Product Manual

Product Name	Tn5 Transposase
Source	Recombinant expression in Escherichia coli
Catalog Number	CSB-DEM076
Physical Form	Liquid
Storage Conditions	-20° C
Molecular Weight	67.9 k kDa
Storage Buffer	50mM HEPES (pH 7.2), 100mM NaCl, 0.1mM EDTA, 1mM DTT, 0.1% Triton X-100, 50% (v/v) Glycerol
Quality Control	No residual nucleases and exonucleases
Shelf Life	12 months

Product Description

Tn5 Transposase is a highly active mutant variant derived from E.coli that has been modified to efficiently insert Tn5 transposons into target sequences. It exhibits high transposition insertion efficiency for both eukaryotic and prokaryotic DNA. Tn5 Transposase specifically recognizes DNA fragments with chimeric end sequences, forming Tn5 transposomes. These transposomes randomly bind to target DNA and cleave to insert their carried DNA fragments. This product is also used for constructing second-generation sequencing library fragments during the fragmentation and adapter ligation steps.

Product Components

Label	Components	Specifications
1	Tn5 Transposase (10μM)	20μL
2	Tagment Buffer (5X)	200μL
3	Stop Buffer (5X)100mM EDTA	300μL

Application

Construction of Tn5 transposomes required for second-generation sequencing

(1) Adapter Preparation

Synthesize the adapter sequences

ME: 5'-phos-CTGTCTCTTATACACATCT-NH2-3'

P1: 5'-TCGTCGGCAGCGTCAGATGTGTATAAGAGACAG-3'

P2: 5'-GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAG-3'

Dissolve all sequences in a concentration of 100 μM. Vortex thoroughly to ensure complete dissolution

(2) Prepare Adapter 1 and Adapter 2

Adaptor1 (ME+P1) and Adaptor2 (ME+P2) should be prepared according to the proportions in Table below.

Component	Concentration	Volume
ME (100μM)	40μM	10 μL
P1 or P2 (100μM)	40μM	10 μL
Tris-HCl buffer (pH 8.0) (1 M)	10 mM	0.25 μL
Total Volume		25 μL

Set up the annealing reaction program on a PCR machine: 95ºC, 3 min, gradually decrease to 25ºC at a rate of 0.1ºC/s.

(3)Preparation of Tn5 transposomes

Mix Tn5 Transposase, Adapter 1, and Adapter 2 in a molar ratio of 1:0.5:0.5 according to the table below. Vortex and incubate at room temperature for 1 hour. Adjust the mixing ratio of Tn5 Transposase as needed, but ensure the concentrations of Adapter 1 and Adapter 2 remain consistent. Prepared Tn5 transposomes can be directly used for DNA fragmentation experiments or stored at -20ºC.

Component	Volume
Tn5 Transposase（10μM）	8 μL
Adapter 1（40μM）	1 μL
Adapter 2（40μM）	1 μL

(4)Fragmentation efficiency test

Set up a 25 μL fragmentation reaction.

Component	Volume
DNA	50-100 ng
Tn5 transposomes	0.5-2 uL
Tagment Buffer (5X)	5 uL
ddH2O	To 25 uL

After vortexing, react at 55ºC for 10 minutes, then add 5 μL of 5×Stop Buffer, mix, and continue the reaction at 55ºC for 5 minutes to terminate the reaction. Fragmentation products can be detected by agarose gel electrophoresis or library construction after purification. If the fragments are too long, increase the amount of transposome to reduce the fragment size, and vice versa, decrease the amount of transposome.