KAMPOYAKI NATURAL
PRODUCTS BIO-CHEMISTRY

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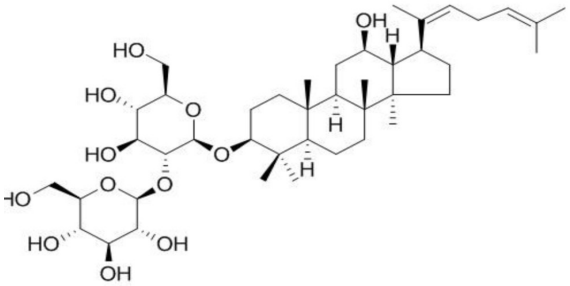
ISO 9001:2015 Certification
ISO 16128-1 ISO 16128-2-2017 EPA www.epa.gov/greenchemistry

GINSENOSIDE RG5

Datasheet
Kampoyaki Novo-Drug Screening Libraries 4th Edition (Revised in July, 2016)

PRODUCT INFORMATION



Name: Ginsenoside Rg5
Catalog No.: KRN92643
Cas No.: 186763-78-0
Purity: >=98%
M.F: $C_{42}H_{70}O_{12}$
M.W: 767.0
Physical Description: Powder
Synonyms: (2S,3R,4S,5S,6R)-2-[[(2R,3R,4S,5S,6R)-4,5-dihydroxy-6-(hydro-xymethyl)-2-[[(10R,12S,1 4R,17S)-12-hydroxy-4,4,7,10,14-pentamethyl--17-[(2E)-6-methylhepta-2,5-dien-2-yl]-1,2,3, 5,6,7,8,9,11,12,13,15,16,17-te-tradecahydrocyclopenta[a]phenanthren-3-yl]oxy]-3-oxany.

POTENTIAL USES

1. Reference standards; **2.** Pharmacological research; **3.** Food and cosmetic research; **4.** Synthetic precursor compounds; **5.** Active Pharmaceutical Intermediates (API) & Fine Chemicals; **6.** Ingredient in supplements, beverages; **7.** Agricultural research; **8.** Botanical Bio- Allelopathy, **9.** Natural Botanical Molecules as Botanical Bio-Herbicides **10.** As Botanical Bio- Anti-Blight Fungicides

SOURCE

The roots of Panax ginseng.

BIOLOGICAL ACTIVITY OR INHIBITORS

Ginsenoside-Rg5 (G-Rg5), a newly discovered diol-containing ginsenoside, G-Rg5 blocks cell cycle of SK-HEP-1 cells at the Gl/S transition phase by down-regulating cyclin E-dependent kinase activity and that the down-regulation of cyclin E-dependent kinase activity is caused mainly by induced CDK2 inhibitor, p21Cip/WAF1 and decreased levels of cyclin E.[1]
Ginsenosides Rg5 and its metabolite ginsenoside Rh3 suppress swelling of oxazolone-induced mouse ear contact dermatitis, they also reduce mRNA expressions of cyclooxygenase-2, interleukin (IL)-1β, tumor necrosis factor (TNF)-α and interferon (IFN)-γ; the inhibition of ginsenoside Rh3 is more potent than that of ginsenoside Rg5; suggests that ginsenoside Rh3 metabolized from ginsenoside Rg5 may improve chronic dermatitis or psoriasis by the regulation of IL-1β and TNF-α produced by macrophage cells and of IFN-γ produced by Th cells.[2]
Ginsenoside Rg5 plays a novel role as an insulin-like growth factor-1 receptor , it promotes therapeutic and improves without adverse effects in the vasculature.[3] Ginsenoside Rg5 ameliorates lung inflammation in mice by inhibiting the binding of LPS to toll-like receptor-4 on macrophages.[4]
Ginsenoside Rg5 improves cognitive dysfunction and beta-amyloid deposition in STZ-induced memory impaired rats via attenuating neuroinflammatory responses, suggests that Rg5 could be a beneficial agent for the treatment of Alzheimer's disease (AD). [5]
Ginsenoside-Rg5 induces apoptosis and DNA damage in human cervical cancer cells , it has marked genotoxic effects in the HeLa and MS751 cells and, thus, demonstrates potential as a genotoxic or cytotoxic drug for the treatment of cervical cancer.[6] Ginsenoside Rg5 may be metabolized in vivo to ginsenoside Rh3 by human intestinal

microflora, and ginsenoside Rh3 may improve antiallergic diseases, such as rhinitis and dermatitis.[7]
Ginsenoside Rg5 has anti-inflammatory effect, it suppresses ROS production with upregulation of hemeoxygenase-1 (HO-1) expression in lipopolysaccharide-stimulated BV2 cells, it may provide a therapeutic potential for various neuroinflammatory disorders.[8]

SOLVENT

Pyridine, Methanol, Ethanol, Hot water, etc.

HPLC METHOD (9)

Mobile phase:	10% acetonitrile aqueous solution containing 5% acetic acid- 80% acetonitrile aqueous solution water,gradient eiution;
Flow rate:	1.2 ml/min;
Column temperature:	30 °C;
----	Drift tube temperature: 60 °C; Flow rate of gas : 1.8L/min; Carrier gas: N2.

STORAGE

2-8°C, Protected from air and light, refrigerate or freeze.

REFERENCES

[1] Lee K Y, Lee Y H, Kim S I, et al. Anticancer Res., 1997, 17(2A):1067-72.
[2] Yong W S, Bae E A, Dong H K. Arch. Pharm. Res., 2006, 29(8):685-90.
[3] Cho Y L, Hur S M, Kim J Y, et al. J. Biol.Chem., 2015, 290(1):467-77.
[4] Kim T W, Joh E H, Kim B, et al. Int. Immunopharmacol., 2012, 12(1):110-6.
[5] Chu S, Gu J, Feng L, et al. Int. Immunopharmacol., 2014, 19(2):317-26.
[6] Liang L, He T , Du T W, et al. Mol .Med. Rep., 2015, 11(2):940-6.
[7] Shin Y W, Bae E A, Han M J, et al. J. Microbiol. Biotechnol., 2006,16(11):1791-8.
[8] Young L Y, Jin S P, Jin J S , et al. Int .J. Mol. Sci., 2013, 14(5):9820-33.
[9] Sun B S, Ye G Y, Zhang C C. Chinese Journal of Pharmaceutical Analysis, 2013(3): 388-94.

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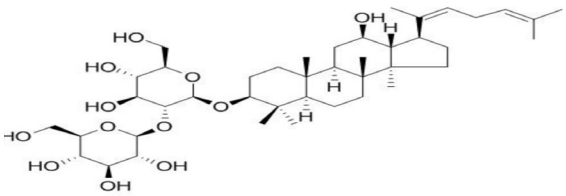
CERTIFICATE OF ANALYSIS

Name: Ginsenoside Rg5
Catalog No.: KRN92643
Cas No.: 186763-78-0
Purity: >= 98%
M.F: $C_{42}H_{70}O_{12}$



Physical Description: Powder
Solvent: Pyridine, Methanol, Ethanol, etc.
Weight 10mg
Lot No. KRS201802
Storage Protected from air and light, refrigerate or freeze (2-8 °C)
Intended Use For laboratory use only
Shelf Life 2 years

CHARACTERIZATION DATA SUMMARY

Analytical Test	Results
Identification by , 1H-NMR , HPLC	Consistent with the above structure
Purity tested	>= 98%

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GHS SAFETY DATA SHEET

Version 4.2
Revision Date 01/01/2018
Print Date 01/08/2019

1. PRODUCT AND COMPANY IDENTIFICATION

GHS Product Name: Ginsenoside Rg5

Product code: KRN92643

Company: KAMPOYAKI HERS PTE LTD

Address: 16 New Industrial Road, #05-05 Hudson Techno Centre Singapore 536204

Tel: +65-63833202

Fax: +65-63833632

Website: www.kampoyaki-research.com

E-mail: thiru-sam@kampoyaki-research.com | kampoyak@singnet.com.sg

2. HAZARDS IDENTIFICATION

2.1 GHS classification

Physical Hazards: Not classified

Health Hazards: Not classified

Environmental Hazards: Not classified

2.2 GHS label elements, including precautionary statements

Pictograms or hazard symbols: None

Signal word: No signal word

Hazard statements: None

Precautionary statements: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Ginsenoside Rg5

CAS#: 186763-78-0

Purity: >=98%

Formula: $C_{42}H_{70}O_{12}$

Molecular Weight: 767.0

Hazard Symbols: ---

Risk Phrases: ---

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Consult a doctor.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Consult a doctor.

Ingestion: Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Consult a doctor.

Inhalation: Remove from exposure and move to fresh air immediately. Consult a doctor.

4.2 Indication of immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing

Media: Dry chemical, foam, water spray, carbon dioxide.

Precautions for firefighters: Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so.

5.2 Special protective

Equipment for firefighters: When extinguishing fire, be sure to wear personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas.

6.2 Environmental precautions

Do not let product enter drains.

6.3 General Information

Use proper personal protective equipment as indicated in Section 8.

6.4 Spills/Leaks

Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Decontaminate spill site with 10% caustic solution and ventilate area until after disposal is complete

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Storage

Store in a well closed container. Protected from air and light, refrigerate or freeze.(2-8°C)

7.3 Specific end uses

Use in a laboratory fume hood where possible. Refer to employer is COSHH risk assessment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Engineering controls

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

Control parameters: Not set up

8.2 Personal protective equipment

Respiratory protection: Dust respirator. Follow local and national regulations.

Hand protection: Protective gloves.

Eye protection: Wear safety glasses and chemical goggles if splashing is possible.

Skin and body protection: Wear appropriate protective gloves and clothing to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance Yellow powder
b) Odour no data available
c) Odour Threshold no data available
d) pH no data available
e) Melting point/freezing point no data available
f) Initial boiling point and boiling range no data available
g) Flash point no data available
h) Evaporation rate no data available
i) Flammability (solid, gas) no data available
j) Flammability or explosive limits no data available
k) Vapour pressure no data available
l) Vapour density
m) Relative density no data available
n) Water solubility no data available
o) Partition coefficient: no data available
p) Autoignition temperature no data available
q) Decomposition temperature no data available
r) Viscosity no data available
s) Explosive properties no data available
t) Oxidizing properties no data available

10 - STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended transport or storage conditions.

10.2 Chemical Stability

Stable under normal temperatures and pressures.

10.3 Conditions to Avoid

Incompatible materials, strong oxidants, heat.

10.4 Incompatibilities with Other Materials

Strong oxidising/reducing agents, strong acids/alkalis.

10.5 Hazardous Decomposition Products

Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.

10.6 Hazardous Polymerization

Has not been reported.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	No data available
Skin corrosion/ irritation:	No data available
Serious eye damage/irritation:	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	---
IARC:	No data available
NTP:	No data available
Reproductive toxicity:	No data available

12. ECOLOGICAL INFORMATION

Toxicity:	No data available
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available
Results of PBT and vPvB assessment:	No data available
Other adverse effects:	May be harmful to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

14. TRANSPORT INFORMATION

14.1 Hazards Class:

Does not meet the criteria for classification as hazardous for transport

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

Does not meet the criteria for classification as hazardous for transport.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available

15.2 Chemical Safety Assessment

No data available

16. ADDITIONAL INFORMATION

This GHS SDS above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

End of GHS safety data sheet

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