Rev. 0

Firefly Assay Enhancer (100X) (FAE)

Catalog #7208

1000 tests

Product Description

The Firefly Assay Enhancer (FAE) is designed to improve the sensitivity and signal strength of Firefly luciferase assays by increasing luminescence intensity and/or signal duration when added to the assay buffer, enabling more robust and reproducible results. Serving as a complementary addition to the Luciferase Assay Kit (LAK, Cat. #9048), FAE enhances the Firefly signal while integrating seamlessly into experimental workflows without altering sample volume or setup. By supporting the ATP-dependent oxidation of D-luciferin, which produces bright yellow-green light (~560 nm), FAE ensures consistent and enhanced detection across experiments.

Product Component

Cat. #	# of vials	Product Name	Quantity	Storage
7208	1	Firefly Signal Enhancer (100X)	1 vial (0.5mL)	-20°C

Materials Supplied by User (Not provided)

- Cells expressing Firefly luciferase.
- Appropriate cell culture medium.
- White or opaque 96-well plate for luminescence reading.
- Luminometer or luminescence reader.
- Luciferase Assay Kit (sold separately Cat. #9048)

Product Use

FAE is for research use only and is not approved for human or animal use, or application in clinical or *in vitro* diagnostic procedures.

Quality Control

Assay performance was validated using HEK293T cells co-transfected with TCF/LEF Dual Reporter Vector (TDRV, Cat. #9038), followed by treatment with LiCl (10 mM) in a 96-well plate. After the treatment cycle, cell lysates were prepared and luminescence was measured using the Luciferase Assay Kit (LAK, Cat. #9048) with and without Firefly Assay Enhancer (FAE). Results showed a consistent increase in Firefly signal in the presence of FAE compared to buffer alone, while maintaining linearity and reproducibility across multiple lysate dilutions and experiments (Figure 1).

Shipping and Storage

Upon receipt store at -20°C. Product is shipped on dry ice.

Procedure

1. Prepare Firefly Luciferase Assay working solution according to the instructions provided with the Luciferase Assay Kit (LAK, Cat. #9048).
2. Dilute Firefly Assay Enhancer (FAE, 100X) to 1X in the Firefly Assay Buffer (LAK, Cat. #9048).
3. Set up your luminometer according to instrument instructions. If using injectors, prime the system with the working solution.

   Note: Adjust injector speed and detector integration time to achieve a uniform signal within the linear detection range. Excessively high signal may cause detector overflow (saturation). If overflow occurs, reduce lysate volume, dilute the lysate, or shorten the integration time.
4. Add 10–20µL of cell lysate to each well of a white or opaque 96-well plate.
5. Add 50µL of assay buffer containing FAE to each well, either manually or using the luminometer injector.
6. Measure luminescence immediately after reagent addition using the luminometer. Record relative light units (RLU) for analysis.

   Note: Include a control well containing assay buffer without cell lysate to determine background luminescence. Subtract this background from all sample readings to obtain net Firefly signal.

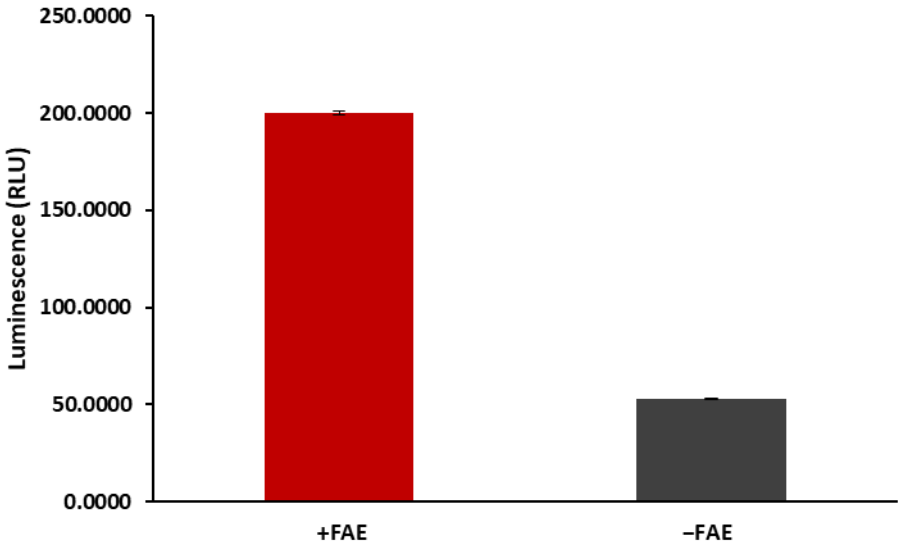

Figure 1: Firefly luciferase signal in HEK293T cells with (+FAE) or without (−FAE) Firefly Assay Enhancer. Addition of FAE clearly increases luminescence compared to buffer alone, demonstrating enhanced signal for more robust and reliable results.