

Electronic Supplementary Material

For manuscript entitled: “High expression of *SOMATIC EMBRYOGENESIS RECEPTOR-LIKE KINASE* coincides with initiation of various developmental pathways in *in vitro* culture of *Trifolium nigrescens*”

Submitted to *Protoplasma*

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Online Resource 2. Alignment of the deduced partial amino acid sequence of TnSERK with other plant SERKs: *Medicago truncatula* (Q8GRK2) *Glycine max* (C6ZRV3), *Citrus unshiu* (Q6BE26), *Gossypium hirsutum* (E5Q8K6), *Nicotiana benthamiana* (G0XZA2), *Solanum lycopersicum* (K4BTP4), *Arabidopsis thaliana* SERK1 (Q94AG2), *Arabidopsis thaliana* SERK2 (Q9XIC7), *Oryza japonica* (Q6Z4U4) and *Daucus carota* (O23921)

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Putative TnSERK 1 LGQLKRFSLRELQVATD TFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
MtSERK1 [Q8GRK2] 1 LGQLKRFSLRELQVATD TFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
GmSERK1 [C6ZRV3] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
CuSERK1 [Q6BE26] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
GhSERK1 [E5Q8K6] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
NbSERK1 [G0XZA2] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
SlSERK1 [K4BTP4] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
AthSERK1 [Q94AG2] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
AthSERK2 [Q9XIC7] 1 LGQLKRFSLRELQVATD SFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
OjSERK1 [Q624U4] 1 LGQLKRFSLRELQVATD TFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
DcSERK1 [O23921] 1 LGQLKRFSLRELQVATD TFSNKNILGRGCFKVVYKRLADCSLVAVKRLKEERTPGCELQFQTEVEMISMAVHRNLLRLR
Clustal Consensus 1 *****: * * : *****:*****:*****:*****:*****:*****:*****:*****:*****

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Putative TnSERK 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
MtSERK1 [Q8GRK2] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
GmSERK1 [C6ZRV3] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
CuSERK1 [Q6BE26] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
GhSERK1 [E5Q8K6] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
NbSERK1 [G0XZA2] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
SlSERK1 [K4BTP4] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
AthSERK1 [Q94AG2] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
AthSERK2 [Q9XIC7] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
OjSERK1 [Q624U4] 81 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
DcSERK1 [O23921] 79 GFCMTPTERLLVYPYMANGSVASCLRRPPEQLDLPWPTKRRIALGSARGLSYLHDHCDPKI IHRDVKAANILLDEFEA
Clustal Consensus 77 *****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****

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Putative TnSERK 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
MtSERK1 [Q8GRK2] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
GmSERK1 [C6ZRV3] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
CuSERK1 [Q6BE26] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
GhSERK1 [E5Q8K6] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
NbSERK1 [G0XZA2] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
SlSERK1 [K4BTP4] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
AthSERK1 [Q94AG2] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
AthSERK2 [Q9XIC7] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
OjSERK1 [Q624U4] 161 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
DcSERK1 [O23921] 159 VVGD FGLAKLMDYKD THVTTAVRCTI CHIAP EYLLSTCKSSERTD VFCY GIMLLELITCQRAF DLARLANDDDVMLLDWVK
Clustal Consensus 150 *****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****

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Putative TnSERK 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
MtSERK1 [Q8GRK2] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
GmSERK1 [C6ZRV3] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
CuSERK1 [Q6BE26] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
GhSERK1 [E5Q8K6] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
NbSERK1 [G0XZA2] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
SlSERK1 [K4BTP4] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
AthSERK1 [Q94AG2] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
AthSERK2 [Q9XIC7] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
OjSERK1 [Q624U4] 241 CLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
DcSERK1 [O23921] 239 SLLKERKLEMLVDPDLQNTNYEAEVQLIQVALLCTQCS PMDRPKMS EVVRMLECDGLAERWD EWQKVEVLRQEV ELAPH
Clustal Consensus 229 *****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****:*****

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Putative TnSERK 321 P NSDWIWDSTENLH AVELS
MtSERK1 [Q8GRK2] 321 P NSDWIWDSTENLH AVELS
GmSERK1 [C6ZRV3] 321 P NSDWIWDSTENLH AVELS
CuSERK1 [Q6BE26] 321 P NSDWIWDSTENLH AVELS
GhSERK1 [E5Q8K6] 321 P NSDWIWDSTENLH AVELS
NbSERK1 [G0XZA2] 321 P NSDWIWDSTENLH AVELS
SlSERK1 [K4BTP4] 321 P NSDWIWDSTENLH AVELS
AthSERK1 [Q94AG2] 321 P NSDWIWDSTENLH AVELS
AthSERK2 [Q9XIC7] 321 P NSDWIWDSTENLH AVELS
OjSERK1 [Q624U4] 321 P NSDWIWDSTENLH AVELS
DcSERK1 [O23921] 319 R NSDWIWDSTENLH AVELS
Clustal Consensus *:::*** ***:***

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