Material Safety Data Sheet

Implementing Directives 1999/45/CE, 2001/58/CE, 2001/59/CE

1. Identification of the preparation and of the supplying company:

Product Code:	3KG002
Identification of the Preparation:	Whole PTH ICMA Kit (Cat #3KG002)
Product/Trade Name (as Labeled on box):	Whole PTH Coated Plate Technology
Kit Contents:	1) PTH (39-84) Antibody Coated Plate 2) Whole PTH Antibody Tracer 3) PTH Calibrators and Controls 4) Wash Concentrate 5) Chemiluminescent Triggers
Manufacturer:	Scantibodies Laboratory, Inc.
Manufacturer's Address:	9336 Abraham Way, Santee, CA 92071, USA
Manufacturer's Phone Number:	(619) 258-9300
Date MSDS Prepared:	12 May 2005

2. Composition/Information on Ingredients:

Chemical Characterization:

1) Goat Blood protein (antibodies) coated on to 96 well plates plus desiccant. The desiccant contains silica.
2) PTH antibodies labeled with luminol and dissolved in phosphate buffered saline and protein stabilizers with a non-azide, non-mercury preservative @ 0.2%.
3) PTH Calibrators & Controls – Lyophilized Human Serum containing Sodium Azide @ 0.1%
4) Phosphate Buffered Saline with detergent containing sodium azide @ 0.9%.
5) Trigger 1 – Reagent dissolved in 1 M Sodium Hydroxide
6) Trigger 2 – Reagent dissolved in 0.039 M Hydrogen Peroxide

Hazardous Ingredients:

1) Sodium Azide @ 0.1% (3)
CAS Number: 026628-22-8
Symbols: N/A
R-phrases: N/A
S-phrases: N/A

2) Sodium Azide @ 0.9% (4)
CAS Number: 026628-22-8
Symbols: Toxic T
R-phrases: R25, R31, R52/53
S-phrases: S28, S45, S53, S60, S61

3) Sodium Hydroxide @ 0.4% (5)
CAS Number: 1310-73-2
Symbols: Very Toxic T+
R-phrases: R26/27/28, R32, R50/53
S-phrases: S26, S28, S36/37/39, S45, S62
Symbols: Corrosive
R-phrases: R26/27/28, R34
S-phrases: S28, S36/37/39, S45, S53

4) Hydrogen Peroxide @ 0.5% (6)
CAS Number: 7722-84-1
Symbols: Harmful
R-phrases: R20/21/22, R52/53
S-phrases: S26, S28, S45, S53
Symbols: Corrosive
R-phrases: R20/21/22, R34
S-phrases: S28, S36/39, S45
Symbols: Oxidizing
R-phrases: R8, R34, R44
S-phrases: S28, S36/37/39, S45

3. Hazards and Potential Health Effects:

Sodium Azide:

Harmful if swallowed; Harmful to aquatic organisms/ may cause long-term adverse effects in the aquatic environment.

Sodium Hydroxide:

Overview:	Poison! Danger! Corrosive! May be fatal if swallowed. Harmful if inhaled. Causes burns to any area of contact. Reacts with water, acids, and other materials.
Ingestion:	Corrosive! Swallowing may cause severe burns of the mouth, throat, and stomach. Severe scarring of tissues and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appear days after exposure.
Skin:	Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposure.
Eyes:	Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.
Inhalation:	Severe irritant. Effects from inhalation of dust or mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose. Severe pnuemonitis may occur.
Chronic Exposure:	Chronic exposure or prolonged contact with dilute solutions or dust has a destructive effect upon tissue.
Pre-existing Conditions:	Persons with pre-existing skin disorders, eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

Hydrogen Peroxide:

Clear, colorless, odorless liquid. Oxidizer. Contact with combustibles may cause fire. Decomposes yielding oxygen that supports combustion of organic matters and cause overpressure if confined. Corrosive to eyes, nose, throat, lungs, and gastrointestinal tract. May cause irreversible damage to the eyes including blindness.

4. First Aid Procedures:

Sodium Azide:

Ingestion:	For small amounts, rinse mouth with water provided person is conscious. Consult with a physician.
Skin:	Wash affected area with anti-microbial soap and water, rinse with water. Remove and wash contaminated clothing.

Eyes:	Flush with copious amounts of water or eyewash saline for at least 15 minutes. Consult with a physician if irritation occurs.
Inhalation:	Remove to fresh air; if not breathing, give artificial respiration.

Sodium Hydroxide:

Ingestion:	DO NOT INDUCE VOMITING! Gove large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin:	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eyes:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.
Note to Physician:	Perform endoscopy in all cases of suspected Sodium Hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-balance, electrolytes, and fluid intake are also required.

Hydrogen Peroxide:

Ingestion:	DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin:	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eyes:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.
Note to Physician:	Hydrogen Peroxide at high concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

5. Fire Fighting Measures:

Sodium Azide:

No special procedures/media are required.

Sodium Hydroxide:

Fire:	Not considered to be a fire hazard. Hot or molten material can react violently with water. Can react with certain metals, such as aluminum, to generate flammable hydrogen gas.
Explosion:	Not considered to be an explosion hazard.
Extinguishing Media:	Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool. Adding water to caustic solution generates large amounts of heat.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

Hydrogen Peroxide:

Material is non-combustible. On decomposition Hydrogen Peroxide releases oxygen which may intensify fire. Any container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures:

Sodium Azide:

Wear appropriate protective clothing. Cover with absorbent; wash area thoroughly.

Sodium Hydroxide:

Notify safety personnel of spill or leaks. Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. DO not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric, or sulfuric. Absorb neutralized caustic residue on clay, vermiculite, or other inert substance and package into a suitable container for disposal. US Regulations (CERCLA) require reporting spills and releases to soil, water, and air in excess of reportable quantities.

Hydrogen Peroxide:

In case of spill or leak, always shut off any sources of ignition, ventilate the area, and exercise caution. Dilute collected material with a large volume of water and hold in a controlled area until Hydrogen Peroxide decomposes. Hydrogen Peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to less than or equal to 5% concentration. Combustible materials exposed to Hydrogen Peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all Hydrogen Peroxide is removed. Residual Hydrogen Peroxide that is allowed to dry (upon evaporation Hydrogen Peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood, or other combustibles can cause the material to ignite and result in a fire.

7. Handling and Storage:

Sodium Azide:

Handling: Wash hands after working with substance. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Use proper personal protective equipment as indicated in section 8.

Storage: Keep in a tightly closed container. Keep container closed when not in use. Store at 2-8 °C. Keep away from sources of heat and ignition. Avoid excessive heat and light.

Sodium Hydroxide:

Handling: Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Storage: Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture, and incompatibilities. DO not store with aluminum or magnesium. DO not mix with acids or organic materials.

Hydrogen Peroxide:

Handling: Wear chemical splash type mono-goggles and full face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool, and leather. Avoid excessive heat and contamination. Never return unused Hydrogen Peroxide to original container, empty containers should be triple rinsed with water before discarding. Utensils used for handling Hydrogen Peroxide should only be made of glass, stainless steel, aluminum, or plastic.

Storage: Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen Peroxide should be stored only in vented containers and transferred only in a prescribed manner. Store containers in cool areas out of direct sunlight and away from combustibles.

8. Exposure Controls/Personal Protection:

Sodium Azide:

Wear latex or vinyl gloves, a laboratory coat, and safety glasses during use.

Sodium Hydroxide:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. If the exposure limit is exceeded and engineering controls are not feasible, a half face-piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier whichever is lowest. A full face-piece particulate respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full face-piece positive-pressure, air-supplied respirator. Impervious protective clothing, including boots, gloves, lab coat, apron or coveralls as appropriate, to prevent skin contact. Use chemical safety goggles and/or full face shield where splashing is possible. Maintain eye wash fountain and quick drench facilities in work area.

Hydrogen Peroxide:

Use chemical splash type mono-goggles and a full face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG, or thermoplastic. If concentrations of 10 ppm are expected, use NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. DO NOT use any form of air-purifying respirator or filtering face-piece (AKA dust mask), especially those containing oxidizable sorbants such as activated carbon. For body protection wear impervious clothing such as an approved splash protective suit made of SBR Rubber, PVC, Gore-Tex, or a HAZMAT Protective suit (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, polyurethane, or neoprene. Over-boots made of latex or neoprene are also permitted. DO NOT wear any boot or over-boot made of nylon or nylon blends. For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. Thoroughly rinse the outside of the gloves with water prior to removal. Inspect regularly for leaks. DO NOT use cotton, wool, or leather, as these materials react RAPIDLY with higher concentrations of Hydrogen Peroxide. Completely submerge contaminated clothing or other materials in water prior to drying. Residual Hydrogen Peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood, or other combustibles can cause the material to ignite and result in a fire.

Warning: Air-purifying respirators do not protect workers in oxygen deficient atmospheres.

9. Physical and Chemical Properties:

Plates: Polystyrene plates with no odor.

Buffered Salt Solution: Clear liquid with no detectable odor.

Tracer: Clear liquid with no detectable odor.

PTH Calibrators & Controls: Yellow to brown colored liquid in lyophilized form.

Triggers: Clear colorless liquid with no detectable odor.

10. Stability and Reactivity:

Sodium Azide:

Stable at 2-8 °C until expiry date if unopened; once opened stable for 8 weeks if stored at 2-8 °C.

No reactivity data available.

Sodium Hydroxide:

Stable under ordinary conditions of use and storage. Very hygroscopic. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate. Decomposition results in Sodium Oxide. Decomposition with certain metals releases flammable and explosive hydrogen gas. Hazardous polymerization will not occur. Sodium Hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitromethane and other similar nitro compounds cause formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium Hydroxide even in fairly dilute solution reacts readily with various sugars to produce carbon monoxide. Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of personnel.

Avoid moisture, dusting, and incompatibilities.

Hydrogen Peroxide:

Stable under ordinary conditions of use and storage. Hazardous polymerization will not occur. Excessive heat and contamination could cause decomposition. Decomposition results in the release of oxygen which supports combustion. Reducing agents, wood, paper and other combustibles, iron and other heavy metals, copper alloys and caustics are incompatible with this material.

Avoid dirt, organics, cyanides, and combustibles such as wood, paper, oils, etc.

11. Toxological Information:

Sodium Azide:

Short-term effects:	In pure form, sodium azide is highly toxic and may be fatal if inhaled, swallowed, or absorbed through the skin. May cause eye and skin irritation. At product concentrations, sodium azide is not believed to cause hazardous short-term effects.
Long-term effects:	In pure form, sodium azide is classified as a questionable carcinogen with experimental tumourigenic data. At product concentrations, there are no hazardous long-term effects documented.
Precautionary note:	To the best of our knowledge, the chemical, physical, and toxicological properties of this product have not been thoroughly investigated at product concentrations.

Sodium Hydroxide or Hydrogen Peroxide:

Short-term effects:	In pure form, Sodium Hydroxide and Hydrogen Peroxide are highly toxic and corrosive and may be fatal if inhaled, swallowed, or absorbed through the skin. May cause eye and skin irritation. At product concentrations, Sodium Hydroxide and Hydrogen Peroxide are not believed to cause hazardous short-term effects.
Long-term effects:	In pure form, Sodium Hydroxide and Hydrogen Peroxide are classified as a questionable carcinogen with experimental tumourigenic data. Sodium Hydroxide and Hydrogen Peroxide are investigated as mutagens. At product concentrations, there are no hazardous long-term effects documented.
Precautionary note:	To the best of our knowledge, the chemical, physical, and toxicological properties of these products have not been thoroughly investigated at product concentrations.

12. Ecological Information:

Sodium Azide:	At product concentrations – Harmful to aquatic organisms/ may cause long-term adverse effects in the aquatic environment. No harmful effects at use concentration.
Sodium Hydroxide:	No information found.
Hydrogen Peroxide:	Hydrogen Peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen Peroxide half-life in freshwater ranges from 8 hours to 20 days, in air from 10-20 hours and in soils from minutes to hours depending upon microbiological activity and metal contaminants.

13. Disposal:

Sodium Azide:

Observe all federal, state, and local environmental regulations. If the disposal of this solution is acceptable, flush with large volumes of water to prevent build-up of azides in plumbing.

Sodium Hydroxide:

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility. Processing, use, or contamination of this product may change the waste management options. State and local disposal requirements may differ from federal disposal regulations. Dispose of containers and unused contents in accordance with federal, state, and local requirements.

Hydrogen Peroxide:

An acceptable method of disposal is to dilute with a large amount of water and allow the Hydrogen Peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. Transport Information:

CDG UK: Non-hazardous for road freight

IMDG: Non-hazardous for sea freight

IATA: Non-hazardous for air freight

15. Regulatory Information:

Sodium Azide (≤1%):

Labeling according to EC directives:	Contains 0.9% sodium azide
	Symbol: Toxic T
	R-phrases: R25, R31, R52/53
	S-phrases: S28, S45, S53, S60, S61

Sodium Hydroxide (≤1%):

Labeling according to EC directives:	Contains 0.4% sodium hydroxide
	Symbol: Very Toxic T+
	R-phrases: R26/27/28, R32, R50/53
	S-phrases: S26, S28, S36/37/39, S45, S62
	Symbol: Corrosive
	R-phrases: R26/27/28, R34
	S-phrases: S28, S36/37/39, S45, S53

Hydrogen Peroxide (≤1%):

Labeling according to EC directives:	Contains 0.5% hydrogen peroxide
	Symbol: Harmful Xn
	R-phrases: R20/21/22, R52/53
	S-phrases: S26, S28, S45, S53
	Symbol: Corrosive
	R-phrases: R20/21/22, R34
	S-phrases: S28, S36/39, S45
	Symbol: Oxidizing
	R-phrases: R8, R34, R44
	S-phrases: S28, S36/37/39, S45

Small pack derogation applies to all other risks and safety phrases.

16. Other Information:

R8:	Contact with combustible material may cause fire.
R20/21/22:	Harmful by inhalation, in contact with skin and if swallowed.
R25:	Toxic if swallowed.
R26/27/28:	Very toxic by inhalation, in contact with skin and if swallowed.
R31:	Contact with acids liberates toxic gas.
R32:	Contact with acids liberates very toxic gas.
R34:	Causes burns.
R44:	Risk of explosion if heated under confinement.

R50/53:	Very toxic to aquatic organisms/ may cause long-term adverse effects in the aquatic environment.
R52/53:	Harmful to aquatic organisms/ may cause long-term adverse effects in the aquatic environment.
S26:	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28:	After contact with skin, wash with plenty of water.
S36/39:	Wear suitable protective clothing and eye/face protection.
S36/37/39:	Wear suitable protective clothing, gloves, and eye/face protection.
S45:	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53:	Avoid exposure – obtain special instructions before use.
S60:	This material and its container must be disposed of as hazardous waste.
S61:	Avoid release to the environment. Refer to special instructions/safety data sheets.
S62:	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

17. Document Revisions:

Version	Date:	Changes:
01	12 MAY 2005	Initial Release.
02	26 MAY 2005	Revised concentration levels per input from Research & Development.
03	15 JUN 2005	Revised document to correct mis-spelling in section 4.
04	11 JUL 2006	Revised document to remove symbol and phrase requirements for Sodium Azide at concentrations ≤ 0.2%.
05	21 JUL 2006	Revised document to clarify sections 2 and 15 regarding concentration labeling requirements.

18. Document Approval:

Reviewed/Approved By: _____ Date: 28 JUL 06