

Sequence of EMB-1, an mRNA accumulating specifically in embryos of carrot

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We have screened a lambda gt10 cDNA library synthesized from poly A RNA isolated from carrot somatic embryos to identify genes whose expression was associated with embryogenesis. 200,000 recombinant phage were differentially hybridized with single-stranded, ³²P-labelled cDNA synthesized from poly A RNA isolated from callus cells (1) and from embryos (2) of *Daucus carota*. This screen identified EMB-1, an mRNA that uniquely accumulates in embryos. The derived amino acid sequence of this clone shows similarity to the Em protein of wheat (3) and the D19 mRNA and protein of cotton (4). These proteins are translated from *Lea* mRNAs, which accumulate to high levels in very late staged zygotic embryos of wheat and cotton,

respectively (3, 5). This is the first report of a *Lea* protein of group 1(4) accumulating in somatic embryos.

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1   AUUAGAAGAAAGCUAAG AUG GCG AGU CAA CAA GAG AAG AAG GAG CUG
49  GAU GCU AGG GCG AGG CAA GGA GAG ACC GUG GUU CCU GGC GGG ACU GGU
97  GGG AAG AGU CUU GAA GCC CAG CAG CAC CUU GCU GAA GGG AGG AGC AAA
145 GGA GGG CAG ACG AGG AAG GAG CAG CUG GGA GGG GAA GGG UAU CAU GAG
193 AUG GGA CGC AAG GGU GGU CUG AGC AAC AAC GAU AUG UCU GGC GGU GAG
241 CGC GCU GAG CAG GAA GGC AUU GAC AUC GAU GAG UCC AAG UUC AGG ACC
289 AAA AAG UGA UCA UGC CUA GCC CAC UUU ACU CAU GCA CCU AUC UAU CUA
337 GCU AUC UCU GCC UCA UGU AUC GUA UUU CCA CAG CUU CGU UUA GUG UGG
385 UUA UUA UCU GUG ACU AAG UCU AGU UAG UGU UAA GUC UAG UUG UUA CUG
433 GAA UAA CUA GAC UUA UAC UGG UUA UGU ACG GGU CUA UGU AUG UGU ACC
481 UAC UGG AAU AAA UAU GUG UUA UAU GUC UCA AGA AAAAAAAAAAAAA

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Figure 1. Nucleotide sequence of EMB-1, a carrot poly A RNA that accumulates specifically in embryos.