MiCAN

For rapid and reliable development of drags and functional materials

Efficacy evaluation contract service

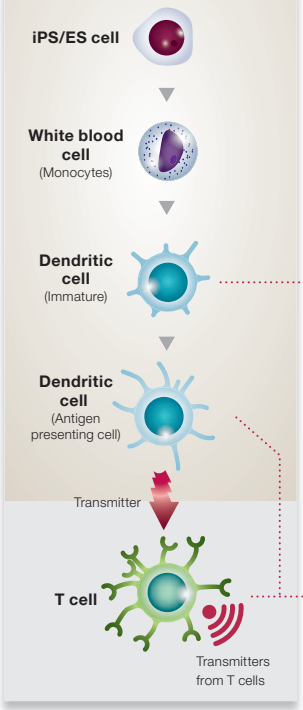
We have realized a very accurate **Contract evaluation service for drags and functional materials** by mass production of human white blood cells through iPS cell technology

In research and evaluation in the areas of infectious diseases and oncology, stable procurement (in quality and quantity) of blood cells as a research material has been a major challenge. We, MiCAN technologies Inc., have solved this problem by in-house mass production of non-stimulated myeloid cells (dendritic cells), which have homogeneous genetic information using iPS cell technology (regenerative medicine technology).

The cells have drastically increased the accuracy and speed of the evaluation of drags and functional materials. We can also produce blood cells from the blood of individuals, and this technology can realize both simple evaluation systems and wide evaluation designs. We have started a Contract Service to make this ideal evaluation system available to a wide range of researches.

Differentiation and maturation of myeloid cells

Dendritic cells mature and become activated by stimulation. To accurately study responses to drugs, it is ideal to use non-stimulated dendritic cells.



Accuracy of blood cells leads to the accuracy of evaluation.

Advantages 1 — Stable supply of sufficient amount of myeloid cells.

- Dendritic cells (present in a concentration of 0.1% or less in peripheral blood leukocytes) are mass produced in our laboratory, making research and evaluation using pure cells possible.
- Genetic information and information on cell conditions are available, drastically improving the accuracy and reliability of research and evaluation.
- Low cost and efficient research and evaluation are possible.

Advantages 2 — Non-stimulated dendritic cells, ideal for research and evaluation are used.

- Immature (= non-stimulated) dendritic cells, which are preferentially infected with viruses* are produced and used. * Including flavivirus group, which causes dengue fever, Zika fever, etc.
- Maturation stages of the cells are controlled to be homogeneous, enabling simple evaluation using non-stimulated dendritic cells.
- Highly reliable evaluation data are available because of ideal conditions (identical genetic background and differential state of cells).

Advantages 3 — Production and use of blood cells from the provided blood is also available.

- Research and evaluation using non-stimulated dendritic cells that have individual characteristics greatly accelerates the development of pharmaceutical products.
- Optimum for pharmaceutical research of viruses, microorganisms, cancer, etc., which can be facilitated by information on individual symptoms.

Advantages 4 — Screening by measuring the amount of transmitters from mature dendritic cells is possible.

- Characteristics of stimulation can be analyzed and evaluated in greater detail by quantitative comparison.
- Effective for characteristic investigation of T cells because the activity of T cells can be quantified.

Three types of purpose-designed blood cells

aMylc

Human peripheral blood mononuclear cells

Blood cells that show in vivo-like characteristics and reactions.

iMylc

iPS cell-derived blood cells

Blood cells with standardized genetic background. Standard reactions can be elicited.

uMylc

Customization using provided blood

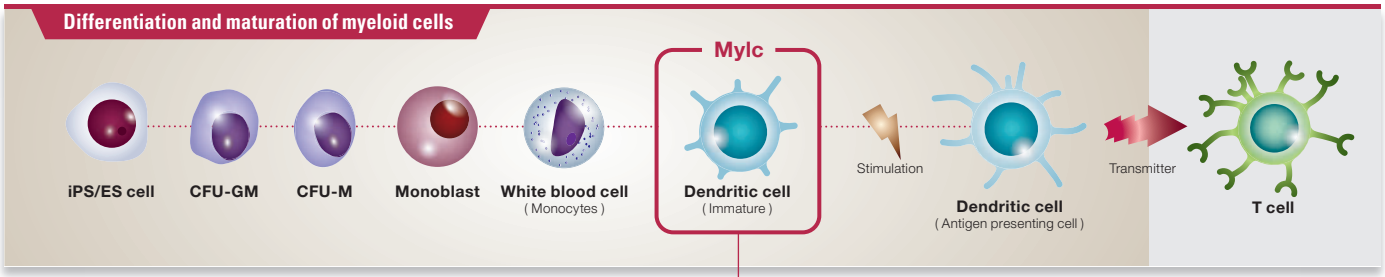
Blood cell materials with characteristics of the donor can be prepared.

Wide variety of evaluation designs are available

- Want to compare and evaluate various pharmaceutical effects accurately using blood cells under identical conditions.
- Want to freely design genetic conditions optimum for evaluation.
- Want to directly compare the effect of drugs on the basis of the released amounts of activators and/or inhibitors.
- In pharmaceutical research of immunological diseases, want to make progress by measuring the effect in each evaluation.
- Want to collect data for development of pharmaceutical products for cancer including genetic background of disease susceptibility in patients. ...etc

Key feature of MiCAN blood cells

(In-house production)



Homogeneous blood cells with identical genetic information

The same genetic information and conditions can be always reproduced because they are produced in our laboratory. This feature contributes to a drastic improvement in the accuracy and applicability of pharmaceutical evaluation.

We can control the differentiation stage to the optimum conditions

Differentiation stage (maturity) can be minutely controlled with our high level of regenerative medicine technologies and product control. Research and evaluation of high accuracy are available.

Stable mass-production and supply are possible

You can obtain blood cells in the sufficient quantities in ideal condition any time. You can conduct research and development and efficacy evaluation with no delay and accelerate your development.

Greatly reduced cost and time for evaluation

(Comparison with other available blood)

With iPS cell technology, we can stably produce dendritic cells in large quantity, which are difficult to isolate from provided blood.
Because pure dendritic cells in the same differentiation stage can be used,
evaluation efficiency will drastically increase, and the cost will be greatly reduced.

Blood cells of MiCAN

- Can be always stably provided regardless of the timing or quantity.
- Evaluation is highly reliable because the blood cells are homogeneous and pure.
- Blood cells in optimum conditions and type for evaluation can be selected and ordered.
- Blood cells in the same conditions can always be used.
- Cells in a differentiation stage sensitive to virus infection can be produced.
- Very high sensitivity to virus infection.
- Quick procedure from production of blood cells to acquisition of evaluation results.

Monkey-derived blood cells

- Reproducibility in humans is unclear because they are not human-derived.
- Sensitivity to human-infecting viruses is low.

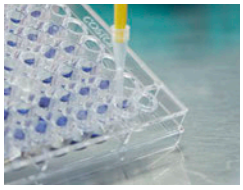
Red Cross-provided blood

- Difficult to obtain a large number of blood packs, which would cause delay in research and evaluation.
- Percentage of usable dendritic cells is 0.1% or less.
- Pure extraction is almost impossible.
- Inter-pack variability in conditions is large, resulting in low reliability in evaluation.
- Impossible to obtain blood cells in the same conditions again.
- Questionable if it is optimum for research and evaluation because blood cannot be selected.

Kyoto-University Katsura Venture Plaza

Evaluation and research in a common laboratory with Kyoto University

Our headquarters and research laboratory are located in Kyoto-University Katsura Venture Plaza, where Kyoto University nurtures the creation of new businesses utilizing new ideas/technologies and intellectual properties.



- Selected in the Program to support venture companies solving unmet needs of the Ministry of Economy, Trade and Industry (2015)
- Patent application for immature red blood-like cells for malaria research (First product) (2017)
- Patent application for non-stimulated dendritic cells for research of viruses (Second product) (2018)
- Adopted for the Economic Gardening Support Grant supported by Kyoto Industrial Support Organization 21 (2018)
- Certified as Management of Wisdom by the Kyoto Chamber of Commerce and Industry (2018)

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