



# NK-92<sup>®</sup>

CRL-2407<sup>™</sup>

## Description

NK-92<sup>®</sup> cells are an interleukin-2 (IL-2) dependent natural killer cell line derived from peripheral blood mononuclear cells from a 50-year-old, White male with rapidly progressive non-Hodgkin's lymphoma. Use NK-92<sup>®</sup> cells in your cancer, immunology, and toxicology research.

**Organism:** *Homo sapiens*, human

**Cell Type:** natural killer cell; nk cell

**Tissue:** Peripheral blood

**Age:** 50 years

**Gender:** Male

**Morphology:** lymphoblast

**Growth properties:** Suspension, multicellular aggregates

**Disease:** Malignant Non Hodgkins Lymphoma

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## Storage Conditions

**Product format:** Frozen

**Storage conditions:** Vapor phase of liquid nitrogen

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## Intended Use

This product is intended for laboratory research use only. It is not intended for any animal or human therapeutic use, any human or animal consumption, or any diagnostic use.

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## BSL 2

ATCC determines the biosafety level of a material based on our risk assessment as

guided by the current edition of *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, U.S. Department of Health and Human Services. It is your responsibility to understand the hazards associated with the material per your organization's policies and procedures as well as any other applicable regulations as enforced by your local or national agencies.

ATCC highly recommends that appropriate personal protective equipment is always used when handling vials. For cultures that require storage in liquid nitrogen, it is important to note that some vials may leak when submersed in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vial exploding or blowing off its cap with dangerous force creating flying debris. Unless necessary, ATCC recommends that these cultures be stored in the vapor phase of liquid nitrogen rather than submersed in liquid nitrogen.

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## Certificate of Analysis

For batch-specific test results, refer to the applicable certificate of analysis that can be found at [www.atcc.org](http://www.atcc.org).

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## Growth Conditions

**Temperature:** 37°C

**Atmosphere:** 95% Air, 5% CO<sub>2</sub>

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## Handling Procedures

**Unpacking and storage instructions:**

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

**Complete medium:**

The base medium for this cell line is MyeloCult™ H5100 +100 units/mL human recombinant IL-2. To make the complete growth medium, combine the following components:

- 500 mL MyeloCult™ H5100 (StemCell Technologies cat # 05150)
- 63 mL Gibco™ Horse Serum (New Zealand origin)
- 10 µg IL-2 IS: Use 1 mL/500 mL culture media
  - 1 vial IL-2 IS (10 µg), premium grade (Miltenyi cat # 130-097-744)
  - 1 mL culture media. Mix by gentle pipetting and add solution immediately to the bottle of formulated medium.

Note: The biological activity of cat # 130-097-744 is at least  $5.0 \times 10^6$  units/mg but may be as high as  $9.0 \times 10^6$  units/mg per Miltenyi. This may cause the final formulation of IL-2 to be greater than 100 units/mL

**Handling Procedure:**

To insure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If upon arrival, continued storage of the frozen culture is necessary, it should be stored in liquid nitrogen vapor phase and not at -70°C. Storage at -70°C will result in loss of viability.

1. Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
3. Transfer the freshly thawed cells **drop by drop** into a centrifuge tube containing 9.0 mL complete culture medium and spin at approximately 125 x g for 10 minutes. Discard supernatant. Resuspend the cells at an initial seeding density of  $4 \times 10^5$  viable cells/mL.
4. Resuspend the cell pellet with the recommended complete medium and

dispense into a 25 cm<sup>2</sup> culture flask. It is important to avoid excessive alkalinity of the medium during recovery of the cells. It is suggested that, prior to the addition of the vial contents, the culture vessel containing the complete growth medium be placed into the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6).

5. Incubate the culture at 37°C in a suitable incubator. A 5% CO<sub>2</sub> in air atmosphere is recommended if using the medium described on this product sheet.

**Subculturing procedure:**

Cultures can be maintained by addition or replacement of medium. When replacing media, centrifuge cells and resuspend cell pellet in fresh medium at  $2 \text{ to } 3 \times 10^5$  viable cells/mL. These cells tend to grow in aggregates that may lose viability when they are dispersed. Accurate counts and viabilities may not be possible. Corning® T-75 flasks (catalog #431464) are recommended for subculturing this product.

NK-92® cells are extremely sensitive to overgrowth and media exhaustion.

**Medium Renewal:** Replace with fresh medium every 2 to 3 days (depending on cell density). Media should be completely replaced once a week.

**Note:** Successful growth of this cell line is very dependent upon the quality of IL-2 used in the growth medium. ATCC recommends using the highest quality IL-2 available.

**Reagents for cryopreservation:** CryoStor® CS10 (StemCell Technologies at # 07930)

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**Material Citation**

If use of this material results in a scientific publication, please cite the material in the following manner: NK-92® (ATCC CRL-2407)

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**References**

References and other information relating to this material are available at [www.atcc.org](http://www.atcc.org).

## Warranty

The product is provided 'AS IS' and the viability of ATCC® products is warranted for 30 days from the date of shipment, provided that the customer has stored and handled the product according to the information included on the product information sheet, website, and Certificate of Analysis. For living cultures, ATCC lists the media formulation and reagents that have been found to be effective for the product. While other unspecified media and reagents may also produce satisfactory results, a change in the ATCC and/or depositor-recommended protocols may affect the recovery, growth, and/or function of the product. If an alternative medium formulation or reagent is used, the ATCC warranty for viability is no longer valid. Except as expressly set forth herein, no other warranties of any kind are provided, express or implied, including, but not limited to, any implied warranties of merchantability, fitness for a particular purpose, manufacture according to cGMP standards, typicality, safety, accuracy, and/or noninfringement.

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