

Table 1. Arabidopsis Peroxisome Genes and Their Products (Peroxisins and Other Proteins); Research Funded by the NSF Arabidopsis 2010 Project, Richard N. Trelease, P.I. (Updated June 2007)

Peroxin Homolog	AGI Code	Putative Function / Characteristics ^c	Subcellular localization ^d
PEX1 ^a	At5g08470	PMP ^b , AAA ATPase, protein import?	Peroxisome
PEX2	At1g79810	PMP, RING-finger motif, photomorphogenesis	Peroxisome
PEX3, form 1	At3g18160	PMP, peroxisome assembly	Peroxisome?
PEX3, form 2	At1g48640	PMP, assumed same as form 1	Peroxisome
PEX4 ^a	At5g25760	PMP, ubiquitin conjugating enzyme	Peroxisome
PEX5	At5g56290	Soluble receptor, PTS1 matrix proteins	Cytosol
PEX6 ^a	At1g03000	PMP, AAA ATPase, protein import?	Peroxisome
PEX7	At1g29260	Soluble receptor PTS2 matrix proteins	Cytosol
PEX10	At2g26350	ER/PMP, RING-finger motif, peroxisome assembly, protein import?	ER; Peroxisome
PEX11, form 1 (a)	At1g47750	PMP, peroxisome elongation/duplication	Peroxisome
PEX11, form 2 (b)	At3g47430	PMP, peroxisome structure	Peroxisome
PEX11, form 3 (c)	At1g01820	PMP, C-term dilysine motif, peroxisome elongation	Peroxisome
PEX11, form 4 (d)	At2g45740	PMP, C-term dilysine motif, peroxisome elongation	Peroxisome
PEX11, form 5 (e)	At3g61070	PMP, C-term dilysine motif, peroxisome duplication	Peroxisome
PEX12 ^a	At3g04460	PMP, RING-finger motif, protein import?	Peroxisome
PEX13	At3g07560	PMP, docking protein, protein import	Peroxisome
PEX14	At5g62810	PMP, docking protein, protein import	Peroxisome
PEX16	At2g45690	PMP, peroxisome assembly/structure, protein import?	ER, Peroxisome
PEX17	At4g18200	PMP, docking protein?	Peroxisome
PEX19	At3g03490	Soluble escort of PMPs to ER/peroxisomes?	Cytosol
PEX22 ^a	At3g21865	PMP, Tethers Pex4p; remodels peroxisome matrix	Peroxisome
Other Proteins			
Ascorbate Peroxidase (APX3)	At4g35000	PMP31, anti-oxidant	ER, Peroxisome
MDAR1	At3g52880	Matrix 47 kD, anti-oxidant, ascorbate recycling	Peroxisome
MDAR2	At503630	Matrix 47 kD, anti-oxidant	Cytosol
MDAR3	At3g09940	Stroma, matrix, 53 kD (precursor forms)	Cytosol
MDAR4	At3g27820	PMP 54 kD, anti-oxidant, ascorbate recycling	Peroxisome
MDAR5 ^a	At1g63940	Stroma, Matrix 53 kD (precursor forms)	Chloroplast, Mitochondria
DRP3A	At4g33650	PMP, Dynamin-related Protein3A, GTPase	Peroxisomes & Mitochondria
FIS1A	At3g57090	Membrane and TPR domains, BIGYIN, replication?	Mitochondria
FIS1B	At5g12390	Membrane and TPR domains; replication	Peroxisome
PXA-1 (PMP70)	At4g39850.1	PMP150, fatty acid transport	Peroxisome
PMP22	At4g04470	PMP, 22 kD polypeptide	Peroxisome

^aGene or gene product NOT examined in the Trelease laboratory

^bPMP - peroxisome membrane protein

^cFunction/Characteristics: determined/assumed from all published studies of genes/proteins in Arabidopsis (plant) and/or other organisms, not just Trelease laboratory

^dSubcellular Localization: All have been confirmed in plant (mostly Arabidopsis) cells via epifluorescence microscopy, immunogold electron microscopy, and/or biochemical cell fractionation