

Section 1 – Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Product name: **2'3'-cGAMP, 2'3'-cGAMP VacciGrade™, 2'3'-cGAMP Control, 3'3'-cGAMP, 3'3'-cGAMP Fluorinated, 2'3'-cGAMP(PS)₂ (Rp/Sp), 2'3'-c-di-AM(PS)₂ (Rp,Rp), 2'3'-c-di-AM(PS)₂ (Rp,Rp) VacciGrade™, c-di-AMP, c-di-AMP VacciGrade™, c-di-GMP, c-di-GMP VacciGrade™, c-di-GMP Fluorinated**

Catalog code: tlr1-nacga23-02, tlr1-nacga23, tlr1-nacga23-1, tlr1-nacga23-5, vac-nacga23, tlr1-nagpap, tlr1-nacga, tlr1-nacga-1, tlr1-nacga-2.5, tlr1-nacgaf-05, tlr1-nacga2srs-05, tlr1-nacda2r-05, tlr1-nacda2r-1, vac-nacda2r, tlr1-nacda, tlr1-nacda-5, vac-nacda, tlr1-nacdg, tlr1-nacd-5, vac-nacd, tlr1-nacd-5

CAS number: See section 3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use: Laboratory research. Only for professional use.

Uses advised against: Not for diagnostic, therapeutic, or household use.

1.3 Details of the supplier of the safety data sheet

Company: InvivoGen US, 10515 Vista Sorrento Parkway
San Diego, California 92121, USA
(+1) 888 457 5873

InvivoGen Europe, 5 rue Jean Rodier
31400 Toulouse, France
+33 (0) 5 62 71 69 39

InvivoGen Asia, Unit 307, 3F,
8W Phase 2 Hong Kong Science Park,
Pak Shek Kok, Hong Kong
+852 3622 3480

1.4 Emergency telephone number: ORFILA (INRS): +33 (0)1 45 42 59 59

Section 2 – Hazards identification**2.1 Classification of substance or mixture according to Regulation (EC) No 1272/2008 [EU-GHS/CLP] and GHS**

Skin irritation (Category 2), H315

Specific target organ toxicity - single exposure (Category 3), H335

2.2 Label elements according to Regulation (EC) No 1272/2008 [CLP] and GHS

Pictogram



Signal word

Warning

Hazard statement

H315	Causes skin irritation.
H335	May cause respiratory irritation.

Precautionary statements

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P341	IF INHALED: If breathing is difficult, 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.
P501	Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards
Endocrine Disruptor

To our knowledge, the substance or mixture does not contain any substances >0.1% that are included in the list established in accordance with Article 59(1) for having endocrine disrupting properties.

PBT and vPvB substance

To our knowledge, the substance or mixture does not contain any substances >0.1% that meet the criteria for persistent, bioaccumulative and toxic or very persistent and very bioaccumulative in accordance with Annex XIII.

Section 3 – Composition/information on ingredients
3.1 Substances

	2'3'-cGAMP, 2'3'-cGAMP VacciGrade™	2'3'-cGAMP Control	3'3'-cGAMP	3'3'-cGAMP Fluorinated	2'3'-cGAM(PS)₂ (Rp/Sp)
Synonyms	Cyclic [G(2',5')pA(3',5')p] sodium salt	2'5'-GpAp; Linear guanosine monophosphate-adenosine monophosphate; Negative control for 2'3'-cGAMP	Cyclic [G(3',5')pA(3',5')p] sodium	2'Fluoro-cyclic GMP-AMP, c-(2'FdGMP)-(2'FdAMP), F-c-GpAp sodium salt	Di-thiophosphate analog of 2'3'-cGAMP; c-(RpSp)-ApsGps; 2'3'-cGsAsMP
Formula	C ₂₀ H ₂₂ N ₁₀ O ₁₃ P ₂ •2Na	C ₂₀ H ₂₃ N ₁₀ O ₁₄ P ₂ •3Na	C ₂₀ H ₂₂ N ₁₀ O ₁₃ P ₂ •2Na	C ₂₀ H ₂₀ F ₂ N ₁₀ O ₁₁ P ₂ •2Na	C ₂₀ H ₂₂ N ₁₀ O ₁₁ P ₂ S ₂ •2Na
Molecular weight	718.38 g/mol	758.38 g/mol	718.38 g/mol	722.36 g/mol	750.5 g/mol
CAS number	1441190-66-4	Not available	849214-04-6	Not available	1637675-05-8 (free acid)

	2'3'-c-di-AM(PS)₂ (Rp,Rp), 2'3'-c-di-AM(PS)₂ (Rp,Rp) VacciGrade™	c-di-AMP, c-di-AMP VacciGrade™	c-di-GMP, c-di-GMP VacciGrade™	c-di-GMP Fluorinated
Synonyms	(R,R)-(2',3')c-diAM(PS) ₂ , (2',3')-Rp,Rp-c-diAMPSS, ADU-S100, MIW815	Cyclic di-adenylate monophosphate, c-di-AMP sodium salt	Cyclic di-guanylate monophosphate, c-di-GMP sodium salt	2'Fluoro-c-di-GMP sodium salt, 2',2"-di-F-c-didGMP, c-di(2'FdGMP)
Formula	C ₂₀ H ₂₂ N ₁₀ O ₁₀ P ₂ S ₂ •2Na	C ₂₀ H ₂₂ N ₁₀ O ₁₂ P ₂ •2Na	C ₂₀ H ₂₂ N ₁₀ O ₁₄ P ₂ •2Na	C ₂₀ H ₂₀ F ₂ N ₁₀ O ₁₂ P ₂ •2Na
Molecular weight	734.50 g/mol	702.38 g/mol	734.38 g/mol	738.36 g/mol
CAS number	1638750-95-4	54447-84-6	61093-23-0	1334145-18-4

Section 4 – First aid measures

4.1 Description of first aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: Remove to fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash skin with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If ingested: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5 – Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, carbon dioxide, dry chemical powder, or appropriate foam.

Unsuitable extinguishing media: None identified.

5.2 Special hazards arising from the substance or mixture

No information available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Section 6 – Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Wear appropriate protective equipment and clothing during clean-up. For further information refer to section 8: "Exposure controls/personal protection". Ventilate spillage area.

6.1.2. For emergency responders

Wear appropriate protective equipment and clothing during clean-up. For further information refer to section 8: "Exposure controls/personal protection". Evacuate unnecessary personnel. Avoid direct contact with the spilled substance. Ensure adequate ventilation, especially in confined areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

Section 7 – Handling and storage

7.1 Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: -20 °C.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8 – Exposure controls/personal protection**8.1 Control parameters****8.1.1 National occupational exposure and biological limit values**

No information available

8.1.2 Recommended monitoring procedures

No information available

8.1.3 Air contaminants formed

No information available

8.1.4 DNEL and PNEC

No information available

8.1.5 Control banding

No information available

8.2 Exposure controls**8.2.1 Appropriate engineering controls**

General industrial hygiene practice.

8.2.2 Individual protection measures, such as personal protective equipment**Eye and face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection

Respiratory protection is not required for normal conditions of use. Where protection from nuisance levels of dusts is desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Thermal hazards

No information available

8.2.3 Environmental exposure controls

Do not let product enter drains.

Section 9 – Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Physical state: Solid

Color: White

Odor/Odor threshold: No data available

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flammability: No data available

Lower and upper explosion limit: No data available

Flash point: No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

pH: No data available

Kinematic viscosity: No data available

Solubility: 50 mg/ml in water
Partition coefficient n-octanol/water (log value): No data available
Vapor pressure: No data available
Density and/or relative density: No data available
Relative vapor density: No data available
Particle characteristics: No data available

9.2 Other information

9.2.1 Information with regard to physical hazard classes

No data available

9.2.1 Other safety characteristics

No data available

Section 10 – Stability and reactivity

10.1 Reactivity: No data available

10.2 Chemical stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions: No data available

10.4 Conditions to avoid: No data available

10.5 Incompatible materials: No data available

10.6 Hazardous decomposition products: No data available

Section 11 – Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity:

Oral LD50: No data available

Inhalation LC50: No data available

Dermal LD50: No data available

Other information on acute toxicity: No data available

Skin corrosion/irritation: No data available

Serious eye damage/irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity: No data available

Reproductive toxicity: No data available

STOT-single exposure: No data available

STOT-repeated exposure: No data available

Aspiration hazard: No data available

11.2 Information on other hazards

Endocrine disrupting properties: No data available

Other information: No data available

Section 12 – Ecological information

12.1 Toxicity: No data available

12.2 Persistence and degradability: No data available

12.3 Bioaccumulative potential: No data available

12.4 Mobility in soil: No data available

12.5 Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required or not conducted.

12.6 Endocrine disrupting properties: No data available

12.7 Other adverse effects: No data available

Section 13 – Disposal considerations

13.1 Waste treatment methods

Product: Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Must not be disposed of together with household garbage.

Contaminated Packaging: Dispose of as unused product.

Section 14 – Transport information

14.1 UN number

ADR/RID: - DOT (US): - IMDG: - IATA: -

14.2 UN proper shipping name

not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: - DOT (US): - IMDG: - IATA: -

14.4 Packing group

ADR/RID: - DOT (US): - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: no DOT (US): no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

no data available

14.7 Maritime transport in bulk according to IMO instruments

not applicable

Section 15 – Regulatory information

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

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 (REACH) including the amendment to Annex II by Regulation (EU) 2020/878.

15.2 Chemical safety assessment

no data available

Section 16 – Other information

The information contained in this SDS relates only to the material(s) designated and does not relate to use(s) in combination with any other material, process(es) and/or chemical reaction(s). InvivoGen provides this information in good faith and is based on our present knowledge. This SDS is provided without warranty of any kind. The recipient is responsible for ensuring that, where applicable, existing laws and guidelines are observed.