

SAFETY DATA SHEET

G-spin Total DNA Extraction Mini Kit - Buffer CL

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1. IDENTIFICATION

A. Product name

- G-spin Total DNA Extraction Mini Kit - Buffer CL

B. Recommended use and restriction on use

- General use : Laboratory chemicals
 - Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

o Manufacturer information

- Company name : iNtRON Biotechnology, Inc.
 - Address : #1011 Jungang Induspia V B/D, 137, Sagimakgol-ro, Jungwon-gu, Seongnam, Gyeonggi-do, 13202, Korea
 - Dept. : CRT center
 - Telephone number : +82-31-739-5737
 - Emergency telephone number :
 - Fax number : +82-31-739-5264
 - E-mail address : intronbio@intronbio.com

o Supplier/Distributor information

- Company name : iNtRON Biotechnology, Inc.
 - Address : #1011 Jungang Induspia V B/D, 137, Sagimakgol-ro, Jungwon-gu, Seongnam, Gyeonggi-do, 13202, Korea
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2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category4
 - Acute toxicity (dermal) : Category3
 - Acute toxicity (inhalation: vapor) : Category4

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H302 Harmful if swallowed
- H311 Toxic in contact with skin
- H332 Harmful if inhaled

o **Precautionary statements**

1) Prevention

- P261 Avoid breathing dust/fume.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

2) Response

- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P330 Rinse mouth.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.

3) Storage

- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

o **NFPA grade (0 ~ 4 level)**

- Health : 2, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Sodium dodecyl sulfate	Sodium lauryl sulfate ; Dodecyl sodium sulfate ; Lauryl sodium sulfate ; Sodium dodecyl sulphate ; Dodecyl alcohol, hydrogen sulfate, sodium salt ; Lauryl sulfate sodium salt ; Sulfuric acid, monododecyl ester, sodium salt ;	151-21-3	10 ~ 30%

2-Amino-2-(hydroxymethyl)-1,3-propanediol	1,3-Propanediol, 2-amino-2-(hydroxymethyl)- ; Trometamol ; Tris(hydroxymethyl)methylamine ; Tris buffer ; Trihydroxymethylaminomethane ; Propane-1,3-diol, 2-amino-2-(hydroxymethyl)- ; Aminomethane ; Tromethamine ; 2-Amino-1,3-dihydroxy-2-(hydroxymethyl)propane ; 2-Amino-2-(hydroxymethyl)propane-1,3-diol ; 2-Amino-2-methylol-1,3-propanediol ; Aminotri(hydroxymethyl)methane ; Aminotrimethylolmethane ; Aminotris(hydroxymethyl)methane ; Methanamine, 1,1,1-tris(hydroxymethyl)- ; Tri(hydroxymethyl)methylamine ; Trimethylolaminomethane ; Tris(hydroxymethyl)aminomethane ; Tris(hydroxymethyl)methanamine ; Tris(methylolamino)methane ; [2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]amine ; Tromethane ; Tromethanmin ;	77-86-1	5 ~ 20%
Ethylenediaminetetraacetic acid disodium salt	Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, disodium salt ; Acetic acid, (ethylenedinitrilo)tetra-, disodium salt ; EDTA Disodium-salt ; Ethylenediaminetetraacetic acid, disodium salt ; Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, disodium salt ; Acetic acid, (ethylenedinitrilo)tetra-, disodium salt ; N,N'-1,2-Ethanediybis[N-(carboxymethyl)glycine], disodium salt, dihydrate ; Disodium dihydrogen ethylenediaminetetraacetate	139-33-3	5 ~ 20%
α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediy)	-	9002-93-1	0.3 ~ 1%

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Prevent the spread of the skin.
- Take the doctor's examination.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Keep containers cool with water spray.
- Fine powder may cause ignition.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Remove all sources of ignition.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Avoid dust formation.
- Moist with water to prevent dust scattering.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Dust spills : Cover dust spills with plastic sheet or waterproof cloth to minimize spreading and avoid contact with water.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- For disposal of spilled material in appropriate containers collected and clear surface.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Operators should wear antistatic footwear and clothing.
- Minimize occurrence of dust and accumulation.

B. Conditions for safe storage, including any incompatibilities

- Do not use damaged containers.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- No open fire.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Do not eat, drink or smoke when using this product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**A. Exposure limits**

- o **ACGIH TLV**
 - Not available
- o **OSHA PEL**
 - Not available

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Individual protection measures, such as personal protective equipment

- o **Respiratory protection**
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Dust, mist, fume-purifying respiratory protection
 - Any air-purifying respirator with a corpuscle filter of high efficiency
 - Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
 - Self-contained breathing apparatus with a corpuscle filter of high efficiency
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- o **Eye protection**
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- o **Hand protection**
 - Wear appropriate glove.
- o **Skin protection**
 - Wear appropriate clothing.
- o **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

[Ethylenediaminetetraacetic acid disodium salt]

A. Appearance	
- Appearance	Solid, crystal powder
- Color	White
B. Odor	None
C. Odor threshold	None
D. pH	4.0-6.0 (5% solution)
E. Melting point/Freezing point	None
F. Initial Boiling Point/Boiling Ranges	Not applicable
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	-/-

K. Vapour pressure	0.000000000000000757 mmHg (at 25C estimated)
L. Solubility	1000000 g/ml (at 25C estimated)
M. Vapour density	Not applicable
N. Specific gravity(Relative density)	None
O. Partition coefficient of n-octanol/water	-11.70 (estimated)
P. Autoignition temperature	Not available
Q. Decomposition temperature	250°C
R. Viscosity	Not available
S. Molecular weight	336.21

[Sodium dodecyl sulfate]

A. Appearance	
- Appearance	Solid, crystals, flakes, powder
- Color	White
B. Odor	Very weak smell
C. Odor threshold	None
D. pH	Not applicable
E. Melting point/Freezing point	204 ~ 207°C
F. Initial Boiling Point/Boiling Ranges	Not applicable
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	-/-
K. Vapour pressure	0.00000000000047 mmHg (at 25C estimated)
L. Solubility	10%
M. Vapour density	Not applicable
N. Specific gravity(Relative density)	>1.1 (water=1)
O. Partition coefficient of n-octanol/water	1.6
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	288.38

[2-Amino-2-(hydroxymethyl)-1,3-propanediol]

A. Appearance	
- Appearance	Solid
- Color	White
B. Odor	A slightly unique incense
C. Odor threshold	Not available
D. pH	10.4
E. Melting point/Freezing point	171 ~ 172 °C
F. Initial Boiling Point/Boiling Ranges	219 °C ~ 220 °C
G. Flash point	170 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	- / -
K. Vapour pressure	0.000002 mmHg (at 25°C)
L. Solubility	550 mg/l
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.328
O. Partition coefficient of n-octanol/water	-1.56
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	121.14

[α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediyl)]

A. Appearance	
- Appearance	Liquid
- Color	Light colored
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	6 ~ 7°C
F. Initial Boiling Point/Boiling Ranges	270°C (at 760mmHg)
G. Flash point	550.4°F / 288°C
H. Evaporation rate	Negligible
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	- / -
K. Vapour pressure	Not available
L. Solubility	Soluble
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.082
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	240 cP at 25 deg C
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- (Respiratory tracts)
 - Not available
- (Oral)
 - Harmful if swallowed
- (Eye·Skin)
 - Not available

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- Acute toxicity
 - * Oral
 - Product (ATEmix) : 300mg/kg < ATEmix <= 2000mg/kg
 - [Sodium dodecyl sulfate] : LD50 1200 mg/kg Rat (SIDS)
 - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : LD50 = 5900 mg/kg rabbit (Thomson Micromedex)
 - [Ethylenediaminetetraacetic acid disodium salt] : LD50 2000 mg/kg Rat

- [α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediyl)] : LD50 = 1800 mg/kg Rat (Thomson)
- * **Dermal**
 - Product (ATEmix) : 300mg/kg < ATEmix <= 2000mg/kg
 - [Sodium dodecyl sulfate] : LD50 600 mg/kg Rabbit (SIDS)
- * **Inhalation**
 - Not available
- **Skin corrosion/irritation**
 - Not available
- **Serious eye damage/irritation**
 - Not available
- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - Not available
- **Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - Not available
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - Not available
- **STOT-single exposure**
 - Not available
- **STOT-repeated exposure**
 - Not available
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [Sodium dodecyl sulfate] : LC50 1.31 mg/l 96 hr Cyprinus carpio (ECOTOX)
 - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : LC50 = 955.892 mg/l 96 hr (Estimate)
 - [Ethylenediaminetetraacetic acid disodium salt] : LC50 320 mg/l 96 hr Poecilia reticulata (IUCLID)
 - [α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediyl)] : LC50 4.5 mg/l 96 hr Pimephales promelas (ECOTOX)
- **Crustaceans**
 - [Sodium dodecyl sulfate] : EC50 6 mg/l 48 hr Daphnia magna (ECOTOX)
 - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : EC50 = 19.793 mg/l 48 hr (Estimate)
 - [α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediyl)] : LC50 11.2 mg/l 48 hr Daphnia magna (ECOTOX)
- **Algae**
 - [Sodium dodecyl sulfate] : EC50 1.2 mg/l 96 hr Skeletonema costatum (ECOTOX)
 - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : EC50 = 163.053 mg/l 96 hr (Estimate)

B. Persistence and degradability

- **Persistence**
 - [Sodium dodecyl sulfate] : log Kow 1.60
 - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : log Kow = -1.56 (HSDB)
 - [Ethylenediaminetetraacetic acid disodium salt] : log Kow -11.70 (Estimate)
 - [α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediyl)] : log Kow 4.86 (NITE)

- **Degradability**

- Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**

- [Sodium dodecyl sulfate] : BCF 2.1 ~ 7.1 (OECD SIDS)
- [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : BCF = 3 (HSDB)
- [Ethylenediaminetetraacetic acid disodium salt] : BCF 3.162 (Estimate)
- [α -[4-(1,1,3,3-Tetramethylbutyl)phenyl]- ω -hydroxypoly(oxy-1,2-ethanediyl)] : BCF 248 (Estimate)

- **Biodegradation**

- [Sodium dodecyl sulfate] : 100 (%) 28 day (AFNOR T 90.302 (1997), IUCLID)

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat separtly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 3082

B. Proper shipping name

- ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.

C. Hazard Class

- 9

D. IMDG CODE/IATA DGR Packing group

- III

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-F (Water-soluble marine pollutants)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- **POPs Management Law**

- Not applicable

- **Information of EU Classification**
 - * **Classification**
 - Not applicable
- **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - Not applicable
 - * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
 - * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
 - * **EPCRA Section 313 (40CFR372.65)**
 - Not applicable
- **Rotterdam Convention listed ingredients**
 - Not applicable
- **Stockholm Convention listed ingredients**
 - Not applicable
- **Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2018-05-24

C. Revision number and Last date revised

- Not applicable

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).