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STABILIZED EXPRESSION VECTORS CONTAINING LAMBDAPL PROMOTER AND THE GENE FOR THE CI434 REPRESSOR, PLASMIDS CONTAINING THE VECTORS, HOSTS CONTAINING THE PLASMIDS AND RELATED METHODS

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An improved vector upon introduction into a suitable host containing the thermolabile repressor CI renders the host capable of effecting expression of a desired gene. The vector is a double-stranded DNA molecule which includes in 5' to 3' order the following: the promoter and operator PLOL from lambda bacteriophage; the N utilization site; a first restriction enzyme site permitting replacement of the ribosomal binding site which follows thereafter; a ribosomal binding site; an ATG initiation codon or DNA which is converted into an ATG initiation codon upon insertion of the desired gene into the vector; a second restriction enzyme site for inserting the gene in phase with the ATG codon; a T1T2 rRNA transcription termination sequence; an origin of replication; and a fragment designated cI434 on which is included the gene for the repressor protein and its associated promoter and operator. Additionally, the vector may include a gene associated with a selectable or identifiable phenotypic trait which is manifested when the vector is present in the host. The distance between the 3' end of PLOL and the 5' end of the N utilization site is less than about 80 base pairs. The distance between the 3' end of the N utilization site and the 5' end of the ribosomal binding site is less than about 300 base pairs. Plasmids have been constructed from the vectors and used to produce bovine growth hormones.

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EXPRESSION VECTOR FOR HUMAN TNF

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The present invention provides a vector plasmid capable of efficient tumor necrosis factor (TNF) production, a process capable of efficient TNF production in a host transformed with said plasmid and a composition containing the TNF produced by said process. The novel plasmid of the present invention is characterized by having inserted therein a DNA fragment that has a phage-derived promoter region upstream of a structural gene for TNF and in which a DNA fragment containing an E. coli gene-derived transcription termination coding base sequence (terminator) is joined immediately downstream of a base sequence coding for the termination of translation of said structural gene.

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RHIZOBIAL FERREDOXIN GENES

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Rhizobial ferredoxin genes and proteins are provided. Rhizobial ferredoxins are useful to enhance the nitrogenase systems of rhizobia. Useful rhizobial ferredoxin diagnostic segments are also provided comprising DNA sequences encoding the characteristic ferredoxin cysteine residue patterns. Exemplied rhizobial ferredoxin genes are fixX of Rhizobium trifolii and Rhizobium meliloti Between fixC and nifA, fixY of Rhizobium meliloti down stream from nifB, and frxA of Bradyrhizobium japonicum.

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RHIZOBIUM JAPONICUM 191 NODD-RELATED GENES

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The isolation and characterization of nodD-related genes in soybean nodulating Rhizobium japonicum is described. In R. japonicum USDA 191 two such genes have been identified, which although related in structure, have different functional properties. These nodD genes are functionally distinct from each other and from those nodD genes of other strains of Rhizobium that have been isolated and characterized to date. In particular, nodD-r1 has been found to affect nodulation on soybean and to be associated with exopolysaccharide production. In contrast, nodD-r2 affects nodulation on the tropical legume siratro. The coding sequences of