

PROLIFERATION

TF1-1 mRNA = 2550 bases



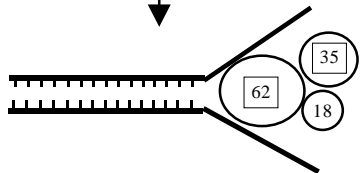
TF1-1 POLYPEPTIDE = 84 kDa



TF1-1 POLYPEPTIDE
CLEAVED TO 62 AND 22 kDa



THE 18, 35, AND 62 kDa SUBUNITS
OF TF1 FUNCTION
AS A REPLICATION FACTOR



DIFFERENTIATION

TF1-1 mRNA = 2550 bases



TF1-1 POLYPEPTIDE = 84 kDa



NO CLEAVAGE OF
THE POLYPEPTIDE = 84 kDa



THE 18, 35, AND 84 kDa SUBUNITS
OF TF1 FUNCTION
AS A TRANSCRIPTION FACTOR

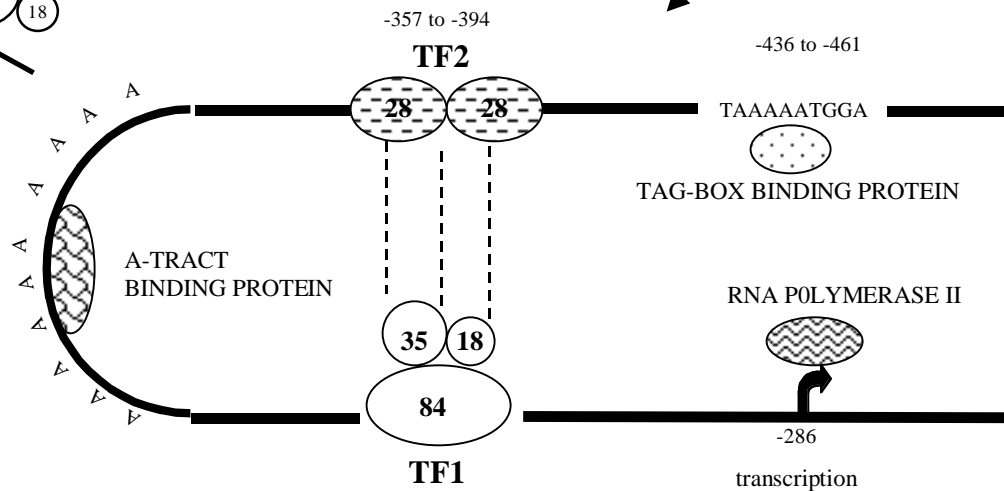
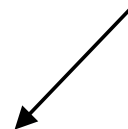


Figure 19. A Model for the Induction of the *gp2* Gene.

TF1, the *Dicotyostelium* homolog of replication protein A is involved in both DNA replication as well as cell differentiation. TF1 is made up of 3 subunits, 18 kDa, 35 kDa and 62 kDa (in undifferentiated cells) or 84 kDa (in differentiated cells). During differentiation, TF1 binds the 3' C-box element and TF2 binds the 5' C-box element. TF2 binds DNA as a homodimer and has a subunit molecular weight of 28 kDa. Deletion and SDM studies suggest that TF1 and TF2 interact with each other. It is possible that TF1 and TF2 seed the assembly of initiation complexes at the 3' and 5' C-box elements respectively. Footprint analysis and EMSA have indicated the presence of a protein that binds a tract of adenines present between the two C-boxes. This may result in bending the DNA and perhaps facilitating the interaction between TF1 and TF2. It is possible that additional proteins bind the TAG-box elements. Basal levels of *gp2* expression seen in undifferentiated cells may result from induction of the gene by the binding of the basal transcriptional machinery. However, full induction of *gp2* requires the concerted efforts of the transcription factors.