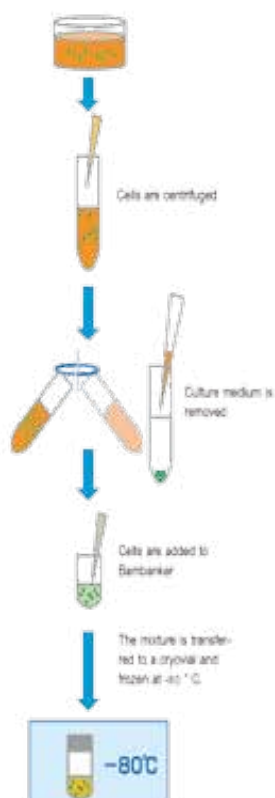


# Bambanker™

## Cell Freezing Media for cultured cells



### Universal:

All known cell lines can be stored for 12-24 months at -80°C or in liquid nitrogen. The rate of intact cells after thawing is improved significantly compared to traditional media, especially for sensitive cells.

### Fast:

Gradual or programmable freezing is no longer necessary. Cells are spun down in the log growth phase and frozen in 1 ml Bambanker™.

### Serum-free:

No risk of contamination and no interactions with serum proteins and your cells.

### Stable:

Bambanker™ is stable if stored at 2-10°C for 2 years. The freezing media Bambanker™ offered by the Japanese Genetech company Lymphotec was developed initially just for their own R&D projects. They needed a suitable medium for long-term storage of highly sensitive cell lines, such as lymphocytes.

Thanks to the innovative formulation of the new freezing medium, an European Patent (EP 1347040) was granted and the development of this media was made commercially available. Today this innovative cell freezing media Bambanker™ is the market leader in Japan and many other countries. Bambanker™ freezing media are characterized by many different published articles with very sensitive cell lines all over the world.

Please contact us ([info@nippongenetics.eu](mailto:info@nippongenetics.eu)) if you would like to receive a list of published papers

**European patent  
EP 1347040**



### Ordering Information

Cat. No.:	Product	Content
BB01	Bambanker™ (120 ml)	120 ml freezing media Bambanker™
BB02	Bambanker™ (5 x 20 ml)	5x 20 ml freezing media Bambanker™
BB03	Bambanker™ (20 ml)	20 ml freezing media Bambanker™

# Bambanker™

## Cell Freezing Media for cultured cells

### Why serum free media?

The qualitative and quantitative composition of serum may be subject to strong fluctuations and each batch can react differently with specific cell types. In addition possible contamination from mycoplasma, viruses, prions or other viral particles can occur. Unidentified ingredients may interact with the cultured cells, which is especially the case if a very sensitive cell line such as embryonic stem cell is used. With the use of Bambanker™ all these barriers are a thing of the past.

#### Bambanker published papers for:

- embryonic stem cells
- bone marrow stem cells
- dental stem cells
- Osteoblasts
- PBMC
- primary epithelial cells
- embryonic fibroblasts
- lymphocytes
- pig fetal fibroblasts

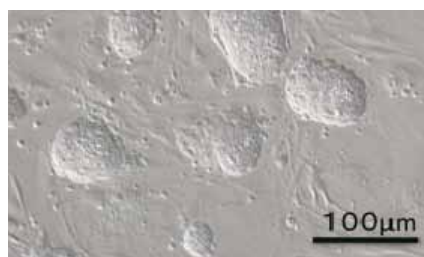
### Stabilization of Mouse Embryonic Stem Cells

#### Conditions

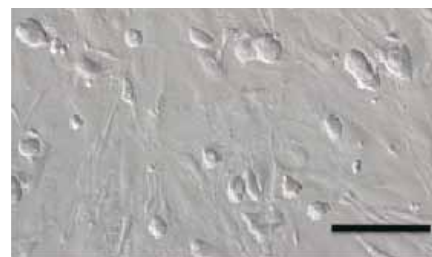
<b>Cultivation</b>	15% FBS/DMEM (1 mM of Sodium pyruvate, 100 $\mu$ M NEAA, 100 $\mu$ M of $\beta$ -ME, 1000 U/ml of LIF) was used as culture media. Mouse Embryonic Fibroblasts (MEF) were used as „feeder cells“.
<b>Freezing</b>	Cells were frozen in 5 vials / ( 60mm dish corresponds to $3.0 \times 10^6$ cells/vial ). 1 ml/vial of Bambanker™ freezing media was added and the mixture was directly frozen in -80°C. The following day the vials were transferred to liquid nitrogen ( slow freezing ).
<b>Thawing</b>	Cells were incubated at 37 °C, thawed and transferred in cooled culture media. After collection, cells were seeded in 6 well plates and 6 cm dishes.
<b>Results</b>	Stabilization of Mouse Embryonic Stem Cells by using Bambanker™ was succesful. Cells were undifferentiated, even after freeze and thaw procedure. No modifications of cells could be observed. Data were kindly provided by Dr. Ahn ( Tokyo Institute of Technology Graduate School of Bioscience and Biotechnology Department of Biomolecular Engineering, Tagawa Laboratory, Japan ).

### Bambanker™ prevents undesired differentiation

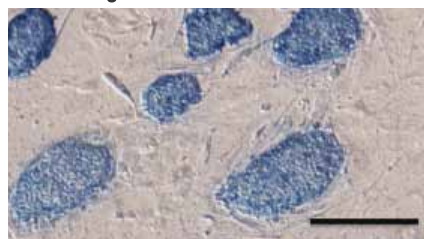
Before freezing:



2 days after thawing:



ALP Staining:



3 days after thawing:

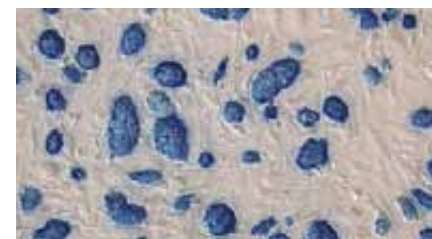
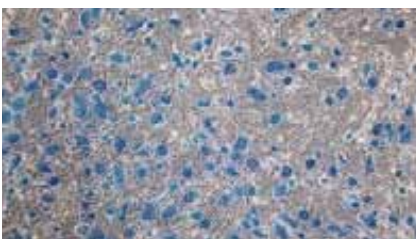


Fig. 1 Cell viability and ALP staining for Pluripotent Stem Cells. Upper Row: A great number of cells are detected two days after thawing. The cells show no morphological change after thawing. Lower Row: Bambanker does not cause cell differentiation as all stem cells frozen down are still producing high levels of alkaline phsophotase, a reporter for pluripotent stem cells.

# APPLICATION NOTE

Application Note 2014 <18>

**Genetics NIPPON Genetics EUROPE**

## Customers Product Feedback

**Product name :** Bambanker (BB01)

Serum-free cryopreservation solution for regenerative medicine research

**Application:**

Survival rate after thawing of approximately 1,400 cell types of the cell bank

JCRB was low: Improvement of survival rate could be observed for 4 test cell lines stored with Bambanker™

**Cat. No. BB01, BB02**

Data kindly provided by the National Institute of Biomedical Laboratories JCRB cell bank, Dr. Arihiro Ohara.

## Methods

The JCRB cell bank handles approximately 1,400 different cell lines. A low survival rate after thawing frozen cell lines (KHYG-1, KAI3, HL60, OVMANA) has let us to test Bambanker™ and compare it to the up to then used preservation medium for the four cell lines. The growth efficiency after thawing was compared for cells stored with the currently used commercially available preservation medium and Bambanker™. The freezing of the cells were performed with a slow freezing method: The cells were frozen and stored at -80 °C.

Cell preservation method:

Preservation medium	Freezing method
Bambanker™	Slow method
Commercial medium	Slow method

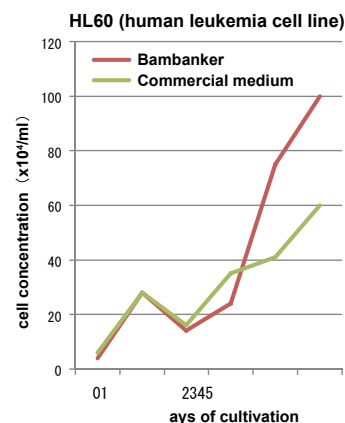
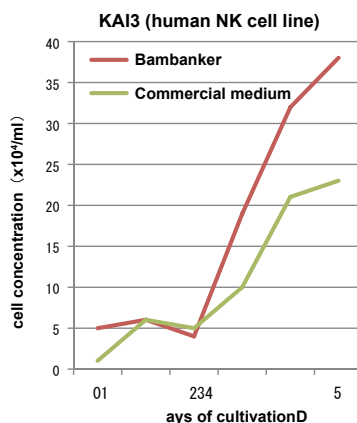
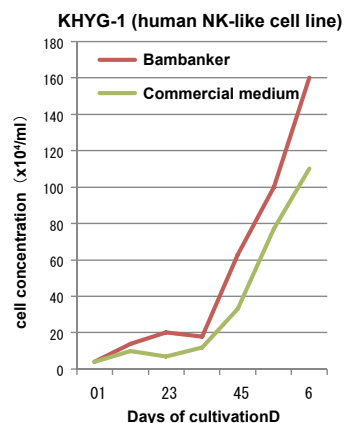
## Comparison method for four cell lines:

- KHYG-1 (human NK-like cell line, in suspension)
- KAI3 (human NK cell line, in suspension)
- HL60 (human leukemia line, in suspension)
- OVMANA (human cell line derived from ovarian tumour, adherent)

## Results

The results for the above described tests were compared for the both preservation media.

### Cell lines in suspension



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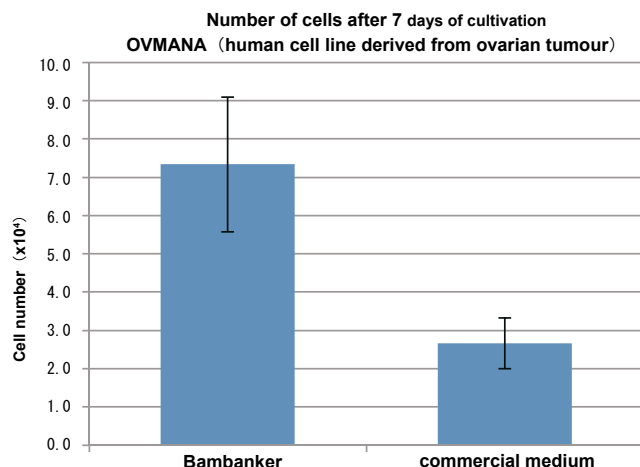
[www.nippongenetics.eu](http://www.nippongenetics.eu)

# APPLICATION NOTE

Application Note 2014 <18>

**Genetics** NIPPON Genetics  
EUROPE

## Adherent cell line



	Bambanker	Commercial product
Recovery rate immediately after thawing	32 %	39 %

The survival rate after thawing of the four cell lines (KHYG-1, HL60, KAI3, OVMANA) is with the currently used commercially available product and Bambanker™ very low. However after thawing, all four cell lines cell proliferation was improved with Bambanker™ when compared to the currently used commercial product.

### <Customers comment>

JCRB cell bank has carried out cell bank business for 30 years and we currently store 1400 types of cell lines. In 2013, we offered about 4,300 ampules for a fee to domestic and foreign researchers. Due to the high number and the wide variety of cell lines, we had some problems. Thus some users complained that their cell lines of dying after thawing, resulting in unsuccessful cultivation. Especially four types of cell lines were a problem which had to be urgently improved. Therefore, we compared Bambanker™ with our currently used commercial preservation medium in a cryopreservation test. The cell lines, which were stored with Bambanker™, showed much higher cell proliferation than cells, which were stored with our currently used commercially available product. Surprisingly, with Bambanker™ we got for all four cell lines very reproducible results.

In addition, Bambanker has no differences between the lots since it does not contain serum. We are very grateful for that because it strongly simplifies the delivery procedure overseas. In the future, we will completely change to Bambanker™ in order to improve the survival rate and growth of our cells.

We are thankful for resolving that long-standing problem and recommend Bambanker™ to all domestic researchers and foreign cell banks.

This data will be also described at our JCRB website. In the near future we plan to test Bam-banker™ for human tissue-derived and human iPS cell lines.



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