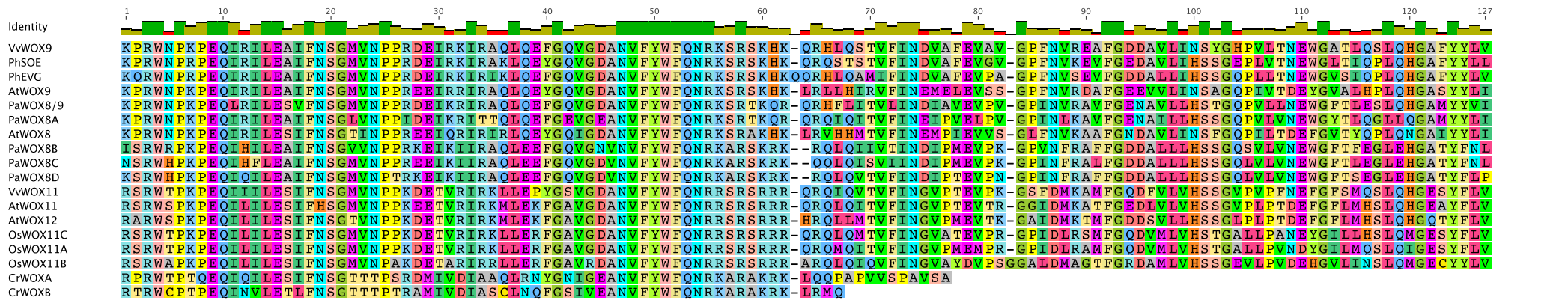






Amino acid alignment used for the construction of the full WOX gene tree.

Nucleotide sequence alignments for WOX genes across various species. The sequences are aligned in blocks of 10 nucleotides, with positions 1-190 and 200-381 indicated at the top. The species listed on the left include VvWOX9, VvWOX11, AtWOX11, AtWOX12, OsWOX11C, OsWOX11A, OsWOX11B, PaWOX8A/9, PhSOE, PhEVG, AtWOX8, AtWOX9, PaWOX8B, PaWOX8C, PaWOX8D, CrWOXA, and CrWOXB. The alignment shows conserved regions across the different species, with gaps indicated by dashes.



Nucleotide and amino acid alignments used for the construction of the intermediate clade WOX gene tree.



1 10 20 30 40 50 60 70 80 90 101

AtWOX4 CKRLRP LAPKLP GGTRWNPTQEQIGILEML-YKGGMRTPNAQQIEHITLQLGKYGKIEGKNV FYW FQNHKARERQKQKRNDNV TLELFPLHP

PhWOX4 CKRLRP LAPKLP GGTRWNPTQEQIGILEML-YRGGMRTPNAQQIEQITLQLGKYGKIEGKNV FYW FQNHKARERQKQKRNSDR TLELFPLHP

VvWOX4 CKRLRP LAPKLP GGTRWNPTQEQIGILEML-YKSGMRTPNAQQIEQITAQLGKYGKIEGKNV FYW FQNHKARERQKQKRNGDK TLELFPLHP

OsHB3 FKCLRPLAPKIAGTTRWNPSAEQIKVLEML-YRGGMRTPNSVQIERITEELGKYGRIEGKNV FYW FQNHKARERQKQKRA

PaWOX4 ASGTRWNPTPDQIRILEMF-YKGGMRTPNAEQIEHITAQLROYGKIEGKNV FYW FQNHKARERQKQKRNDKRDGLEVLKRSS

AtWOX3 VASTRWCP TPEQLMILEEM-YRSGIRTPNAVQIQQITAHLSFYGKIEGKNV FYW FQNHKARDRQKLRRKPLK TLELFPTISS

VvWOX3 AASSRWCP TPEQLMILEEM-YRGGVRTPNASQIQQITAHLSFYGKIEGKNV FYW FQNHKARDRQKLRRKPLK TLELFPTITA

OsWOX3 TPSTRWCP TPEQLMILEEM-YRSGVRTPNAAEQIQQITAHLSFYGKIEGKNV FYW FQNHKARERQRLRRRPLK TLELFPTKS

GgWOX3 PATTRWNPTAEQLMILEEL-YRGGMRTPSAEQIQQITAHLSLYGKIEGKNV FYW FQNHKARDRQKLRRRPLQ TLELFPTCS

PaWOX3 PATTRWNPTPEQLMILEEM-YRGGIRTPNADQIQQITAHLSLYGKIEGKNV FYW FQNHKARDRQKLRRKPLK TLELFPTCS

PsyWOX3 PATTRWNPTPEQLVILEEM-YRGGIRTPNADQIQQITAHLSLYGKIEGKNV FYW FQNHKARDRQKLRRKPLK TLELFPTCS

PhWOX3 TRPTRWSPTPEQLMLLEEM-YRKGRLRNP NATQIQNITAHLS CYGKIEGKNV FYW FQNHKARDRQKLKKKPLK TLELFPTTT

GbWOX3B TGTARWNSTPEQLMILEDI-YRGGIQNLTAVQIQQITAHLSLYGKIEGKNV FYW FQNHKARDRQKLRRIPQ TLELFPLGS

GbWOX3A PASTRWTP TPEQLMLLEDI-YTNGIRNPTGEOIQQITAHLSLYGKIEGRNLFYW FQNRKARDRLKLRLOPVQ TLELFPLSP

AtWOX5 TKCGRWNPTVEQLKILTDL-FRAGLRTPTTDQIQKISTELSFYGKIE SKNV FYW FQNHKARERQKRRKIVITLQLFPVNS PLDLRLSFL

VvWOX5 TKCGRWNPTTEQVKVLTDL-FRSGLRTPSTDQIQKISSQLSFYGKIE SKNV FYW FQNHKARERQKRRRVIVITLQLFPVINS PLDLRLSFL

AtWOX7 AKCGRWNPTVEQVKLLTDL-FKAGLRTPSTDQIQKISMELSFYGKIE SKNV FYW FQNHKARERQKCRKI

OsWOX5 VKCGRWNPTAEQVKVLTDEL-FRAGLRTPSTEQIQRISTHLSAFGKVE SKNV FYW FQNHKARERHHHKKREVE TLELFPLKSPLEIRLCSF

PaWOX5 ASGSRWNPTAEQVTILKEL-YRGGMRTPTAEQIQQISSQLKRYGKIEGKNV FYW FQNHKARERQKRRRYQMETLQLFPVQGPLEICLSSC

PsyWUS ASGSRWNPTAEQVTLLKEL-YRSGMRTPTAEQIQQISSQLKRYGKIEGKNV FYW FQNHKARERQKRRRYQLETLQLFPVQCPLEICLSSG

AtWUS QTSTRWTP TTEQIKILKELYNNAIRSP TADQIQKITARLRQFGKIEGKNV FYW FQNHKARERQKRRFNHRR TLELFPLFPMHGSLELRLN

PhTER QNSTRWTP TTDQIRILKDLYYNNGVRSPTAEQIQRI SAKLROYGKIEGKNV FYW FQNHKARERQKRRLIATETLPLFPMHESLNSFIGNS

VvWUS QSSTRWTP TTDQIRILKDLYYNNGVRSPTAEQIQRI SARLROYGKIEGKNV FYW FQNHKARERQKRRFTETLPLFPMHASLNSYAGRS

OsWUS PSSTRWTP TTEQIKILRELYYSCGIRSPNSEQIQRI AAMLROYGKIEGKNV FYW FQNHKARERQKRRLEPE TLELFPLVGGSELTLSY

GbWUS QSGTRWNPTPEQLSILSELYYRNGIRSP SADOIQRI SWKLSRYGKIEGKNV FYW FQNHKARERQKRRLSHVKITLQLFPV LHNALDLCNIIY

PaWUS PGSTRWNPTSEQLTILRELYYTNGIRSP TVEIQRI SSKLSRYGKIEGKNV FYW FQNHKARERQKRRLSVDVQ TLELFPLTRYVLDLCLSLG

GgWUS NSGARWNPTPEQLSILKELYHGRGIRSP SAEQIHHI SWKLSYGYGKIEGKNV FYW FQNHKARQRQKERLGDIT TLELFPLHRGLRCLGGF

AtWOX6 AATLRWNPTPEQIT TLEEL-YRSGTRTP TTEQIQQIASKLRYGRIEGKNV FYW FQNHKARERLKRRRRDNRTLNLF PVREYYYEFMPLK

AtWOX1 GRKLRPLIPRLMVSSRW NPTPDQLRVLEEL-YRQGT RTPSADHIQQITAO LRRYGYGKIEGKNV FYW FQNHKARERQKRRRQEQ TLELFPLRCKFYEFPLPK

PhMAW GRKLRPLMPRI VVSSRW NPTPEQLQ TLEEL-YRRGT RTPSAEQIQHITAO LRRYGYGKIEGKNV FYW FQNHKARERQKRRRQDSQ TLELFPLRSQFFEFPLPK

VvWOX1 GRKLRPLIPRP IVSSRW NPTPEQLRTLEEL-YRRGT RTPSAEQIQHITAO LRRYGYGKIEGKNV FYW FQNHKARERQKRRRQESQ TLELFPLRSQFFEFPLPK

VvWOX6 GRKLRPLVPRP FVSSRW NPTPEQLQALEEL-YRRGT RTPTAEQIQQIAAQLR LFGKIEGKNV FYW FQNHKARERQKRRREESQ TLELFPLVQGOFFEFPL

AtWOX2 ASSSRWNPTK DQITLLENL-YKEGIRTP SADOIQQITGRLRAYGHIEGKNV FYW FQNHKARQRQKQKQEGRKT LPLFPLOPPFI DFFS GG

PhWOX2 PTGSRWNPTK EQIDLES L-YRQGI RTPSAEQIQQITGRLRAF GHIEGKNV FYW FQNHKARQRQKQKQDNQETLNLFP LHPNFFDFLCGN

VvWOX2 PASSRW NPTK EQISMLES L-YMQGI RTPSAEQIQQITGRLKAYGHIEGKNV FYW FQNHKARQRQKQKQENQETLALFP LHPFFDFFSAP

OsWOX2 MANARW TPTKEQIAVLEGL-YRQGL RTPTAEQIQQITARLREHG HIEGKNV FYW FQNHKARQRQKQKQGGRETLQLFP LQPPFYDFFGVH

GbWOX2 NASIRW NPTK EQIAVLEGL-YRQGI RTPTAQQIQQITSRLRMFGNIEGKNV FYW FQNHKARQRQKQKQHCDRTLELFPLHP RLFHFFPQD

PaWOX2 STRW NPTK EQIELLEAM-YSQGI RTPSADQIEQIASRLGMYGNIEGKNV FYW FQNHKARERQRQKQEEPTLELFPLHP NFFHFIPQH

PsyWOX2 TMSTRW NPTK EQIDFLEAM-YSQGI RTPSADQIEEIASRLRMYGNIEGKNV FYW FQNHKARERQRQKQEEPTLELFPLHP QFFHFIPQH

CrWOXA TPRPRW TPTQEQIQILESI-FNSGT TTPSRDMIVDIAAQLRNYGNIEGANV FYW FQNRKARAKRKLQOP

Amino acid alignment used for the construction of the modern clade *WOX* gene tree.