Product Description

AcuGenix™ Tn5 Transposase is a mutant of the wild-type Tn5 transposase, capable of efficiently inserting the Tn5 transposon randomly into target sequences. It specifically recognizes DNA fragments containing mosaic end sequences (ME) at both ends (including primers with ME sequences), ultimately assembling into a Tn5 transposon. This transposon can randomly bind to target DNA, cleave it, and insert its carried DNA fragments. The Tn5 transposase is widely used in in vitro transgenics (integration of foreign genes into host cells) and next-generation sequencing (NGS) library preparation.

Components

Components	BR3P201-92 (200 pmol)	BR3P201-96 (1,000 pmol)	BR3P201-98 (2,000 pmol)
Tn5 Transposase(20 pmol/μL)	10 μL	50 μL	100 μL
4×Reaction Buffer	100 μL	500 μL	1 mL
5×ST Buffer	100 μL	500 μL	1 mL

Note: 4× Reaction Buffer：40 mM Tris-HCl(PH 8.0),40 mM MgCl2

5× ST Buffer：50 mM EDTA(PH 8.0)

Storage

Store at -20±5℃.

Notes

1. Tn5 Transposase (20 pmol/μL) containing 50% glycerol remains non-freezing when stored at -20℃.
2. Tn5 Transposase (20 pmol/μL) is relatively viscous. Ensure accurate sample volume during aspiration and thoroughly mix after addition to avoid bubble formation. Store the transposase on ice during use.
3. This product is intended for scientific research purposes only.

Protocol

Usage method (using second-generation sequencing library construction to generate transposons for Illumina sequencing platform):

1.Transposon Preparation

1.1 After thawing each component reagent at room temperature or on ice, invert or gently shake with fingers to mix thoroughly, then perform instantaneous centrifugation and place on ice for later use. Prepare the reaction system according to Table 1:

Table 1. Reaction System

Component Name	Volume (μL)
Tn5 Transposase(20 pmol/μL)	5
Adapter Mix [a]	X
Total	10-20

Note a: The Adapter Mix consists of the adapter primers required for sequencing. As illustrated below, ME and Primer 1 are annealed to form Primer A, while ME and Primer 2 are annealed to form Primer B. Primer A and Primer B are then mixed in a 1:1 volume ratio to prepare the Adapter Mix. During transposon preparation, the molar ratio of Adapter Mix to Tn5 Transposase is typically 1:1; however, the annealing ratio of adapters may be adjusted as needed. The adapter sequences are shown below:

ME:5'-pCTGTCTCTTATACACATCT-NH2-3'

Primer 1:5’ -TCGTCGGCAGCGTCAGATGTGTATAAGAGACAG-3’

Primer 2:5’ -GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAG -3’

1.2 Gently mix the reaction mixture using a pipette, then collect the reaction liquid from the tube wall to the bottom by instant centrifugation. Place the sample in a PCR instrument and incubate at 25℃ for 1 hour. The prepared transposons

can be used for fragmentation experiments or stored at -20℃.

2.Fragmentation Effect Test

2.1 Prepare the reaction system according to Table 2:

Table 2. Fragmentation reaction system

Component Name	Volume/Mass
Transposon	1-2 μL
4× Reaction Buffer	5 μL
DNA	50-100 ng
Total	20 μL

2.2 After homogenizing the system by blowing and mixing, react at 55℃for 10 minutes, followed by addition of 5 μL 5×ST Buffer. Mix thoroughly and react at 55℃for another 5 minutes to terminate the reaction. Fragmented products can be used for detection or purified for library construction. If the resulting fragments are excessively long, increase the transposon loading to reduce fragment size; conversely, decrease the transposon loading to achieve shorter fragments.