

Supplementary Data

Salinity tolerance in plants: Breeding and genetic engineering

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Table 1. List of various genes responsible for salinity tolerance in plants with their role, source and target plants.

Gene	Type of product	Source	Target plant	Reference
<i>codA</i>	Glycine betaine	<i>Arthrobacter globiformis</i>	Tomato	Goel et al, 2011
<i>codA</i>	Glycine betaine	<i>Arthrobacter globiformis</i>	Rice	Sakamoto et al, 1998
<i>cox</i>	Glycine betaine	<i>Arthrobacter pascens</i>	Rice	Su et al, 2006
<i>betA</i>	Glycine betaine	<i>E.coli</i>	<i>Nicotiana tabacum</i>	Holmström et al, 2000
<i>codA</i>	Glycine betaine	<i>Arthrobacter globiformis</i>	<i>Brassica juncea</i>	Prasad et al, 2000
<i>OsTPS1</i>	Trehalose-6-phosphate synthase	Rice	Rice	Li et al, 2011a
<i>TPS1</i>	Trehalose-6-phosphate synthase	Yeast	Tomato	Cortina and Culiáñez-Macia 2005
<i>OstA, ostB</i>	Trehalose	<i>E.Coli</i>	Rice	Garg et al, 2002
<i>AtTPS1</i>	Trehalose	Arabidopsis	Tobacco	Almeida et al, 2005
<i>miD</i>	Mannitol	Tobacco	Tobacco	Tarczynski et al, 1993
<i>miD</i>	Mannitol	Wheat	<i>E.Coli</i>	Abebe et al, 2003
<i>M6PR</i>	Mannitol	Celery	Arabidopsis	Sickler et al, 2007
<i>S6PDH</i>	Sorbitol	Apple	Japanese Persimmon	Gao et al, 2001
<i>Imt1</i>	Ononitol	<i>M.Crysatallinum</i>	Tobacco	Sheveleva et al, 1997
<i>P5CS</i>	Proline	Rice	Mouth-bean	Su and Wu et al, 2004
<i>P5CS</i>	Proline	<i>Vigna acontifolia</i>	<i>Nicotiana tabacum</i>	Kishore et al, 1995
<i>AtSOS1</i>	Na ⁺ /H ⁺ antiporter	Arabidopsis	Arabidopsis	Shi et al, 2003
<i>SOD2</i>	Na ⁺ /H ⁺ antiporter	<i>Schizosaccharomyces pombe</i>	Arabidopsis	Gao et al, 2003
<i>nhaA</i>	Na ⁺ /H ⁺ antiporter	<i>E.Coli</i>	Arabidopsis	Wu et al, 2005
<i>AVP1</i>	Vacuolar H ⁺ -pyrophosphatase	Arabidopsis	Arabidopsis	Gaxiola et al, 2001
<i>SuVP</i>	vacuolar H ⁺ -pyrophosphatase	<i>Suaeda corniculata</i>	Arabidopsis	Liu et al, 2011
<i>AVP1</i>	vacuolar H ⁺ -pyrophosphates	Arabidopsis	cotton	Pasapula et al, 2011
<i>AtNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Arabidopsis	Arabidopsis	Apse et al, 1999
<i>AtNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Arabidopsis	Tomato	Zhang and Blumwald 2001
<i>AtNHX5</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Arabidopsis	Paper mulberry	Li et al, 2011b
<i>AtNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Arabidopsis	Brassica	Zhang et al, 2001
<i>AgNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	<i>Atriplex gmelini</i>	Rice	Ohta et al, 2002
<i>OsNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Rice	Rice	Fukuda et al, 2004
<i>AtNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Arabidopsis	Maize	Yin et al, 2004
<i>AtNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Arabidopsis	Wheat	Xue et al, 2004
<i>BnNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Brassica	Tobacco	Wang et al, 2004
<i>HbNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	<i>Hordeum vulgare</i>	Tobacco	Lu et al, 2005
<i>GhNHX1</i>	Vacuolar Na ⁺ /H ⁺ antiporter	Cotton	Tobacco	Wu et al, 2004
<i>HvHKT2;1</i>	HKT transporter	<i>Hordeum vulgare</i>	<i>Hordeum vulgare</i>	Mian et al, 2011
<i>GlyI</i>	GlyoxylaseI	<i>Brassica juncea</i>	Tobacco	Singla-Pareek et al, 2003
<i>GlyII</i>	GlyoxylaseII	Rice	Tobacco	Singla-Pareek et al, 2008
<i>AtDREB1A</i>	DREB1A Transcription factor	<i>Arabidopsis</i>	Arabidopsis	Liu et al, 1998
<i>OsDREB1A</i>	DREB1A Transcription factor	Rice	Arabidopsis	Dubouzet et al, 2003
<i>SNAC1</i>	NAC1 Transcription factor	Rice	Rice	Hu et al, 2006
<i>OsNAC5</i>	NAC5 Transcription factor	Rice	Rice, Arabidopsis	Song et al, 2011
<i>ONAC045</i>	NAC045	Rice	Rice	Zheng et al, 2009
<i>OsZIP23</i>	bZIP Transcription factor	Rice	Rice	Xiang et al, 2008
<i>GmbZIP1</i>	bZIP Transcription factor	Soybean	Arabidopsis, tobacco	Gao et al, 2011

ABP9	bZIP Transcription factor	Arabidopsis	Arabidopsis	Zhang et al, 2011a
SIAREB1	bZIP Transcription factor	Tomato	Tomato	Orlenna et al, 2010
TaMYB2A	MYB2A Transcription factor	Wheat	Arabidopsis	Mao et al, 2011
ZmERF3	AP2/ERF Transcription factor	Soybean	Tobacco	Zhang et al, 2009
HARDY	AP2/ERF Transcription factor	Arabidopsis	<i>Trifolium alexandrinum</i>	Abogadallah et al, 2011
MiCBF4	CBF4 transcription factor	<i>M.truncatulla</i>	Arabidopsis and <i>M.truncatulla</i>	Li et, 2011c
BrERF4	Ethylene responsive element 4	Brassica	Arabidopsis	Seo et al, 2010
PDH45	DNA helicase	Pea	Tobacco	Sanan-Mishra et al, 2005
MHI	DEAD Box helicase	<i>Medicago sativa</i>	Arabidopsis	Luo et al, 2009
MCM6	DNA helicase	Pea	Tobacco	Dang et al, 2011a
RcHsp17.8	Heat shock protein	Rosa chinensis	Arabidopsis	Jiang et al, 2009
T30hsp70	Heat shock protein	<i>Trchoderma harzianum</i>	Arabidopsis	Montero-Barrientos et al, 2010
HVA1	LEA Protein	<i>Hordeum vulgare</i> L	Rice	Xu, 1996
HVA1	LEA Protein	<i>Hordeum vulgare</i> L	Basmati rice	Rohila et al, 2002
HVA1	LEA Protein	<i>Hordeum vulgare</i> L	<i>Morus indica</i>	Lal et al, 2008
ZmMKK4	MAPK Kinase	Maize	Arabidopsis	Kong et al, 2011
GhMPK2	MAP Kinase	Cotton	Tobacco	Zhang et al, 2011b
OsMAPK33	MAP Kinase	Rice	Rice	Lee et al, 2011
OsCDPK21	CDP Kinase	Rice	Rice	Asano et al, 2011
GsCBRLK	Ca ²⁺ -dependent calmodulin binding receptor like kinase	<i>Glycine soja</i>	Arabidopsis	Yang et al, 2010
OsCIPK15	CBL-Inetracting protein inase	Rice	Rice	Xiang et al, 2007
ZmSAPK8	SnRK2 type transcriptin factor	Maize	Arabidopsis	Ying et al, 2011
ZmbZIP72	bZIP type transcription factor	Maize	Arabidopsis	Ying et al, 2012
TaSnRK2.8	TaSnRK2.8 transcription factor	Wheat	Arabidopsis	Zhang et al, 2010
Galpha1	G-Protein alpha subunit	<i>Pisum sativum</i>	Arabidopsis	Misra et al, 2007
Rab7	Rab GTPase	<i>Pennisetum glaucum</i>	Tobacco	Aggarwal et al, 2008
Ots1	OTS1, a SUMO Protease	Arabidopsis	Arabidopsis	Conti et al, 2008