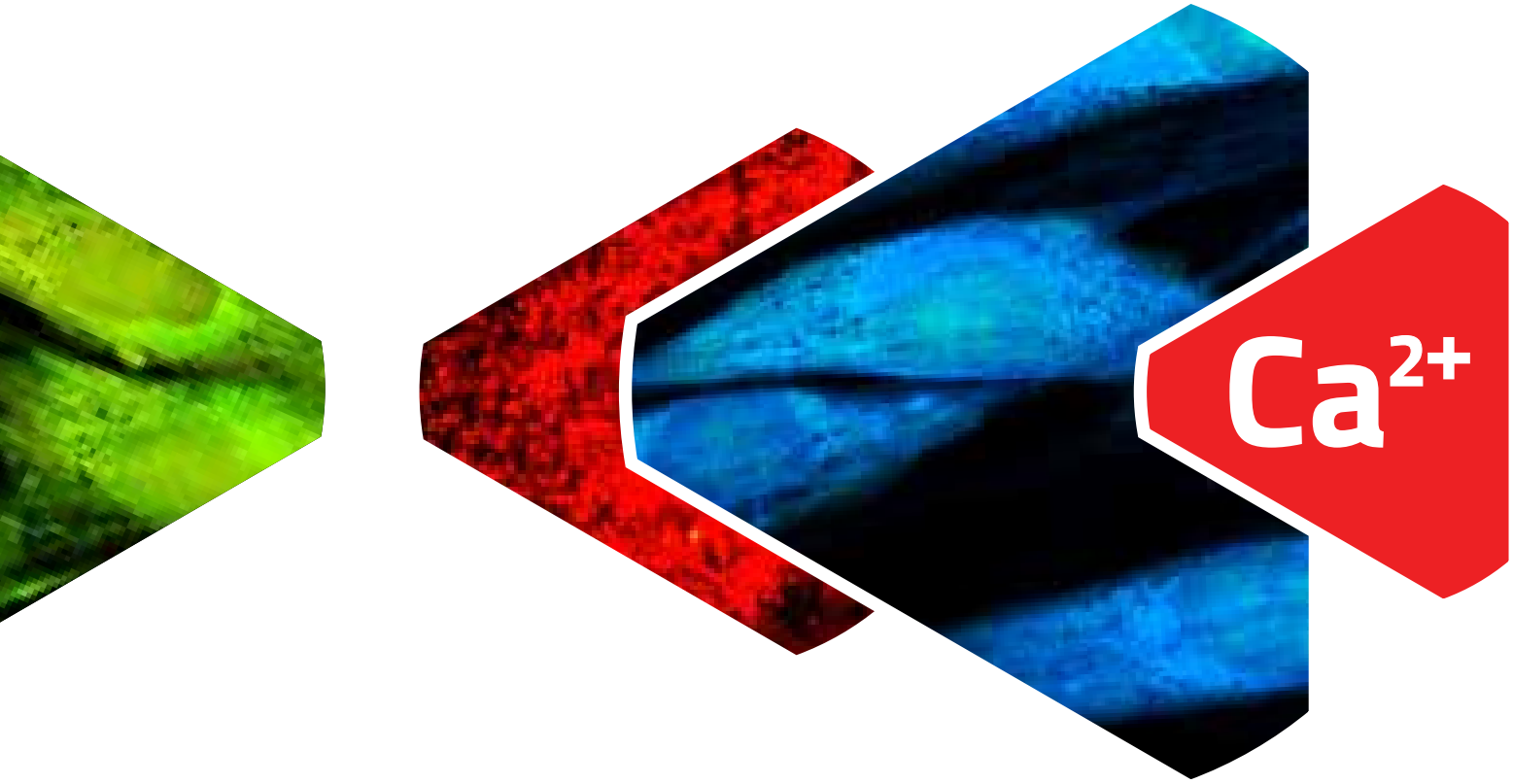
ION BIOSCIENCES



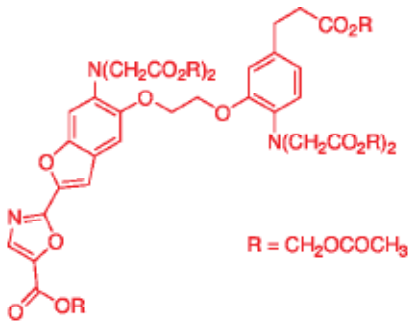
Fura-2 LeakRes AM

1061B | 1061E

Contents

Product Specifications

Cell permeable acetoxymethyl ester (AM) derivative of Fura-2 Leakage Resistant with spectral properties similar to the parent compound.



$C_{37}H_{33}K_6N_5O_{17}$

Molecular Weight	1132 g/mol
CAS#	172890-84-5
K_d	145 nm
Solubility	DMSO
Handling and Storage	Store at -20°C. Protect from light and moisture
Shelf Life	Valid for one year after delivery, if stored properly

TLC

Solvent	5:2 Ethyl Acetate/ Hexanes
R_f	0.4

HPLC

Column	C_{18}
Detector Settings	254 nm, 371 nm
Purity	> 95%

Absorbance Spectrum

Solvent	Ethyl Acetate
Absorbance max	371 ± 3 nm
ε	33000 $M^{-1}cm^{-1}$

Fluorescence Spectrum

Solvent	Ethyl Acetate
Excitation max	369 nm ± 3 nm
Emission max	471 nm ± 3 nm

^1H NMR

All relevant peaks present

Solvent	Deuterated acetone

Results

Fura-2 is one of the first commercial fluorescent calcium indicators introduced by Dr. Tsien and produced by Molecular Probes in 1986. It is now so common in the field that it appears in standard molecular cell biology textbooks.

Retention of Fura-2 LeakRes and Leakage of Fura-2 Over Time

Figure 1 ➔ | Figure 2 ➔

- Images were taken at every 20 minutes. Fura-2 cells show loss of significant fluorescence by T = 40 minutes. Fura-2 LeakRes cells retain fluorescence even at T = 100 minutes.

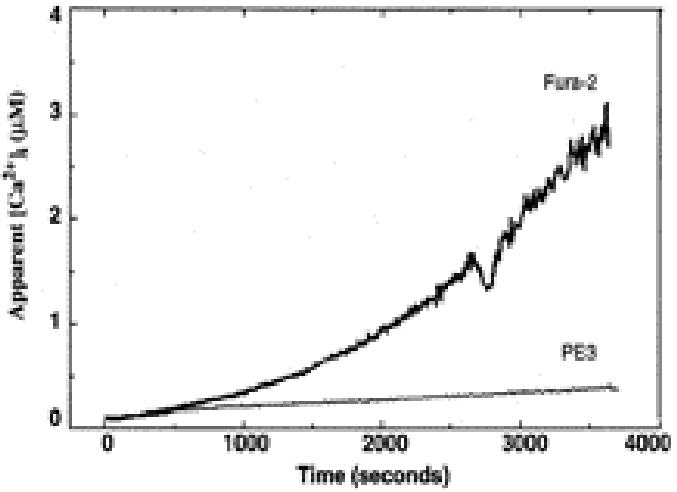
Experimental Methods

Figure 2 ➔

BPV cells, adhered to coverslips, were loaded with Fura-2 LeakRes(AM) or Fura-2(AM) as described in Materials and Methods. Cells were mounted in a Sykes-Moore chamber and placed on a water-jacketed holder of a Zeiss IM-35 microscope. The temperature was maintained at 37°C in the sample chamber by a thermostatically controlled circulating water bath. Images were acquired with a Hammamatsu SIT camera and a Photon Technology Image Master illumination and acquisition system. Images of the same microscope field were recorded at 360 nm, excitation at 20 minute intervals beginning immediately after cells were washed. Camera gain and intensifier voltages were set based on the brightness of cells at the first time point and maintained constant thereafter. Between, the acquisition of light was blocked by a shutter. (A-F) The upper series of photographs shows the pattern of fluorescence change for Fura-2 LeakRes loaded BPV cells. The lower series of photographs (G-L) shows the corresponding changes in Fura-2 loaded BPV cells.

Figure 1

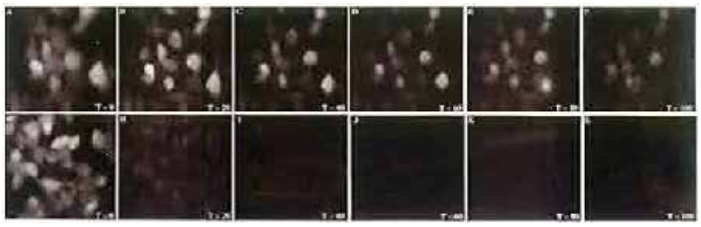
Retention of Fura-2 LeakRes and leakage of Fura-2



Note: 322 T lymphoma cells were loaded with either Fura-2 or Fura-2 LeakRes and set in calcium buffer. Leakage of Fura-2 or Fura-2 LeakRes into the exterior calcium buffer resulted in increased fluorescence overall. This fluorescence was plotted over time.

Figure 2

Decrease in fluorescence due to leakage of indicator



The top row shows images of BPV cells loaded with Fura-2 LeakRes, whereas the bottom row shows BPV cells loaded with Fura-2. Images were taken at every 20 minutes. Fura-2 cells show loss of significant fluorescence by T = 40 minutes. Fura-2 LeakRes cells retain fluorescence even at T = 100 minutes.

Safety Data Sheet
Fura-2 LeakRes AM

SECTION 1: Identification of the Substances and the Company/Undertaking

Identification of the Substance or Mixture

Catlog Numbers: 1061B | 1061E
Product Name: Fura-2 LeakRes AM

Company/Undertaking Identification

Ion Biosciences
3055 Hunter Road, Box 3
San Marcos, TX 78666
+1 512.957.9123

24 hour Emergency Response

866-536-0631
301-431-8585
+1-301-431-8585 (Outside of the U.S.)
For Research Use Only. Not for use in diagnostic procedures.

Section 2: Hazards Identification

GHS - Classification

Signal word: None
Health hazards: Not classified
Hazard statements: Not applicable

Precautionary Statements

Prevention: Not applicable
Response: Not applicable

Storage: Not applicable
Disposal: Not applicable

Principle Routes of Exposure

Potential Health Effects

Eyes: May cause eye irritation with susceptible persons.
Skin: May cause skin irritation in susceptible persons.
Inhalation: May be harmful by inhalation.
Ingestion: May be harmful if swallowed.

Specific Effects

Carcinogenic effects: No information available.
Mutagenic effects: No information available.
Reproductive toxicity: No information available.
Sensitization: No information available.

Target organ effects: No known effects under normal use conditions.

HMIS

Health	0
Flammability	0
Reactivity	0

Section 3: Composition/Information on Ingredients

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Section 4: First Aid Measures

Skin contact: Rinse cautiously with water for several minutes. Immediate medical attention is not required.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Ingestion: Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.

Inhalation: Not expected to be an inhalation hazard under anticipated conditions of normal use of this material. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed: Not applicable

Notes to physician: Treat symptomatically.

Section 5: Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Water spray. Carbon dioxide (CO2). Foam. Dry chemical.

Unsuitable extinguishing media: Not Known
Specific hazards arising from the chemical: Not known
Advice for firefighters: Standard procedure for chemical fires.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Ensure adequate ventilation. Always wear recommended Personal Protective Equipment. Use personal protection equipment. See Section 8 for more detail.

Environmental precautions: Avoid discharge into drains and waterways whenever possible.

Methods and material for containment and cleaning up: Take up mechanically, placing in appropriate containers for disposal.

Reference to other sections: See section 8 and 12 for more information.

Section 7: Handling and Storage

Handling: Always wear recommended Personal Protective Equipment. No special handling advices are necessary.

Conditions for safe storage, including any incompatibilities: Store at -20°C. Protect from light and moisture.

Specific end use(s): For research use only.

Section 8: Exposure Controls/Personal Protection

Control Parameters

Exposure limits: We are not aware of any national exposure limit.
Engineering measures: Ensure adequate ventilation, especially in confined areas.

Exposure Controls

Personal Protective Equipment: Personal Protective Equipment requirements are dependent on the user institution's risk assessment and are specific to the risk assessment for each laboratory where this material may be used.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection: Impervious gloves.

Eye protection: Wear safety glasses with side shields (or goggles).

Skin and body protection: Lightweight protective clothing.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls: Prevent product from entering drains or waterways whenever possible.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties.

Form: Solid

Appearance: No data available

Odor: No data available

Odor threshold: No data available

Boiling point/boiling range: °C No data available; °F No data available

Flash point: °C No data available;°F No data available

Melting point/melting range: °C No data available;°F No data available

Autoignition temperature: °C No data available;°F No data available

Evaporation rate: No data available

Flammability (solid, gas): No data available

Oxidizing properties: No data available

Partition coefficient: No data available

n-octanol/water

Water solubility: No data available

Upper explosion limit: No data available

Lower explosion limit: No data available

Vapor pressure: No data available

Vapor density: No data available

Viscosity: No data available

pH value: No data available

Section 10: Stability and Reactivity

Reactivity: None known.

Stability: Stable under normal conditions.

Materials to avoid: No dangerous reaction known under conditions of normal use.

Polymerization: Hazardous polymerization does not occur.

Possibility of hazardous reactions: Hazardous reaction has not been reported

Hazardous decomposition products: None under normal use conditions.

Conditions to avoid: None under normal processing.

Section 11: Toxicological Information

Acute Toxicity: To the best of our knowledge, the chemical, physical, biological, and toxicological properties of this product have not been thoroughly investigated.

Principle Routes of Exposure

Potential Health Effects

Eyes: May cause eye irritation with susceptible persons.

Skin: May cause skin irritation in susceptible persons.
Inhalation: May be harmful by inhalation.
Ingestion: May be harmful if swallowed.
Carcinogenic effects: No information available.
Mutagenic effects: No information available.
Reproductive toxicity: No information available.
Sensitization: No information available.

Section 12: Ecological Information

Ecotoxicity: The environmental impact of this product has not been fully investigated.

Mobility: No information available.

Biodegradation: No information available.

Bioaccumulation: No information available.

Section 13: Disposal Considerations

Waste treatment methods: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in according to approved disposal technique.

Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations

Section 14: Transport information

IATA/ADR/DOT-US/IMDG: Not Classified as dangerous in the meaning of transport regulations.

Proper shipping name: No dangerous good in sense of these transport regulations

Hazard class: None

Subsidiary class: None

Packing group: None

UN-No: None

Environmental hazards: None

Section 15: Regulatory Information

US Federal Regulations

SARA 313: This product is not regulated by SARA.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61): This product does not contains HAPs.

US State Regulations

California Proposition 65: This product does not contain any Proposition 65 chemicals.

WHMIS Hazard Class: Non-controlled This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Section 16: Other Information

For Research Use Only. Not for use in diagnostic procedures.

"The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein.

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