Genetics 142:1009-1020 (1996); Cat3 from maize (GenBank No. L05934, Abler, Plant Mol. Biol. 22:10131-1038 (1993); vivparous-1 from *Arabidopsis* (Genbank No. U93215); Atimycl from *Arabidopsis* (Urao, Plant Mol. Biol. 32:571-57 (1996); Conceicao, Plant 5:493-505 (1994); napA from *Brassica napus* (GenBank No. J02798); the napin gene family from *Brassica napus* (Sjodahl, Planta 197:264-271 (1995)).

**[0125]** The ovule-specific BEL1 gene described in Reiser (1995) Cell 83:735-742, GenBank No. U39944, can also be used. See also Ray (1994) Proc. Natl. Acad. Sci. USA 91:5761-5765. The egg and central cell specific FIEEI promoter is also a useful reproductive tissue-specific promoter.

**[0126]** A maize pollen-specific promoter has been identified in maize (Guerrero (1990) Mol. Gen. Genet. 224:161-168). Other genes specifically expressed in pollen are described, e.g., by Wakeley (1998) Plant Mol. Biol. 37:187-192; Ficker (1998) Mol. Gen. Genet. 257:132-142; Kulikauskas (1997) Plant Mol. Biol. 34:809-814; Treacy (1997) Plant Mol. Biol. 34:603-611.

**[0127]** Promoters derived from genes encoding embryonic storage proteins, which includes the gene encoding the 2S storage protein from *Brassica napus* (Dasgupta, Gene 133: 301-302 (1993); the 2s seed storage protein gene family from *Arabidopsis*; the gene encoding oleosin 20 kD from *Brassica napus* (GenBank No. M63985); the genes encoding oleosin A (Genbank No. U09118) and oleosin B (Genbank No. U09119) from soybean; the gene encoding oleosin from *Arabidopsis* (Genbank No. Z17657); the gene encoding oleosin 18 kD from maize (GenBank No. J05212, Lee, Plant Mol. Biol. 26:1981-1987 (1994)); and the gene encoding low molecular weight sulphur rich protein from soybean (Choi, Mol Gen, Genet. 246:266-268 (1995)), can also be used.

**[0128]** Promoters derived from genes encoding for zein genes (including the 15 kD, 16 kD, 19 kD, 22 kD, 27 kD, and gamma genes) (Pedersen et al., *Cell* 29: 1015-1026 (1982)) can be also used. The zeins are a group of storage proteins found in maize endosperm.

**[0129]** Other promoters known to function, for example, in maize, include the promoters for the following genes: waxy, Brittle, Shrunken 2, Branching enzymes I and II, starch synthases, debranching enzymes, oleosins, glutelins, and sucrose synthases. A particularly preferred promoter for maize endosperm expression is the promoter for the glutelin gene from rice, more particularly the Osgt-1 promoter (Zheng et al., *Mol. Cell. Biol.* 13: 5829-5842 (1993), herein incorporated by reference in its entirety). Examples of promoters suitable for expression in wheat include those promoters for the ADPglucose pyrophosphorylase (ADPGPP) subunits, the granule bound and other starch synthases, the branching and debranching enzymes, the embryogenesis-abundant proteins, the gliadins, and the glutenins. Examples of such promoters in rice include those promoters for the ADPGPP subunits, the granule hound and other starch synthases, the branching enzymes, the debranching enzymes, sucrose synthases, and the glutelins. A particularly preferred promoter is the promoter for rice glutelin, Osgt-1. Examples of such promoters for barley include those for the ADPGPP subunits, the granule bound and other starch synthases, the branching enzymes, the debranching enzymes, sucrose synthases, the hordeins, the embryo globulins, and the aleurone specific proteins.

**[0130]** A tomato promoter active during fruit ripening, senescence and abscission of leaves and, to a lesser extent, of flowers can be used (Blume, Plant J. 12:731-746 (1997)). Other exemplary promoters include the pistol specific promoter in the potato (Solarium tuberosum L.) SK2 gene, encoding a pistil-specific basic endochitinase (Ficker, Plant Mol. Biol. 35:425-431 (1997)); the Blec4 gene from pea (*Pisum sativum* cv. Alaska), active in epidermal tissue of vegetative and floral shoot apices of transgenic alfalfa. This makes it a useful tool to target the expression of foreign genes to the epidermal layer of actively growing shoots. The tissue specific E8 promoter from tomato is also useful for directing gene expression in fruits.

**[0131]** It is recognized that additional promoters that may be utilized are described, for example, in U.S. Pat. Nos. 5,378,619, 5,391,725, 5,428,147, 5,447,858, 5,608,144, 5,608,144, 5,614,399, 5,633,441, 5,633,435, and 4,633,436, all of which are herein incorporated in their entirety. In addition, a tissue specific enhancer may be used (Fromm et al., *The Plant Cell* 1:977-984 (1989), herein incorporated by reference in its entirety). It is further recognized that since in most cases the exact boundaries of regulatory sequences have not been completely defined, DNA fragments of different lengths may have identical promoter activity.

**[0132]** The "translation leader sequence" refers to a DNA sequence located between the promoter sequence of a gene and the coding sequence. The translation leader sequence is present in the fully processed mRNA upstream of the translation start sequence. The translation leader sequence may affect processing of the primary transcript to mRNA, mRNA stability or translation efficiency. Examples of translation leader sequences have been described (Turner, R. and Foster, G. D. (1995) Molecular Biotechnology 3:225).

**[0133]** The "3' non-translated sequences" refer to DNA sequences located downstream of a structural nucleotide sequence and include sequences encoding polyadenylation and other regulatory signals capable of affecting mRNA processing or gene expression. The polyadenylation signal functions in plants to cause the addition of polyadenylate nucleotides to the 3' end of the mRNA-precursor. The polyadenylation sequence can be derived from the natural gene, from a variety of plant genes, or from T-DNA. An example of the polyadenylation sequence is the nopaline synthase 3' sequence (NOS 3'; Fraley et al., Proc. Natl. Acad. Sci. USA 80: 4803-4807 (1983)). The use of different 3' non-translated sequences is exemplified by Ingelbrecht et al., Plant Cell 1:671-680 (1989).

**[0134]** Generally, optimal expression in monocotyledonous and some dicotyledonous plants is obtained when an intron sequence is inserted between the promoter sequence and the structural gene sequence or, optionally, may be inserted in the structural coding sequence to provide an interrupted coding sequence. An example of such an intron sequence is the HSP 70 intron described in WO 93/19189.

**[0135]** A recombinant vector or construct of the present invention will typically comprise a selectable marker which confers a selectable phenotype on plant cells. Selectable markers may also be used to select for plants or plant cells that contain the exogenous nucleic acids encoding polypeptides or proteins of the present invention. The marker may encode biocide resistance, antibiotic resistance (e.g., kanamycin, G418 bleomycin, hygromycin, etc.), or herbicide resistance (e.g., glyphosate, etc.). Examples of selectable markers include, but are not limited to, a neo gene (Potrykus et al., *Mol. Gen. Genet.* 199:183-188 (1985)) which codes for kanamycin resistance and can be selected for using kanamycin, G418, etc.; a bar gene which codes for bialaphos resistance; a mutant EPSP synthase gene (Hinchee et al., *Bio/Technology*