

**Table S2:** The most frequent genes annotated in the draft assemblies of *Agropyron cristatum*.

Chromosome	Frequency	Annotated genes
1P	6	Protein phosphatase PP2A regulatory subunit B
	4	Arginine--tRNA ligase   Phosphomethylpyrimidine synthase
	3	30S ribosomal protein S3   CTP synthase   Enolase   Formin-like protein 3   Kinesin-like protein KIN-14K   Ornithine aminotransferase   Polyamine oxidase 5   Protein RecA   Senescence-specific cysteine protease SAG39   Succinate--CoA ligase [ADP-forming] subunit beta   Superoxide dismutase [Mn]   Thymidylate synthase   Uroporphyrinogen decarboxylase   Very-long-chain aldehyde decarbonylase GL1-7   V-type proton ATPase subunit D
2P	9	Amidase 1
	8	Deoxyuridine 5'-triphosphate nucleotidohydrolase   Nuclear/nucleolar GTPase 2
	6	Germin-like protein 8-5
	5	Cortical cell-delineating protein   Ent-kaur-16-ene synthase   Non-specific lipid-transfer protein 2G   Probable nicotianamine synthase 2
3P	16	Glucan endo-1
	14	Rust resistance kinase Lr10
	13	Putative glutaredoxin-C2
	11	Protein DETOXIFICATION 40
	10	Cationic peroxidase SPC4
	9	16.9 kDa class I heat shock protein 1
	8	ABC transporter B family member 20   Amino-acid permease BAT1 homolog   Sugar transport protein MST3

Chromosome	Frequency	Annotated genes
	7	Abscisic stress-ripening protein 1   Germin-like protein 1-3   Germin-like protein 1-4   Zinc finger protein KNUCKLES
4P	4	Fructose-1   Glutamate--tRNA ligase   Oxygen-dependent coproporphyrinogen-III oxidase   Phosphoenolpyruvate carboxykinase (ATP)
	3	Adenylate kinase   Bifunctional purine biosynthesis protein   Elongation factor G   Glyceraldehyde-3-phosphate dehydrogenase   H/ACA ribonucleoprotein complex subunit CBF5   Isoleucine--tRNA ligase   Malate dehydrogenase   Multidrug resistance protein CDR1   Ornithine aminotransferase   Phosphoribosylaminoimidazole carboxylase   Probable peptidyl-prolyl cis-trans isomerase   Serine hydroxymethyltransferase   Transaldolase
5P	15	Putative ripening-related protein 4
	9	Probable aldo-keto reductase 2
	8	DEAD-box ATP-dependent RNA helicase 38   Deoxyuridine 5'-triphosphate nucleotidohydrolase
	7	ATP synthase subunit alpha   DEAD-box ATP-dependent RNA helicase 1   Membrane protein PM19L
	6	ATP-dependent zinc metalloprotease FTSH 4   Auxin-responsive protein SAUR36   Carotenoid 9   Histone H4   Phenylalanine ammonia-lyase   Tryptophan aminotransferase-related protein 1
6P	7	ATP synthase subunit alpha   High-affinity nitrate transporter 2.2   S-(+)-linalool synthase
	6	Callose synthase 3   Histone H2B.2   Histone H4   Senescence-specific cysteine protease SAG39
	5	Bidirectional sugar transporter SWEET14   Cinnamoyl-CoA reductase 1   DExH-box ATP-dependent RNA helicase DExH12   L-arabinokinase   Probable O-methyltransferase 2   Protein H2A.6
7P	12	ABC transporter C family member 10
	5	Guanine nucleotide-binding protein alpha-1 subunit
	4	Callose synthase 10   Replication factor C subunit 1
	3	ABC transporter B family member 20   Auxin response factor 12   Callose synthase 5   Exopolysaccharide synthase   Kinesin-like protein KIN-14L   Kinesin-like protein KIN-UB   Leucine--tRNA ligase   MADS-box transcription factor 27   Pre-

Chromosome	Frequency	Annotated genes
		mRNA-splicing factor ATP-dependent RNA helicase DEAH1   Probable metal-nicotianamine transporter YSL9   Protein translocase subunit SecA   Transcription initiation factor TFIID subunit 5