKOVERCKTDGSMFIITYTSSHNHPG- : 61

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Group 3

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AtWRKY54 : SEDRYAWRKYGQKEILNNTFFRSYFRCTHKPTQGCATKQVQKQD-QDSE-MFQITYIGYETICTAN : 64
ClWRKY20 : LNDGHSWRKYGQKDIHGAFNFRPYRCTHRNVRGCLATKQVQRSD--NDPNIFEVYRGRHTCSQ- : 63
ClWRKY24 : LDDGFCWRKYGQKILGAKHPRGYRCTYRNLQGCCLATKQVQRSD--DDPTVFEITYRGRHTCSQ- : 63
ClWRKY38 : PDDGFTWRKYGQKEILGSRFPRGYFRCTHKLHYCPAKKHVQRLD--DDPHTFEVYRGRHTCHM- : 63
ClWRKY39 : TEDKYWRKYGQKVILNATYPRSYFRCTHKYDQGCRAKHKVQRMGMDSEIMYKITYICDHTCST- : 65
ClWRKY41 : HEDGYSWRKYGQKDLGATYPRSYRCTFRNTQNCWAIKVQRSD--EDPSVFEITYRGRHTCSQ- : 63
ClWRKY46 : RCDGFSWRKYGQKDLGSKFPRGYFRCSHRFTQGCCLATKQVQRSD--NDPTVYDITYRGRHTCNR- : 63
ClWRKY55 : VDDGHAWRKYGQKTILNAKYPRNYRCTHKFDQACQATKQVQRLQ--DHPPKFRTTYGHTCSN- : 63

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Figure S2. Alignment of the WRKY domains from multiple ClWRKY and selected AtWRKY transcription factors; 1C and 1N indicate the N- or the C-terminal WRKY domain of Group 1 WRKYs