

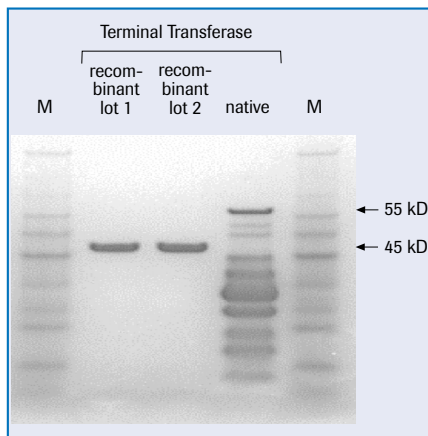
## Consistent Performance and Guaranteed Availability: New Recombinant Terminal Transferase

Calf thymus is the standard raw material used for the isolation of terminal transferase. As calf thymus may be classified as “BSE risk material”, the availability of the stand-alone enzyme, and all products containing the enzyme, is at risk. To assure continuous availability of these products, Roche Applied Science decided to clone the calf thymus enzyme.

The native terminal transferase is a protein of 520 amino acids with a molecular weight of approximately 55 kDa. It is processed via proteolytic cleavage at the N-terminal part to a wide variety of smaller protein fragments. This N-terminal part has been deleted in the recombinant *E. coli* clone to avoid the proteolytic cleavage. This results in a protein with a molecular weight of approximately 45 kDa with a higher purity compared to the native enzyme (Figure).

The recombinant enzyme is provided with a volume activity of 400 units per  $\mu\text{l}$ . Four hundred units (pipetting volume of 1  $\mu\text{l}$ ) are optimal for a standard tailing or 3' end-labeling reaction with radioactive or nonradioactive nucleotides.

In addition to the stand-alone enzyme, four kits containing terminal transferase will also be available with this



**Figure:**  
SDS-PAGE  
analysis of  
the native  
and new  
recombinant  
Terminal  
Transferase

new recombinant enzyme. Like the stand-alone enzyme, these new kits will receive a new catalog number (Table).

The performance of this new recombinant enzyme was extensively tested and compared to the performance of the native enzyme. Roche Applied Science has not seen any differences in the performance of the recombinant enzyme compared to the native enzyme in all relevant applications. Therefore, the recommended protocols have not changed. ■

**Table: Replacement of native terminal transferase by recombinant terminal transferase - overview**

Products containing the native enzyme			New products containing the new recombinant enzyme		
Product	Pack Size	Cat. No.	Product	Pack Size	Cat. No.
Terminal Transferase, native	500 Units	220 582	Terminal Transferase, recombinant	8,000 Units (for 20 tailing or 20 3' end-labeling reactions)	3 333 566
			Terminal Transferase, recombinant	24,000 Units (for 60 tailing or 60 3' end-labeling reactions)	3 333 574
DIG Oligonucleotide Tailing Kit	25 reactions	1 417 231	DIG Oligonucleotide Tailing Kit, 2 <sup>nd</sup> generation New formulation containing recombinant TdT	25 reactions	3 353 583
DIG Oligonucleotide 3' end-labeling Kit	25 reactions	1 362 372	DIG Oligonucleotide 3' end-labeling Kit, 2 <sup>nd</sup> generation New formulation containing recombinant TdT	25 reactions	3 353 575
DIG Gel Shift Kit	20 reactions	1 635 352	DIG Gel Shift Kit, 2 <sup>nd</sup> generation New formulation containing recombinant TdT	20 reactions	3 353 591
5'/3' RACE Kit	10 reactions	1 734 792	5'/3' RACE Kit, 2 <sup>nd</sup> generation New formulation containing recombinant TdT	10 reactions	3 353 621