



Catalog #	Aliquot Size
CS12-57-10	10 nmol

Cas12 ssDNA Reporter

Catalog # CS12-57
Lot # 1S2571-3

Product Description

Cas12 ssDNA reporter is a single-strand oligo DNA probe with a 6-FAM (Fluorescence) label at the 5' end and a BHQ (quencher) label at the 3' end. It is designed to be used in CRISPR-Cas12 activity assays. When combined with guide RNA and target DNA, Cas12a, Cas12b, and Cas12f enzymes exhibit activated trans-cleavage activity against ssDNA. Upon cleavage, the quenched fluorescence of the probe recovers, enabling enzyme activity analysis and target detection.

Appearance

White to off-white lyophilized powder in dark tube.

Reconstitution Protocol

Rehydrate in 100 µL nuclease-free water to make a stock solution with a concentration of 100 µM. Prior to use, dilute the stock solution with nuclease-free water to a working concentration of 10 µM, and add it to the CRISPR cleavage reaction system according to the required concentrations.

Storage and Stability

Store at room temperature (15-30°C), in a dry, light-protected environment; transport at room temperature. After reconstitution, store the stock solution (100 µM) at -80°C in the dark for 6 to 12 months without repeated freeze-thaw cycles. The working solution (10 µM) can be stored at -20°C in the dark and used within 3 to 6 months.

Related Products

This product can be used for experiments related to the following products:

Product Name	Catalog Number
AapCas12b, Active	C12B1-E311U
AsCas12a, Active	CS12A-E311H
Cas12 (LbCpf1), Active	C12CR-E241H
Cas12 (LbCpf1), Active	C12CR-E241G

Cas12 ssDNA Reporter

Catalog #	CS12-57
Lot #	1S2571-3
Stability	After reconstitution, the 100 µM stock solution is stable for 6 to 12 months if stored at -80°C in the dark without repeated freeze-thaw cycles. The 10 µM working solution can be stored at -20°C in the dark and used within 3 to 6 months.
Storage & Shipping	Store as lyophilized product at room temperature (15-30°C), in a dry, light-protected environment; transport at room temperature.

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Cas12 DNA Trans-Cleavage Activity Assay Protocol

Reaction Components

Component	Final Concentration
10X Cas12 Reaction Buffer (CS12-09)	1 X
Cas12 Enzyme	25 ~ 250nM
Guide RNA	25 ~ 250nM
Target DNA	25 ~ 250nM
Cas12 ssDNA Reporter (CS12-57)	25 ~ 500nM
Nuclease-free water	up to 20ul

Assay Protocol

The DNA trans-cleavage activity of Cas12 is detected in a CRISPR-based fluorescent reporter assay. RNA-guided DNA binding to Cas12 activates the enzyme, induces target DNA cutting as well as collateral DNase activity. The latter leads to the degradation of the reporter substrate that emits a light signal on cleavage.

Step 1. Thaw the Cas12 enzyme on ice. Equilibrate the buffer, guide RNA, target DNA, and reporter substrate to ambient temperature.

Step 2. Combine the following components and incubate at room temperature for 10 minutes:

- 10X Cas12 Reaction Buffer
- Cas12 Enzyme
- guide RNA
- Nuclease-free water

Note: A blank control can be set up by replacing the enzyme with an equal volume of nuclease-free water.

Step 3. Add the target DNA and the reporter.

Step 4. Incubate at 37°C for 15-30 minutes

Step 5. Read the fluorescence.

Note: Each reaction component amount may need to be adjusted according to different experimental purposes. Optimal conditions may vary due to differences in guide RNA, target DNA, and reporter used.

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SAFETY DATA SHEET

Article 1 - Product Identification

Product Name: Cas12 ssDNA Reporter

Catalog # CS12-57

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Supplier of Datasheet: SignalChem Diagnostics Inc.
Street Address: 190-13160 Vanier Place
City, Prov. Postal Code: Richmond, BC, V6V 2J2
Country: Canada
Emergency Phone: 1-888-606-3424 (Toll free)
1-778-326-0223 (local)

Article 2 - Hazard Identification

- **WHMIS Classification:** Not WHMIS controlled.
 - **GHS classification:** Not GHS classified.
 - **Hazard Pictograms:** No labelling applicable.
 - **Signal words:** None.
 - **Hazard statements:** None.
 - **Precautionary statements:** None.
 - **Other hazards:** None known.
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Article 3 – Composition/Information on Ingredients

Chemical Characterization: Mixtures.

Description: No hazardous substances in concentrations to be declared.

Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
 - **After inhalation:** In case of irritation by inhaling this product, move affected person to fresh air and await recovery. If irritation persists, seek immediate medical attention. If casualty cannot breathe, give artificial respiration and seek immediate medical attention.
 - **After skin contact:** Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
 - **After eye contact:** Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
 - **After swallowing:** Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.
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Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
 - **Specific hazards arising from the substance or mixture:** None known.
 - **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus if necessary.
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Article 6 – Accidental Release Measures

- **Personal precautions, protective equipment, and emergency procedures:** Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
 - **Environmental precautions:** Do not allow to enter drains.
 - **Methods and materials for containment and cleaning up:** Absorb on sand or vermiculite and place in closed containers for disposal.
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Article 7 - Handling and Storage

- **Precautions for safe handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
 - **Conditions for safe storage:** Store according to product label instructions. Keep container upright and tightly closed.
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Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**
NA
- **Appropriate engineering controls:**
Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- **Individual protection measures:**
Respiratory protection:
Use appropriate respirator if there is inadequate ventilation by following the government standards.
Hand protection:
Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.
Eye/face protection:
Safety goggles with side-shields approved under appropriate government standards.
Skin/body protection:
Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Appearance: off-white lyophilized powder	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	Explosion limits: Not available.
pH: Not available.	Decomposition temperature: Not available.
Melting point/freezing point: Not determined.	Vapor pressure at 20 °C: Not available.
Boiling point/Boiling range: Not determined.	Density: Not determined.
Flash point: Not determined.	Relative density: Not determined.
Flammability (solid, gaseous): Not determined.	Vapor density: Not determined.
Ignition temperature: Not determined.	Evaporation rate: Not determined.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: Fully miscible.

Article 10 - Stability and Reactivity

- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat and moisture.
- **Incompatible materials:** Not determined.
- **Hazardous decomposition products:** Not determined.

Article 11 - Toxicological Information

- **Acute toxicity:** Not available.
- **LD/LC50:** Not available.
- **Skin corrosion/irritation:** Not available.
- **Serious eye damage/eye irritation:** Not available.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- **Reproductive toxicity:** Not available.
- **Teratogenicity:** Not available.
- **Specific target organ toxicity - single exposure/ - repeated exposure (GHS):** Not available.
- **Aspiration hazard:** Not available.
- **Potential health effects:**
Inhalation: No data available
Ingestion: No data available
Skin: No data available
Eyes: No data available
- **Signs and Symptoms of Exposure:** No data available
- **Synergistic effects:** Not available.

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Article 12 - Ecological Information

- **Eco-toxicity:** No data available.
- **Biodegradability:** Not applicable.
- **Bio-accumulative potential:** Not applicable.
- **Mobility in soil:** Not applicable.
- **PBT and vPvB assessment:** Not applicable.
- **Other adverse effects:** Not applicable.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- **Contaminated packaging:** Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- **DOT:** Not dangerous goods.
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.

Article 15 - Regulatory Information

- **WHMIS Classification:** Non-hazardous.
- **GHS label elements:** Not applicable.
- **Signal word:** Not applicable.
- **Hazard statements:** Not applicable.

Article 16 - Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.

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