

Antibody for PhenoCode Signature

Catalog #'s: S6501000, S6501001, S6501002, S6501003, S6501004, S6501005, S6501006, S6501007, S6501008, S6501009, S6501010, S6501011, S6501012, S6501013

Antibodies for PhenoCode™ Signature are provided as multi-component kits. Safety Data Sheets are provided in this document for each component supplied per kit.

Catalog #	Description	Component #	Component Description
S6501000	Anti-Hu Pan-Cytokeratin (AKYP0053)-BX066 for PhenoCode Signature	240229	Anti-Hu Pan-Cytokeratin (AKYP0053)
		PCSD066	HRP-HX066 PhenoCode Signature Detector
S6501001	Anti-Hu CD8 (AKYP0028)-BX026 for PhenoCode Signature	232151S	Anti-Hu CD8 (AKYP0028)-BX026
		PCSD026	HRP-HX026 PhenoCode Signature Detector
S6501002	Anti-Hu CD4 (AKYP0048)-BX003 for PhenoCode Signature	232174	Anti-Hu CD4 (AKYP0048)-BX003
		PCSD003	HRP-HX003 PhenoCode Signature Detector
S6501003	Anti-Hu CD3e (AKYP0125)-BX080 for PhenoCode Signature	240227	Anti-Hu CD3e (AKYP0125)-BX080
		PCSD080	HRP-HX008 PhenoCode Signature Detector
S6501004	Anti-Hu CD68 (AKYP0050)-BX015 for PhenoCode Signature	232176	Anti-Hu CD68 (AKYP0050)-BX015
		PCSD015	HRP-HX015 PhenoCode Signature Detector
S6501005	Anti-Hu CD163 (AKYP0114)-BX069 for PhenoCode Signature	240182	Anti-Hu CD163 (AKYP0114)-BX069
		PCSD069	HRP-HX069 PhenoCode Signature Detector
S6501006	Anti-Hu Ki67 (AKYP0126)-BX047 for PhenoCode Signature	240232	Anti-Hu Ki67 (AKYP0126)-BX047
		PCSD047	HRP-HX047 PhenoCode Signature Detector
S6501007	Anti-Hu FOXP3 (AKYP0102)-BX031 for PhenoCode Signature	240170	Anti-Hu FOXP3 (AKYP0102)-BX031
		PCSD031	HRP-HX031 PhenoCode Signature Detector
S6501008	Anti-Hu CD20 (AKYP0049)-BX064 for PhenoCode Signature	240230	Anti-Hu CD20 (AKYP0049)-BX064
		PCSD064	HRP-HX064 PhenoCode Signature Detector
S6501009	Anti-Hu Granzyme B (AKYP0086)-BX041 for PhenoCode Signature	240074S	Anti-Hu Granzyme B (AKYP0086)-BX041
		PCSD041	HRP-HX041 PhenoCode Signature Detector
S6501010	Anti-Hu PD-1 (AKYP0127)-BX046 for PhenoCode Signature	240231	Anti-Hu PD-1 (AKYP0127)-BX046
		PCSD046	HRP-HX046 PhenoCode Signature Detector
S6501011	Anti-Hu PD-L1 (AKYP0103)-BX067 for PhenoCode Signature	240228	Anti-Hu PD-L1 (AKYP0103)-BX067
		PCSD067	HRP-HX067 PhenoCode Signature Detector
S6501012	Anti-Hu CD45RO (AKYP0059)-BX017 for PhenoCode Signature	232188	Anti-Hu CD45RO (AKYP0059)-BX017
		PCSD017	HRP-HX017 PhenoCode Signature Detector
S6501013	Anti-Hu SMA (AKYP0081)-BX013 for PhenoCode Signature	240068	Anti-Hu SMA (AKYP0081)-BX013
		PCSD013	HRP-HX013 PhenoCode Signature Detector

SDS Revision Date (mm/dd/yyyy): 11/01/2017

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SECTION 1. IDENTIFICATION

Product identifier used on the label: PhenoCycler™ or Phenolmager Antibody
Other means of identification :

232122	232123	232124	232125	232126	232127	232128	232129	232130	232131
232132	232133	232134	232135	232136	232137	232138	232139	232140	232141
232142	232143	232144	232145	232146	232147	232148	232149	232150	232151
232152	232153	232154	232155	232156	232157	232158	232159	232160	232161
232162	232163	232164	232165	232166	232167	232168	232169	232170	232171
232172	232173	232174	232175	232176	232177	232178	232180	232181	232182
232183	232184	232185	232186	232187	232188	232189	240001	240003	240004
240006	240017	240018	240019	240020	240021	240022	240033	240034	240035
240036	240058	240059	240060	240061	240062	240064	240065	240066	240077
240068	240069	240070	240071	240072	240073	240074	240075	240076	240077
240078	240079	240080	240081	240082	240083	240084	240125	240126	240127
240128	240129	240170	240171	240172	240173	240174	240175	240176	240177
240178	240179	240180	240181	240182	240183	240184	240185	240186	240187
240188	240189	240190	240191	240192	240200	240201	240202	240203	232179
200066	200067	200068	200069	200070	200071	240228	240229	240230	240231
240227	240232	240074S	232151S						

Recommended use of the chemical and restrictions on use

: Research and development only.
 No restrictions on use known.

Chemical family

: Mixture

Name, address, and telephone number of the supplier:

Akoya Biosciences, Inc.

100 Campus Dr,
 6th Floor
 Marlborough, MA, USA
 01752

Supplier's Telephone # : (855) 896 8401

24 Hr. Emergency Tel # : INFOTRAC - (800) 535-5053 (Within Continental US); (352) 323-3500 (Outside US)

Name, address, and telephone number of the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear liquid. No odour.

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Most important hazards:

Suspected of damaging the unborn child. May cause damage to organs. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Hazardous classification:

Reproductive toxicity - Category 2 (Developmental)
 Specific target organ toxicity, single exposure - Category 2

Label elements

Hazard pictogram(s)



Signal Word

WARNING!

Hazard statement(s)

Suspected of damaging the unborn child.
 May cause damage to organs.

Precautionary statement(s)

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Do not breathe fumes, mists or vapours.
 Wash exposed skin thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Wear protective gloves/clothing and eye/face protection.
 If exposed or concerned: Call a POISON CENTER or doctor/physician.
 Store locked up.
 Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:

Toxic fumes may be released during a fire. Direct eye contact may cause slight or mild, transient irritation. May be mildly irritating to skin and respiratory system. May cause gastrointestinal irritation. In extremely high concentrations, may cause symptoms of central nervous system depression.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Ethylene glycol	1,2-Ethanediol 1,2-Dihydroxyethane	107-21-1	1.0 - 5.0

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The exact concentrations of the above listed chemicals are being withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Do not induce vomiting. Never give anything by mouth to an unconscious person. If exposed or concerned: Call a POISON CENTER or doctor/physician.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. If exposed or concerned: Call a POISON CENTER or doctor/physician.
- Skin contact* : Immediately flush with plenty of water, while removing contaminated clothing. If exposed or concerned: Call a POISON CENTER or doctor/physician.
- Eye contact* : Immediately flush eye(s) with plenty of water. After initial flushing, remove any contact lenses if worn, and continue flushing for at least 5 to 10 minutes. If irritation or symptoms develop, seek medical attention.

Most important symptoms and effects, both acute and delayed

- : Suspected of damaging the unborn child. Symptoms may include late resorptions, reduced fetal body weight and external, soft tissue and skeletal defects.
May cause damage to organs. Symptoms may include abdominal pain, excess urine production followed by diminished urine production, blood in the urine, tissue death in the kidney and oxalate crystal deposition.
Direct eye contact may cause slight or mild, transient irritation. Symptoms may include redness, pain, tearing and conjunctivitis.
Direct skin contact may cause temporary redness.
Inhalation of mists or sprays may mildly irritate the upper respiratory tract and cause coughing or sneezing.
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. In extremely high concentrations, may also cause nausea, vomiting, dizziness, drowsiness and other symptoms of central nervous system depression.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : None known.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not classified as flammable. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Toxic fumes, gases or vapors may evolve on burning.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not considered flammable.

Hazardous combustion products

- : Carbon oxides; Formaldehyde; Metal oxides; Hydrochloric acid; Other irritating fumes and smoke.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

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Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Use water spray to keep containers cool. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Keep all other personnel upwind and away from the spill/release. Ensure clean-up is conducted by trained personnel only. All persons dealing with the clean-up should wear the appropriate personal protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Methods and material for containment and cleaning up

- : Ventilate the area. Stop the spill at source if it is safe to do so. Eliminate all ignition sources. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand). Pick up and transfer to properly labeled containers. Never return spills in original containers for re-use. Contaminated absorbent material may pose the same hazards as the spilled product. Notify the appropriate authorities as required. Refer to Section 13 for disposal of contaminated material.

Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the National Response Center in the United States (phone: 1-800-424-8802).
US CERCLA Reportable quantity (RQ): Ethylene glycol (5000 lbs / 2270 kg)

In Canada: Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Wear suitable protective equipment during handling. Wear protective gloves/clothing and eye/face protection. Do not ingest. Do not breathe fumes, mists or vapours. Avoid contact with eyes, skin and clothing. Keep away from extreme heat and flame. Keep away from acids and other incompatibles. Keep containers tightly closed when not in use. Empty containers retain residue (liquid and/or vapour) and can be dangerous. Wash thoroughly after handling.

Conditions for safe storage : Store in a cool, dry, well-ventilated area. Store away from areas of excessive heat, open flames, sparks, and other possible sources of ignition. Keep away from incompatibles. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Store locked up. Keep refrigerated.

Incompatible materials : Strong oxidizing agents; Strong acids; Strong bases; Halogenated compounds

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Exposure Limits:</u>				
<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Ethylene glycol	25 ppm (vapour)	50 ppm (vapour); 10 mg/m ³ (inhalable) (aerosol)	50 ppm (125 mg/m ³) (Ceiling) (final rule limit)	N/Av

Exposure controls

Ventilation and engineering measures

- : Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

- : Respiratory protection is required if the concentrations exceed the TLV. NIOSH-approved respirators are recommended. Seek advice from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

Skin protection

- : Wear protective gloves/clothing. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear resistant clothing and boots.

Eye / face protection

- : Wear eye/face protection. Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles. A full face shield may also be necessary.

Other protective equipment

- : Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

General hygiene considerations

- : Do not breathe fumes, mists or vapours. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Clear liquid.

Odour : No odour.

Odour threshold : N/Av

pH : N/Av

Melting Point/Freezing point : N/Av

Initial boiling point and boiling range

: N/Av

Flash point : N/Av

Flashpoint (Method) : N/Av

Evaporation rate (BuAe = 1) : N/Av

Flammability (solid, gas) : Not applicable.

Lower flammable limit (% by vol.)

: N/Av

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: N/Av

Oxidizing properties

: None known.

Explosive properties

: Not explosive

Vapour pressure

: N/Av

Vapour density

: N/Av

Relative density / Specific gravity

: N/Av

Solubility in water

: Soluble

Other solubility(ies)

: N/Av

Partition coefficient: n-octanol/water or Coefficient of water/oil distribution

: N/Av

Auto-ignition temperature

: N/Av

Decomposition temperature

: N/Av

Viscosity

: N/Av

Volatiles (% by weight)

: N/Av

Volatile organic Compounds (VOC's)

: N/Av

Absolute pressure of container

: N/Av

Flame projection length

: N/Av

Other physical/chemical comments

: No additional information.

SECTION 10. STABILITY AND REACTIVITY**Reactivity**

: Not normally reactive.

Chemical stability

: Stable under normal conditions.

Possibility of hazardous reactions

: Hazardous polymerization does not occur.

Conditions to avoid

: Avoid excessive heat, sparks and open flame. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.

Incompatible materials

: Strong oxidizing agents; Strong acids; Strong bases; Halogenated compounds

Hazardous decomposition products

: None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure:****Routes of entry inhalation** : YES**Routes of entry skin & eye** : YES**Routes of entry Ingestion** : YES**Routes of exposure skin absorption**

: YES

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Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : Inhalation of mists or sprays may mildly irritate the upper respiratory tract and cause coughing or sneezing.

Sign and symptoms ingestion

- : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. In extremely high concentrations, may cause symptoms of central nervous system depression. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Initially, the central nervous system is stimulated, followed by depression.

Sign and symptoms skin

- : Direct skin contact may cause temporary redness. Product may be absorbed and cause symptoms similar to those listed for ingestion.

Sign and symptoms eyes

- : Direct eye contact may cause slight or mild, transient irritation. Symptoms may include redness, pain, tearing and conjunctivitis.

Potential Chronic Health Effects

- : Prolonged or repeated ingestion may cause bladder or kidney stones.

Mutagenicity

- : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

- : Not considered to be a hazard. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

- : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Reproductive toxicity - Category 2. Suspected of damaging the unborn child. Contains ethylene glycol, which may cause teratogenic effects at doses which are not maternally toxic, based on animal data. Symptoms may include late resorptions, reduced fetal body weight and external, soft tissue and skeletal defects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Specific target organ toxicity, single exposure - Category 2. May cause damage to organs. Contains: Ethylene glycol. Ethylene glycol may cause kidney stones and kidney damage if ingested. Symptoms may include abdominal pain, excess urine production followed by diminished urine production, blood in the urine, tissue death in the kidney and oxalate crystal deposition.

According to the classification criteria of U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause target organ toxicity through repeated exposures.

Medical conditions aggravated by overexposure

- : Pre-existing skin or eye disorders, and impaired liver or kidney functions.

Synergistic materials

- : None known or reported by the manufacturer.

Toxicological data

- : Not classified for acute toxicity based on available data. No data is available on the product itself. The calculated ATE values for this mixture are:
ATE oral = 18,739 mg/kg
ATE inhalation (mists) = 225.5 mg/L/4H
See below for individual ingredient acute toxicity data.

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<u>Chemical name</u>	<u>LC₅₀(4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Ethylene glycol	4300 ppm (10.92 mg/L) (aerosol)	4000 (rat) The estimated human lethal dose is: 1110 - 1665 mg/kg	9530 mg/kg

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

: There is no data available for this product. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Fish</u>		
		<u>LC₅₀ / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Ethylene glycol	107-21-1	22 810 mg/L (Rainbow trout)	N/Av	None.

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Daphnia</u>		
		<u>EC₅₀ / 48h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Ethylene glycol	107-21-1	49 000 mg/L (Daphnia magna)	7500 - 15 000 mg/L	None.

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Algae</u>		
		<u>EC₅₀ / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
Ethylene glycol	107-21-1	6500 - 13 000 mg/L/96hr (Green algae)	10 000 mg/L/96hr	None.

Persistence and degradability

 : No data is available on the product itself.
 The following ingredients are considered to be readily biodegradable: Ethylene glycol.

Bioaccumulation potential

: No data is available on the product itself. See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log K_{ow})</u>	<u>Bioconcentration factor (BCF)</u>
Ethylene glycol (CAS 107-21-1)	- 1.36	10

Mobility in soil

: No data is available on the product itself.

Other Adverse Environmental effects





: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

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SECTION 13. DISPOSAL CONSIDERATIONS

- Handling for Disposal** : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8. Empty containers retain residue (liquid and/or vapour) and can be dangerous.
- Methods of Disposal** : Dispose in accordance with all applicable federal, state, provincial and local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal.
- RCRA** : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	None.	Not regulated.	not regulated	none	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	not regulated	none	
TDG Additional information	None.				
ICAO/IATA	None.	Not regulated.	not regulated	none	
ICAO/IATA Additional information	None.				
IMDG	None.	Not regulated.	not regulated	none	
IMDG Additional information	None.				

Special precautions for user : Appropriate advice on safety must accompany the package.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

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SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity (RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Ethylene glycol	107-21-1	Yes	5000 lb/ 2270 kg	None.	Yes	1%

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes:
 Health hazards (Reproductive toxicity; Specific target organ toxicity, single exposure)

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Ethylene glycol	107-21-1	Yes	Developmental	Yes	Yes	Yes	Yes	Yes	Yes

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	New Zealand IOC
Ethylene glycol	107-21-1	203-473-3	Present	Present	(2)-230	KE-13169	Present	HSR001534

SECTION 16. OTHER INFORMATION

Legend

- : ACGIH: American Conference of Governmental Industrial Hygienists
- AICS: Australian Inventory of Chemical Substances
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Services
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- CFR: Code of Federal Regulations
- DOT: Department of Transportation
- EC50: Effective Concentration 50%
- EPA: Environmental Protection Agency
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organisation

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IECSC: Inventory of Existing Chemical Substances
 IMDG: International Maritime Dangerous Goods
 IOC: Inventory of Chemicals
 KECI: Korean Existing Chemicals Inventory
 KECL: Korean Existing Chemicals List
 LC: Lethal Concentration
 LD: Lethal Dose
 N/Ap: Not Applicable
 N/Av: Not Available
 NIOSH: National Institute of Occupational Safety and Health
 NTP: National Toxicology Program
 OECD: Organisation for Economic Co-operation and Development
 OSHA: Occupational Safety and Health Administration
 PEL: Permissible exposure limit
 PICCS: Philippine Inventory of Chemicals and Chemical Substances
 SARA: Superfund Amendments and Reauthorization Act
 STEL: Short Term Exposure Limit
 TLV: Threshold Limit Values
 TWA: Time Weighted Average

- References** :
1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
 2. ECHA - European Chemical Agency
 3. Canadian Centre for Occupational Health and Safety, CCHInfoWeb databases
 4. Safety Data Sheets from manufacturer.
 5. US EPA Title III List of Lists
 6. California Proposition 65 List
 7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

Preparation Date (mm/dd/yyyy) : 09/18/2022

Reviewed Date SDS (dd/mm/yyyy) : 01/11/2017

Revision No. : 2

Revision Information :

Other special considerations for handling : Provide adequate information, instruction and training for operators.

HMIS Rating : * - Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

*Health: *1 Flammability: 1 Reactivity: 0*

NFPA Rating 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

: *Health: 1 Flammability: 1 Instability: 0 Special Hazards: None.*

SAFETY DATA SHEET

<p>Prepared for: Akoya Biosciences, Inc. 100 Campus Dr., 6th Floor Marlborough, MA 01752 Telephone: (855) 896 8401</p>	
<p>Prepared by: ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.); (888) 977-4834 (Canada) http://www.thecompliancecenter.com</p>	

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END OF DOCUMENT

SAFETY DATA SHEET**SECTION 1. IDENTIFICATION****Product identifier used on the label**: **PhenoCode™ Signature Detector****Other means of identification** : PCSD067, PCSD069, PCSD015, PCSD046, PCSD026, PCSD066, PCSD080, PCSD064, PCSD047, PCSD041, PCSD031, PCSD003, PCSD076, PCSD078, PCSD013, PCSD017**Recommended use of the chemical and restrictions on use**: Research and development only.
No restrictions on use known.**Chemical family**

: DNA

Name, address, and telephone number of the supplier:**Name, address, and telephone number of the manufacturer:****Akoya Biosciences, Inc.**100 Campus Dr, 6th Floor
Marlborough, MA 01752 USA
Supplier's Telephone #

: (855) 896 8401 Monday to Friday, 9 am to 5 pm, Pacific Standard Time

24 Hr. Emergency Tel #

: INFOTRAC - (800) 535-5053 (Within Continental US); (352) 323-3500 (Outside US)

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION**Classification of the chemical**

Light brown solid. Odorless.

Most important hazards Non-hazardous, non-flammable, non-toxic solid. Product is a highly water-soluble protein substance isolated from non-toxic plant materials. : Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

This material is not classified as hazardous under U.S. OSHA regulations (29 CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Label elements*Hazard pictogram(s)*

None required under U.S. OSHA Hazcom 2012 and Canadian WHMIS 2015 regulations.

Signal Word

None required under U.S. OSHA HazCom 2012 and Canadian WHMIS 2015 regulations.

None required under U.S. OSHA HazCom 2012 and Canadian WHMIS 2015 regulations.

Hazard statement(s)

None required under U.S. OSHA HazCom 2012 and Canadian WHMIS 2015 regulations.

Precautionary statement(s)

None required under U.S. OSHA HazCom 2012 and Canadian WHMIS 2015 regulations.

Other hazards

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Other hazards which do not result in classification:

May cause slight eye and skin irritation. Fumes from heated product or mists may irritate respiratory tract. May cause gastrointestinal irritation. Incomplete toxicological data are available for this product.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Oligodeoxyribonucleic acid, modified	Not applicable.	N/Av	N/Av

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Do not induce vomiting. Never give anything by mouth to a person who is unconscious or is having convulsions. Call a physician.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. If irritation or symptoms develop, seek medical attention.
- Skin contact* : Immediately flush with plenty of water, while removing contaminated clothing. If irritation or symptoms develop, seek medical attention. Wash contaminated clothing before reuse.
- Eye contact* : Immediately flush eye(s) with plenty of water. If irritation or symptoms develop, seek medical attention.

Most important symptoms and effects, both acute and delayed

- : Incomplete toxicological data are available for this product.
 Direct eye contact may cause slight or mild, transient irritation. Direct eye contact may cause slight redness.
 Direct skin contact may cause slight or mild, transient irritation. Direct skin contact may cause temporary redness.
 Fumes from heated product or mists may irritate respiratory tract. May cause coughing and breathing difficulties.
 Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : None known.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not classified as flammable.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not classified as flammable.

Hazardous combustion products

- : irritating fumes and smoke; Carbon oxides

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

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Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures

- : Wear appropriate protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Prevent product from entering drains, sewers, waterways, and soil.

Methods and material for containment and cleaning up

- : Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g., sand). Pick up and transfer to properly labeled containers. Contaminated absorbent material may pose the same hazards as the spilled product. Contact the proper local authorities. For waste disposal, see Section 13 of the SDS.

Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the National Response Center in the United States (phone: 1-800-424-8802).
US CERCLA Reportable quantity (RQ): None known.

In Canada: Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Use with adequate ventilation. Wear suitable protective equipment during handling. Avoid breathing dust, fume, or vapors. Avoid contact with skin, eyes, and clothing. Keep away from extreme heat and direct flame. Keep containers tightly closed when not in use. Wash thoroughly after handling.

Conditions for safe storage : Store in cool/well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Keep away from incompatibles. Keep refrigerated.

Incompatible materials : Strong oxidizers.

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Exposure Limits:</u>				
<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Oligodeoxyribonucleic acid, modified	N/Av	N/Av	N/Av	N/Av

Exposure controls

Ventilation and engineering measures

: Provide adequate ventilation. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

: Where exposure is likely to be prolonged or is unknown wear approved respiratory protection. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Advice should be sought from respiratory protection specialists.

Skin protection

: Gloves impervious to the material are recommended. Wear as appropriate: Latex gloves; Neoprene gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear sufficient clothing to prevent skin contact.

Eye / face protection

: Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles.

Other protective equipment

: Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

General hygiene considerations

: Avoid breathing dust, fume, or vapors. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Light brown solid.

Odour : Odorless.

Odour threshold : Not available.

pH : 7 (In a solution)

Melting Point/Freezing point : Not available.

Initial boiling point and boiling range

: Not available.

Flash point : Not available.

Flashpoint (Method) : Not applicable.

Evaporation rate (BuAe = 1) : Not available.

Flammability (solid, gas) : Not applicable.

SAFETY DATA SHEET**Lower flammable limit (% by vol.)**

: Not available.

Upper flammable limit (% by vol.)

: Not available.

Oxidizing properties

: None.

Explosive properties

: Not explosive

Vapour pressure

: Not available.

Vapour density

: Not available.

Relative density / Specific gravity

: 1 g/mL

Solubility in water

: Soluble

Other solubility(ies)

: Not available.

Partition coefficient: n-octanol/water or Coefficient of water/oil distribution

: Not available.

Auto-ignition temperature

: Not applicable.

Decomposition temperature

: Not available.

Viscosity

: N/Av

Volatiles (% by weight)

: Not available.

Volatile organic Compounds (VOC's)

: applicable.

Absolute pressure of container

: Not applicable.

Flame projection length

: Not applicable.

Other physical/chemical comments

: No additional information.

SECTION 10. STABILITY AND REACTIVITY**Reactivity**

: Not normally reactive.

Chemical stability

: Stable under normal conditions.

Possibility of hazardous reactions

: Hazardous polymerization does not occur.

Conditions to avoid

: Avoid contact with incompatible materials. Extremely high or low temperatures.

Incompatible materials

: Strong oxidizers.

Hazardous decomposition products

: Nitrogen oxides (NOx) ;Carbon oxides.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure:****Routes of entry inhalation** : YES**Routes of entry skin & eye** : YES**Routes of entry Ingestion** : YES

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Routes of exposure skin absorption

: NO

Potential Health Effects:
Signs and symptoms of short-term (acute) exposure
Sign and symptoms Inhalation

: Fumes from heated product or mists may irritate respiratory tract. May cause coughing and breathing difficulties.

Sign and symptoms ingestion

: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Sign and symptoms skin

: Direct skin contact may cause slight or mild, transient irritation.

Sign and symptoms eyes

: Direct eye contact may cause slight or mild, transient irritation.

Potential Chronic Health Effects

: None known or reported by the manufacturer.

Mutagenicity

: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

: Not expected to have carcinogenic effects. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

: This product is not expected to cause reproductive or developmental effects.

Sensitization to material

: Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

: According to the classification criteria of Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause specific target organ toxicity (STOT) through single or repeated exposures.

Medical conditions aggravated by overexposure

: No information available.

Synergistic materials

: None known or reported by the manufacturer

Toxicological data

: Not classified for acute toxicity based on available data. No data is available on the product itself.

Chemical name	LC₅₀(4hr) inh, rat	LD₅₀	
		(Oral, rat)	(Rabbit, dermal)
Oligodeoxyribonucleic acid, modified	N/Av	N/Av	N/Av

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

: No data is available on the product itself. The product should not be allowed to enter drains or water courses or be deposited where it can affect ground or surface waters.

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Ecotoxicity data:

<u>Ingredients</u>	CAS #	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Oligodeoxyribonucleic acid, modified	N/Av	N/Av	N/Av	None.

<u>Ingredients</u>	CAS #	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Oligodeoxyribonucleic acid, modified	N/Av	N/Av	N/Av	None.

<u>Ingredients</u>	CAS #	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Oligodeoxyribonucleic acid, modified	N/Av	N/Av	N/Av	None.

Persistence and degradability

: The product itself has not been tested.

Bioaccumulation potential

: The product itself has not been tested.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Oligodeoxyribonucleic acid, modified (CAS N/Av)	N/Av	N/Av

Mobility in soil

: The product itself has not been tested.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8.





Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

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SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	None.	Not regulated.	not regulated	none	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	not regulated	none	
TDG Additional information	None.				
ICAO/IATA	None.	Not regulated.	not regulated	none	
ICAO/IATA Additional information	None.				
IMDG	None.	Not regulated.	not regulated	none	
IMDG Additional information	None.				

Special precautions for user Appropriate advice on safety must accompany the package

Environmental hazards This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
 Not applicable.

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SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Oligodeoxyribonucleic acid, modified	N/Av	NS	None.	None.	NS	N/Av

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: None.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Oligodeoxyribonucleic acid, modified	N/Av	No	N/Av	NS	NS	NS	NS	NS	NS

Canadian Information:

Canadian Environmental Protection Act (CEPA): All ingredients are listed on the DSL or are exempted materials.

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Oligodeoxyribonucleic acid, modified	N/Av		N/Av	N/Av	N/Av	N/Av	N/Av	N/Av

Legend

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SECTION 16. OTHER INFORMATION

References :

- IMDG: International Maritime Dangerous Goods
- Inventory of Chemicals
- KECI: Korean Existing Chemicals Inventory
- KECL: Korean Existing Chemicals List
- LC: Lethal Concentration
- LD: Lethal Dose
- N/Av: Not Applicable
- N/Av: Not Available
- NIOSH: National Institute of Occupational Safety and Health
- NOEC: No observable effect concentration
- NTP: National Toxicology Program
- OECD: Organisation for Economic Co-operation and Development
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible exposure limit
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- SARA: Superfund Amendments and Reauthorization Act
- STEL: Short Term Exposure Limit
- TDG: Canadian Transportation of Dangerous Goods Act & Regulations
- TLV: Threshold Limit Values
- TSCA: Toxic Substance Control Act
- TWA: Time Weighted Average

1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
2. ECHA - European Chemical Agency
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases
4. Safety Data Sheets from manufacturer.
5. US EPA Title III List of Lists
6. California Proposition 65 List
7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

Preparation Date (mm/dd/yyyy)

: 09/02/2022

Other special considerations for handling

: Provide adequate information, instruction, and training for operators.

HMIS Rating

: *- Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Health: 0 *Flammability:* 0 *Reactivity:* 0

NFPA Rating

0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

: *Health:* 0 *Flammability:* 0 *Instability:* 0 *Special Hazards:* None.

SAFETY DATA SHEET

Prepared for: Akoya Biosciences, Inc. 100 Campus Dr., 6th Floor Marlborough, MA 01752 Telephone: (855) 896 8401	
Prepared by: ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.); (888) 977-4834 (Canada) http://www.thecompliancecenter.com	

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