CIEM Central Institute for Experimental Medicine and Life Science

Contract study services conducted by the Public Interest Incorporated Foundation, CIEM

King Skyfront in Kawasaki city

Public Interest Incorporated Foundation, Central Institute for Experimental Medicine and Life Science (CIEM)

In-Vivo Science Inc.

2026/06

医学・創薬研究での協働パートナーとしてのリソース＆技術の提供

公益財団法人実中研（以下、実中研）は、1952年の創業以来、医学・医療の研究に用いられる、品質が一定で再現性が高い実験動物の開発・作製とそれを用いた動物実験法の開発・事業化、世界標準化に力を注いでまいりました。

実中研は独立した民間の公益財団の研究所として、基礎研究から実用化まで一貫して行う世界でも稀で貴重な研究所であり、成果は広く期待されています。その期待に沿い、日本および世界への基礎研究の基盤提供と世界最先端の独自技術・実験動物の研究・開発のみならず、その実用化という両輪のバランスを取りながら研究・開発を進めています。

特に最近では、ヒトと実験動物の種差からくる動物実験の限界を打破するためのヒト化マウスの開発が充実してきております。また、マウスの限界を補う意味で非ヒト小型霊長類であるコモンマーモセットを利用し、ヒトの高次脳機能研究のためのシステム作りや近年研究が進んでまいりましたマイクロバイオーム、腸内細菌関連研究の基盤整備のための無菌動物技術の開発・改良も進めております。

一方、創業者故野村達次の設立時から掲げていた目標である最高・最適な前臨床試験システムとは、高品質の動物のみならず、実験環境、飼料、試験方法、品質維持システム、薬物動態、薬効、安全性評価システム、細胞、メカニズム研究、人材教育、コンサルテーションなど統合した総合的前臨床試験システムです。

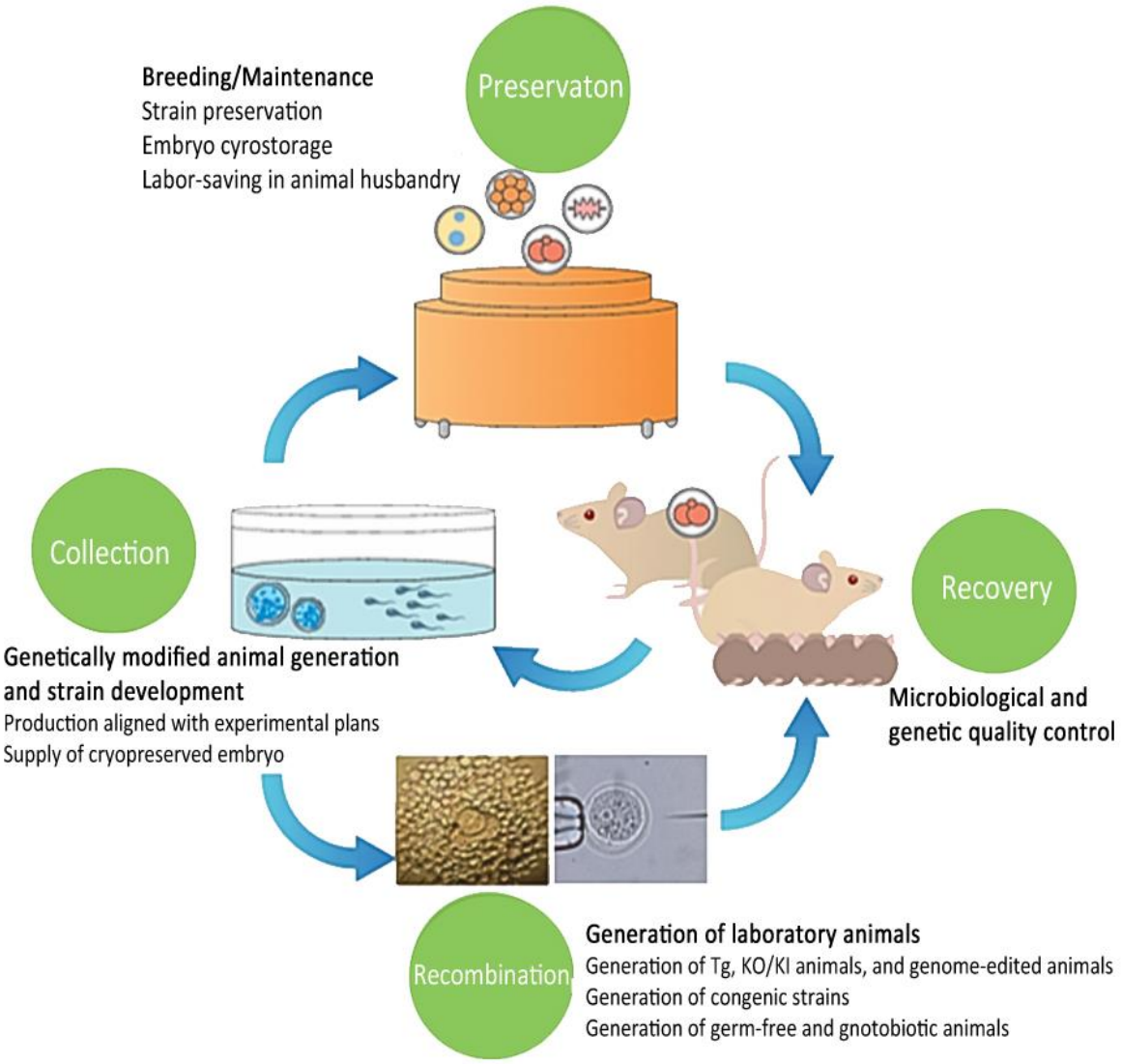
本カタログでは、実中研が基礎研究や医薬品の開発研究、医療技術開発等に提供可能な最先端の動物試験、動物実験解析技術等に有用な、具体的な受託試験アイテムをご紹介しています。 これらをご利用いただき、医薬品の開発研究における上市確率の向上、研究開発の促進や再生医療製品、細胞療法を始めとした新たな治療方法の確立等に貢献できることを心より願っております。

2022年11月
公益財団法人 実中研
理事長　野 村　龍 太

CONTENTS

1．Contract services for generation and production of disease model animals

Reproductive engineering technologies are powerful tools for producing and maintaining high-quality laboratory animals, and for conducting highly reproducible animal experiments. We utilize reproductive engineering techniques in mice and rats to provide customized contract production of genetically modified animals through micro-manipulation methods. Additionally, we offer services for the maintenance, preservation, and rederivation of genetically modified animal strains through embryo and gamete cryopreservation.



（1）Generation of human disease models (mice) by genetic modification

- Contract services are available for the generation of genetically modified animal models using a variety of approaches.
- Various genetically modified animal models can be generated using NOG mice.

① Contract generation of transgenic (Tg) mice

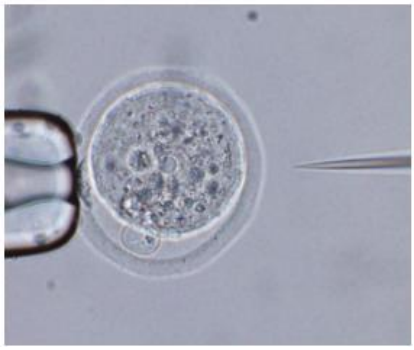
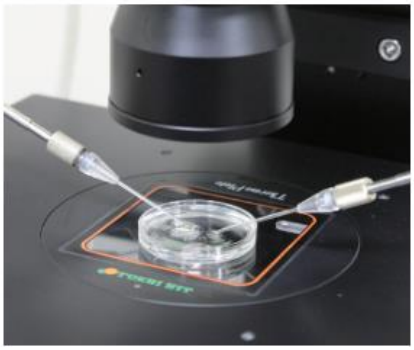
- DNA constructs are designed using plasmids or other vectors. They are microinjected into the pronucleus of fertilized eggs using a micromanipulator. This results in random integration of the transgene into the mouse genome, which 。

② Contract generation of genome-edited knockout (KO) and knock-in (KI) mice

- sgRNAs targeting the gene of interest are designed and introduced into fertilized eggs. Double-strand DNA breaks are then induced at the target locus, leading to gene disruption, insertion, or replacement mutations.
- Knockout (KO) mice can be generated through frameshift mutations by sequence deletions. Additionally, knock-in (KI) mice can be generated by co-introducing single-stranded oligonucleotides (ssODNs) or donor vectors containing homology arms for targeted sequence insertion.

③ Generation of speed congenic mice

- Conventional congenic strain development typically requires 3–5 years. The speed congenic approach shortens this period by using STR marker-based genetic background analysis in each generation, which monitors the extent of donor genome replacement in the recipient strain. It can halve the time required for strain establishment. Additionally, this approach enables monitoring of the approximate genomic location of the target gene throughout the breeding process.


Reference: Ka Yuka. et al., Sci. Immunol Lett 2021, 229:55-61

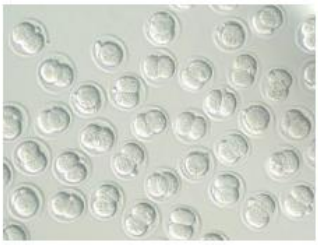
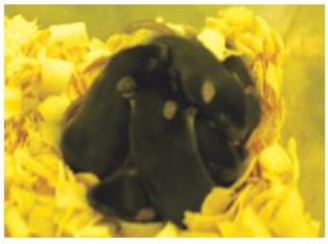
（2）Contract production services for laboratory animals

① Planned production of experimental laboratory animals

- Genetically modified male mice are introduced, and reproductive engineering techniques such as in vitro fertilization and embryo transfer are applied for the planned production of genetically modified mice. Mass production by postnatal age (days or weeks) and sex is supported, as well as the generation of multi-gene mutant mouse models.
- The microbial grade of produced animals can be selected, including SPF, germ-free, and gnotobiotic conditions.

② Breeding and preservation of animal strains

- Preparing embryos and cryopreserved sperm in advance helps prevent strain loss due to microbial contamination or genetic drift. In vitro fertilization can also be used to rescue infertile or chimeric mice.

Reference: Goto M. et al., Laboratory Animals 2021, 55 (1):13-20

（3）Microbiological cleaning services (SPF, germ-free) for laboratory animals

Similar to “Contract production services for laboratory animals” in the previous section, microbiological cleaning is primarily performed using embryo transfer and cesarean section techniques. IQI mice housed in vinyl isolators are used for fostering. Using isolator-based rearing technology, mice with 3 defined gut microbiota grades for intestinal microbiota research can be generated.

① CIEA Flora

- Derived from a defined gut microbiota originating from 83 bacterial strains (AC stock) established by Dr. Kikuji Itoh. To minimize the risk of microbial contamination, the colony is continuously maintained in isolators, preventing colonization by environmental microorganisms. As a result, mice with a more uniform and stable gut microbiota can be provided compared to SPF mice

② ASF (Altered Schaedler Flora)

- Gnotobiotic mice colonized with Altered Schaedler Flora, an 8-strain minimal gut microbiota model capable of maintaining normal intestinal homeostasis, are provided.

② Germ-free

- Germ-free mice are used for fostering. Germ-free derivation of customer mice is available.

*Microbiological cleaning services are also available for animals obtained from barrier breeding facilities

（4） Embryos cryopreservation services (mice and rats)

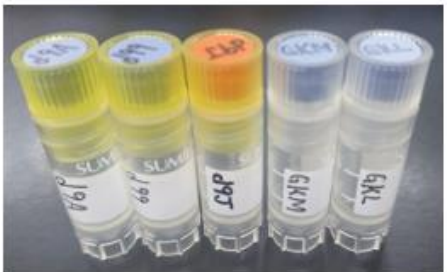
Embryos of requested mouse and rat strains are cryopreserved using the CIEA method. Cryopreserved embryos are delivered in a dry shipper.

＊Additional services are available for expansion of breeding females for strain maintenance and genetic selection.

＊Preparation of strain preservation embryos (via sibling mating combinations) is also available upon request.

＊Conditions for embryo storage services are subject to separate consultation.

＊Cryopreserved embryos at various developmental stages are available, including pronuclear stage zygotes, 2-cell embryos, and 8-cell embryos.



Reference: Eto T, et al., Cryobiology 2014, 68(1):147-51

（5） Sperm cryopreservation services (mice)

①Sperm from requested mice is cryopreserved and delivered in a dry shipper.

②Recovery of live animals from cryopreserved sperm is also available. Since methods often differ across countries and institutions, clients are requested to provide their sperm freezing and thawing protocols for confirmation (see “1-(2) Contract production services for laboratory animals”).

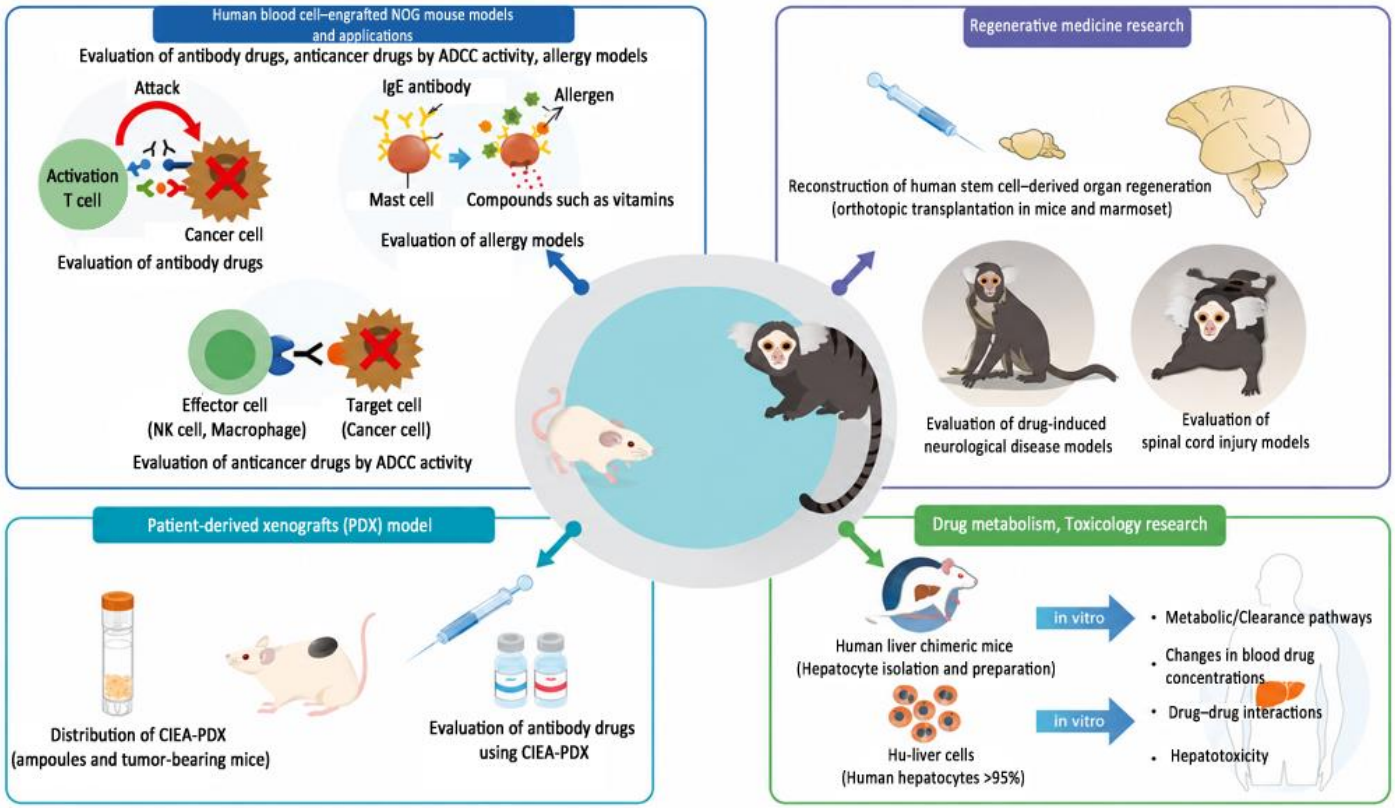
＊It is recommended to provide male mice with confirmed fertility.。

＊If thawed sperm shows no motility, intracytoplasmic sperm injection may be considered upon consultation.。

③For projects involving the generation of genetically modified mice, sperm is cryopreserved during the strain selection process to avoid unnecessary expansion of animal colonies. By combining this with embryo cryopreservation, a large number of experimental mice can be produced without advancing generations.

2. Contract studies using human disease models

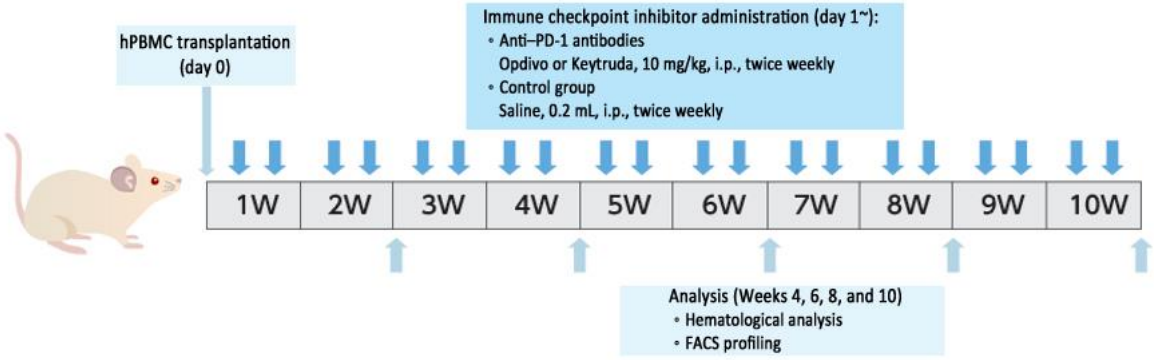
- A variety of disease model animals are generated using laboratory animals with specific characteristics, including severely immunodeficient NOG mice and small non-human primates such as the common marmoset. Contract studies using these disease models are also offered. Additionally, studies compliant with the standards for reliability of application data (Article 43 of the Regulation for Enforcement of the Act on Securing Quality, Efficacy and Safety of Products Including Pharmaceuticals and Medical Devices) are also conducted. For the development of new model animals, preliminary evaluation and related studies can also be performed using client-provided model animals.



（1）Contract studies using humanized NOG and next-generation NOG mice constituted with a human immune system

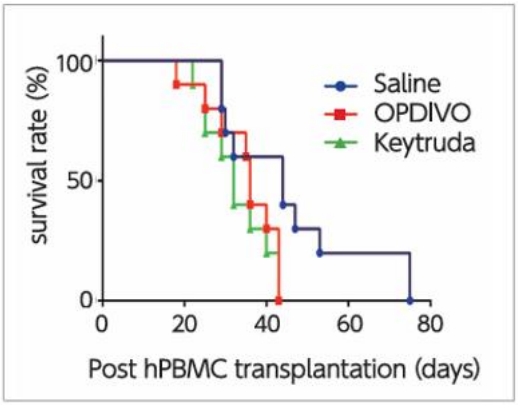
①Evaluation of antibody drugs

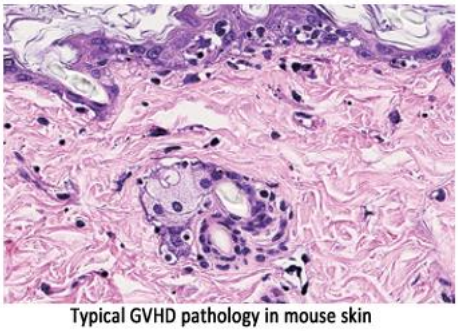
hPBMC-engrafted NOG mice can be used as a human immune system model with engraftment of human T cells. This model is suitable for evaluating antibody drugs that act through T cell responses, such as immune checkpoint inhibitors. At CIEM, it can also be combined with tumor models such as PDX for efficacy evaluation. Transplantation of hPBMCs into NOG mice induces GVHD. It has been confirmed that administration of immune checkpoint inhibitor antibodies to hPBMC-engrafted NOG mice accelerates the progression of GVHD.。



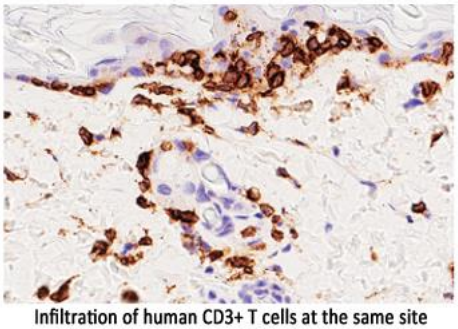
◆ Survival curve

Treatment with immune checkpoint inhibitors accelerates GVHD progression and leads to mortality.





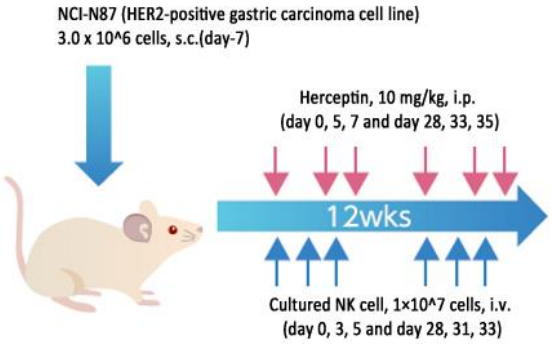
Typical GVHD pathology in mouse skin

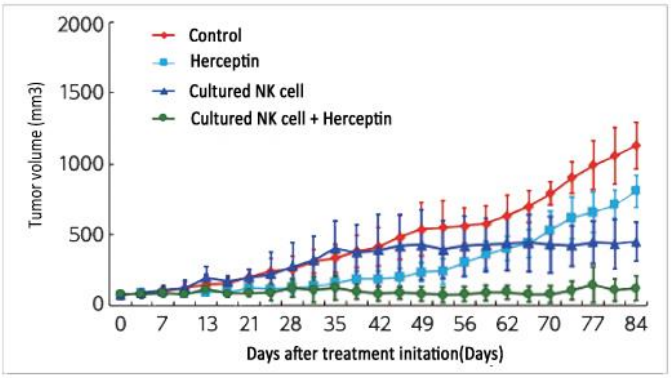


Infiltration of human CD3+ T cells at the same site

② Evaluation of anticancer drugs by ADCC activity

NOG-hIL2 Tg mice or NOG-hIL15 Tg mice support long-term differentiation and maintenance of human NK cells in vivo, and can be used to evaluate ADCC-mediated antitumor effects.



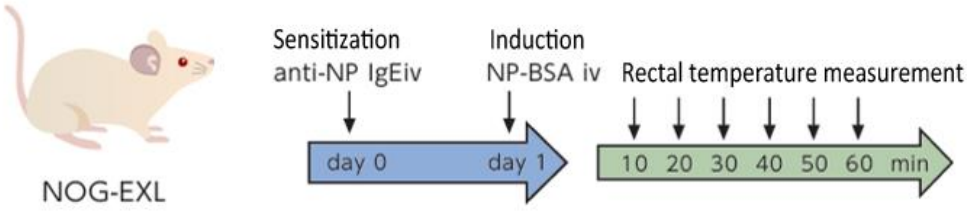


HER2-positive gastric cancer cells were subcutaneously implanted into NOG-hIL2 Tg mice (or NOG-hIL15 Tg mice), followed by administration of cultured NK cells and Herceptin. Evaluation of ADCC-mediated antitumor effects showed that the combination group (NK cells + Herceptin) exhibited a significant antitumor effect.

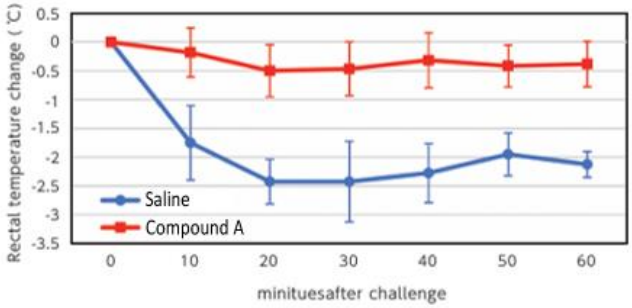
References: Sakamoto N *et al*., Transl Med 2015, 25; 13:277
Katano I *et al*., Sci Rep. 2017 8; 7(1) :17442-7

③ **Evaluation of allergy models**

Humanized NOG-EXL mice are sensitized with anti-NP IgE antibody, and systemic anaphylaxis is induced by administration of NP-BSA. This model can be used for non-clinical POC studies of anti-allergy drugs



Anti-allergy drug (Compound A) efficacy study



（2）Contract studies using PDX (patient-derived xenograft) models

Since the 1980s, CIEM has established human tumor xenograft cell lines (CIEA-PDX) using nude mice and other immunodeficient models. A total of 205 lines is available for distribution. These PDX samples are provided as minced tumor tissue or cryopreserved vials and can be directly transplanted into immunodeficient animals after thawing, without an in vitro culture step. The use of these PDX models complies with the “Ethical Guidelines for Medical and Biological Research Involving Human Subjects” (revised March 2022).

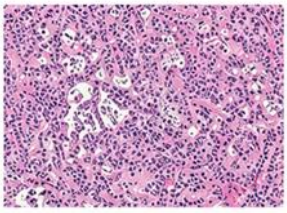
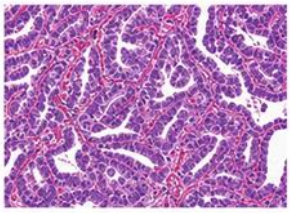
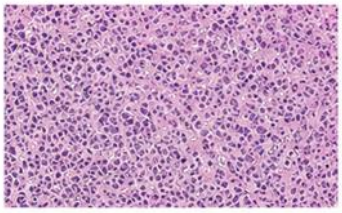
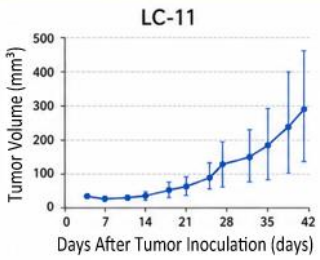
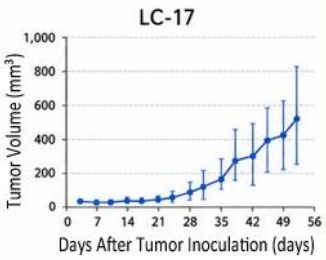
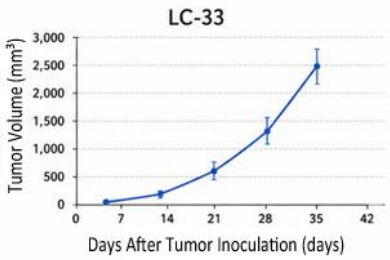
- Cancer types and number of lines

Cancer type	No. of lines	Cancer type	No. of lines
Lung cancer	34	Thyroid cancer	5
Colorectal cancer	8	Renal cell carcinoma	8
Pancreatic cancer	4	Ovarian cancer	4
Gastric cancer	18	Skin cancer	4
Esophageal cancer	11	Glioblastoma	14
Hepatobiliary cancer	13	Osteosarcoma	5
Duodenal cancer	1	Soft tissue tumors	9
Breast cancer	19	Hematologic malignancies	9
Uterine cancer	6	Sarcomas (muscle-derived)	9
Head and neck cancer	3	Pediatric tumors	11

- Histological classification of lung cancer PDX model

Non-small cell lung cancer	
Adenocarcinoma	9
Squamous cell carcinoma	9
Large cell carcinoma/Giant cell carcinoma	9
Others	1
Small cell lung cancer	
	6

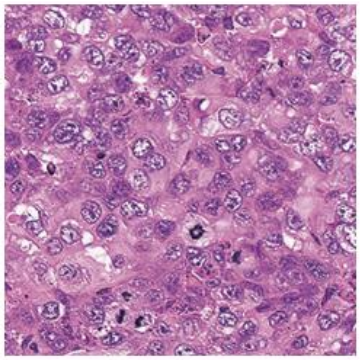
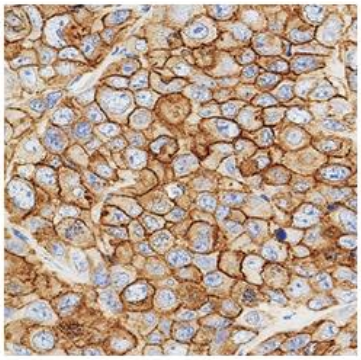
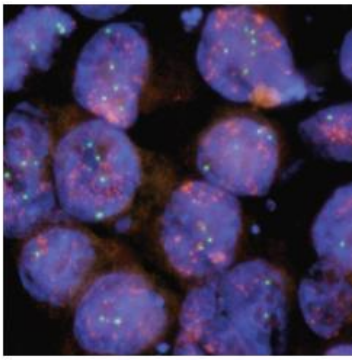
Lung adenocarcinoma data

ID	LC-11-JCK	LC-17-JCK	LC-33-JCK
Primary tissue	Adenocarcinoma, well-differentiated papillary	Adenocarcinoma, well-differentiated papillary	Adenocarcinoma, poorly differentiated
PDX tissue	Adenocarcinoma, poorly differentiated 	Adenocarcinoma, well-differentiated 	Adenocarcinoma, well-differentiated 
Proliferation curve			
Genetic alterations	STK11 mutation KDM6A mutation	APC partial deletion (S723) CDKN2A mutation STK11 mutation	PIK3CA partial deletion (E542K) TP53 partial deletion (E258K) CDKN2A mutation
Other characteristics			Produces CP-1/IL6/IL8/IL12/GCSF

① CIEA-PDX (Distribution of ampoules and tumor-bearing mice)

- CIEM provides CIEA-PDX models as either cryopreserved vials or tumor-bearing mice.
- CIEA-PDX models preserve the histological features of the original tumors. Human-specific genetic alterations and molecular characteristics are also maintained.
- Moreover, both human and murine pathogens are confirmed to be negative

Immunohistochemistry and FISH of HER2-positive gastric cancer (SC-54-JCK)

②Evaluation of antibody drugs using CIEA-PDX tumor-bearing humanized mice

・Contract studies are conducted to evaluate the antitumor efficacy of immune checkpoint inhibitors and other agents in NOG-ΔMHC mice humanized with human PBMCs and bearing CIEA-PDX tumors held by CIEM.

Experimental example: Tumor growth inhibition study using an anti–PD-1 antibody in combination with a novel IDO1/TDO2 dual inhibitor

Figure 1: Schematic of an ICI evaluation system using a lung adenocarcinoma PDX-engrafted PBMC-humanized NOG-ΔMHC mouse model

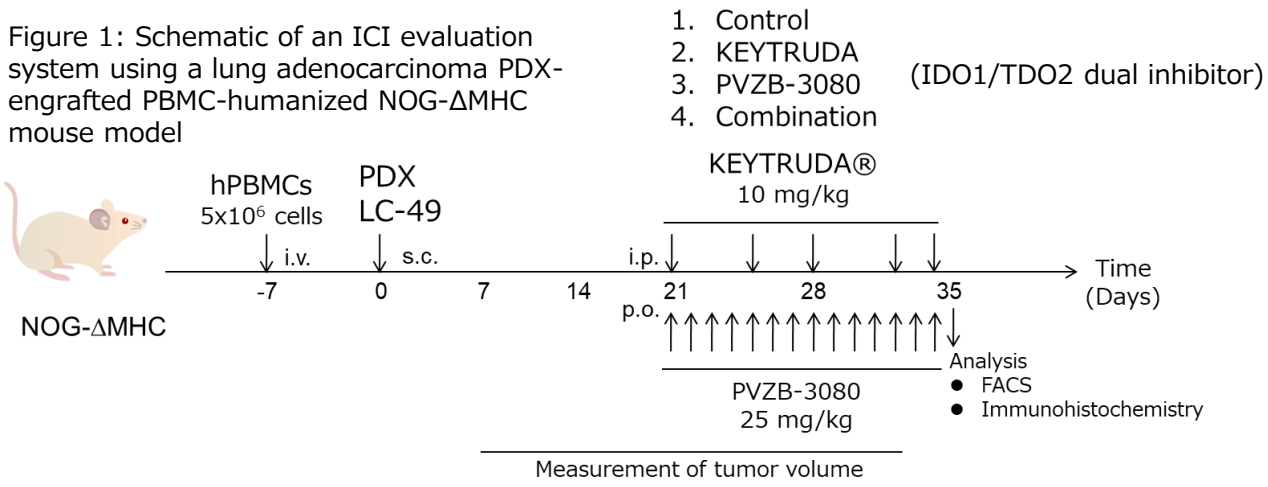
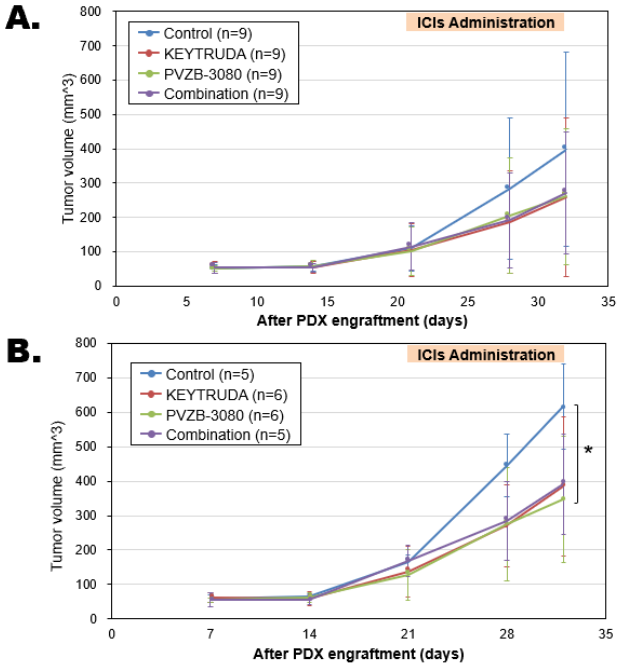
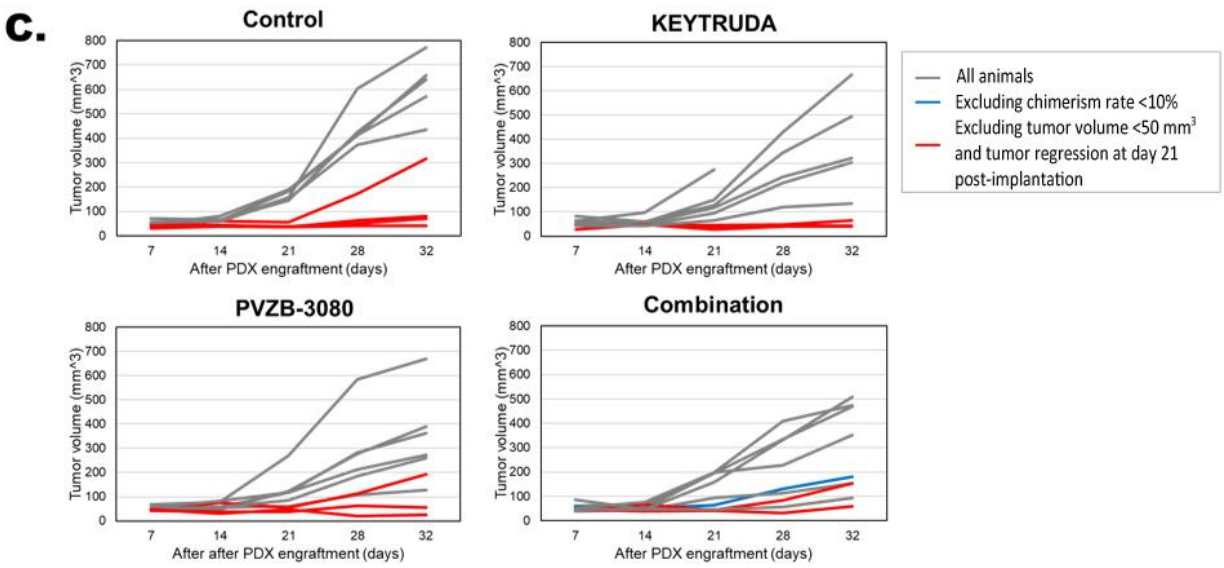


Figure 2: Anti–PD-1 antibody and IDO1/TDO2 dual inhibitor suppressed tumor growth under mouse selection criteria



Tumor volume progression: Tumor size was measured weekly using a microcaliper from Day 7 to Day 32 after PDX implantation.
Tumor volume was calculated using the following formula:
Tumor volume [mm^3] = 1/2 × length (mm) × [width (mm)]^2
(A) Tumor volume progression in all animals
(B) Tumor volume progression after exclusion of animals with chimerism below 10%, tumor volume ≤50 mm3 at Day 21, and/or tumor regression between Day 14 and Day 21 (*p < 0.05)



(C) Tumor volume progression for all individual animals in each group:
Gray lines indicate animals meeting the inclusion criteria, while red and blue lines indicate excluded animals.

Figure 3: Administration of an anti–PD-1 antibody promotes activation of human T cells in mice

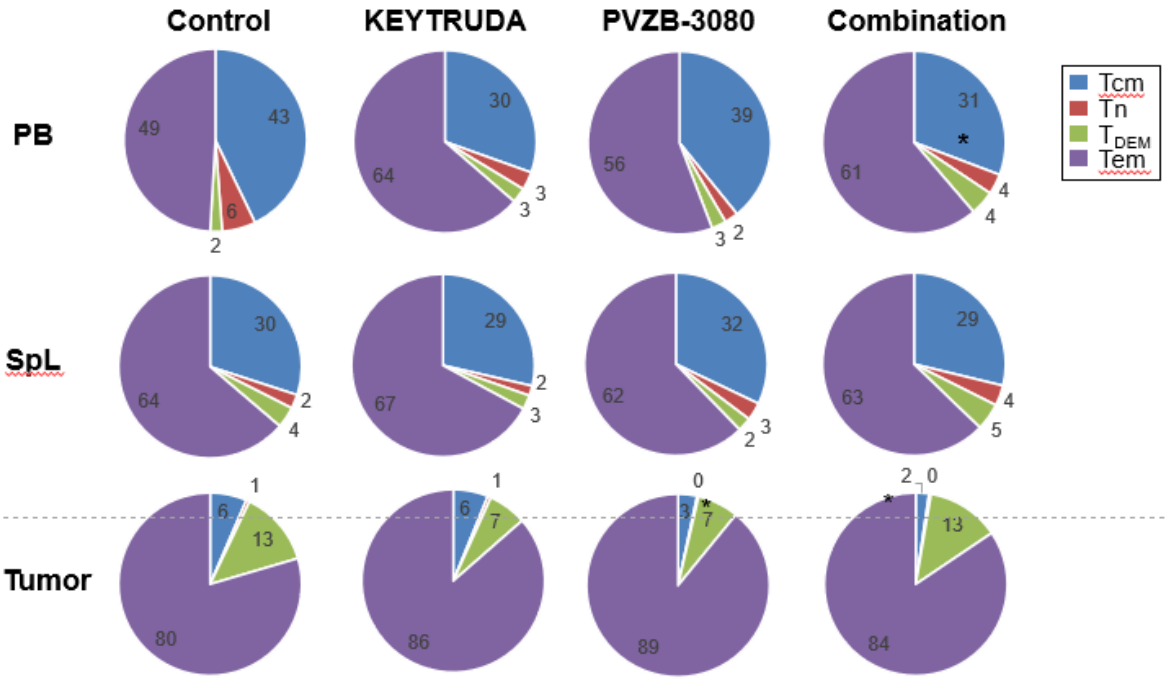


Figure 4: Administration of an IDO1/TDO2 dual inhibitor reduces the number of human regulatory T cells (Tregs) in tumors

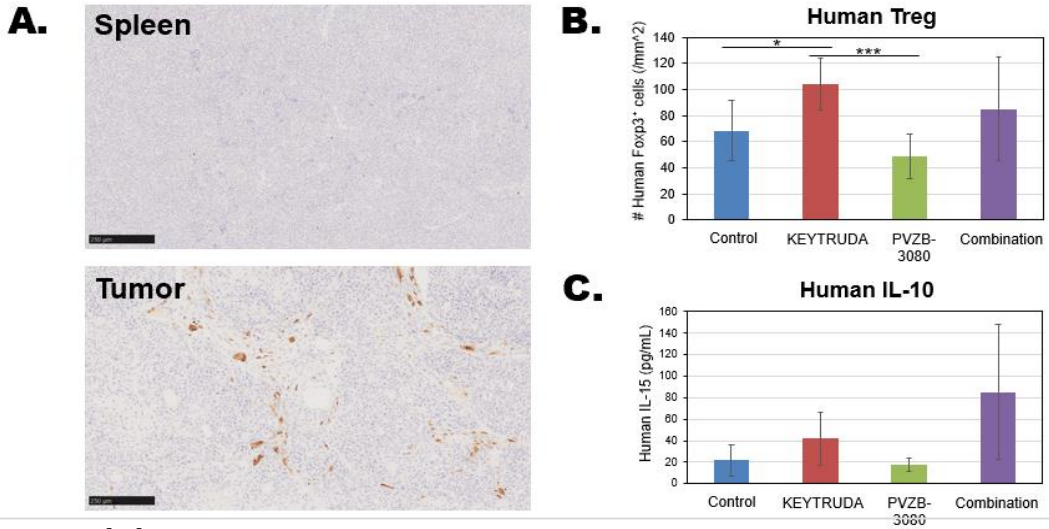


Figure 4 **（A）Immunohistochemical staining of Tregs in spleen or tumor tissue.** 。Tumor and spleen tissues were fixed in 10% formalin and embedded in paraffin. Immunohistochemical staining was then performed using an anti-human Foxp3 antibody (clone 236A/E7) **（B）Number of human Tregs observed by histological immunostaining**. Cells positive for hFoxp3 staining were counted using HALO software (Indica Labs, Inc.), and the number of cells per unit area was calculated. (Control: n=5, KEYTRUDA: n=5, PVZB-3080: n=6, combination: n=5) (*p < 0.05, ***p < 0.001) **(C) Human IL-10 levels in plasma**. Plasma samples were collected from each mouse at the endpoint, and human IL-10 concentrations were quantified by ELISA.)

Presented by Hanazawa et al. from CIEA at the 83rd Annual Meeting of the Japanese Cancer Association

（3）Contract studies for regenerative medicine research

・Reproduction of human stem cell organ regeneration (orthotopic transplantation in mice). Regenerative medicine products are orthotopically transplanted into mice or rats (e.g., intracerebral transplantation), and engraftment within the target organ is evaluated.

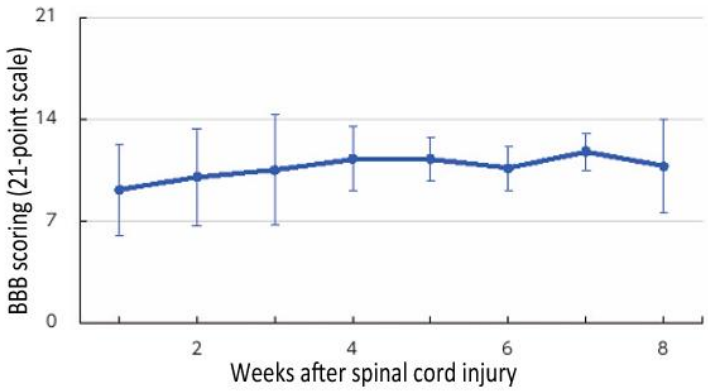
①Rat spinal cord injury model and motor function recovery effects

・A spinal cord injury model is established using a spinal cord injury device (IH-400, PSI).

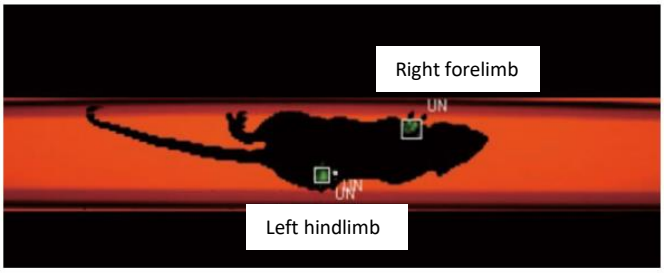
・Regenerative medicine products can be transplanted into the spinal cord near the injury site, and recovery of motor function can be evaluated.

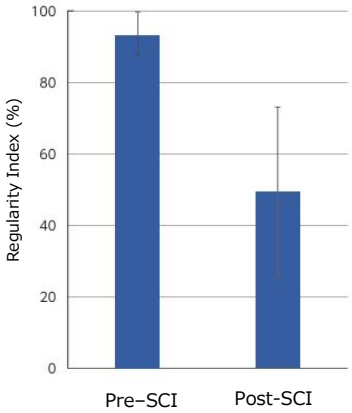
・Continuous intrathecal administration of low-molecular-weight compounds is also possible using an Alzet osmotic pump.

・CIEM has also established a spinal cord injury model in common marmosets to enable integrated evaluation across rats and non-human primates.



Hindlimb motor function after spinal cord injury is evaluated using the BBB scoring system (additive scale, 21-point scale).
※ Basso–Beattie–Bresnahan, named after the researchers who established the evaluation method for rat spinal cord injury models.



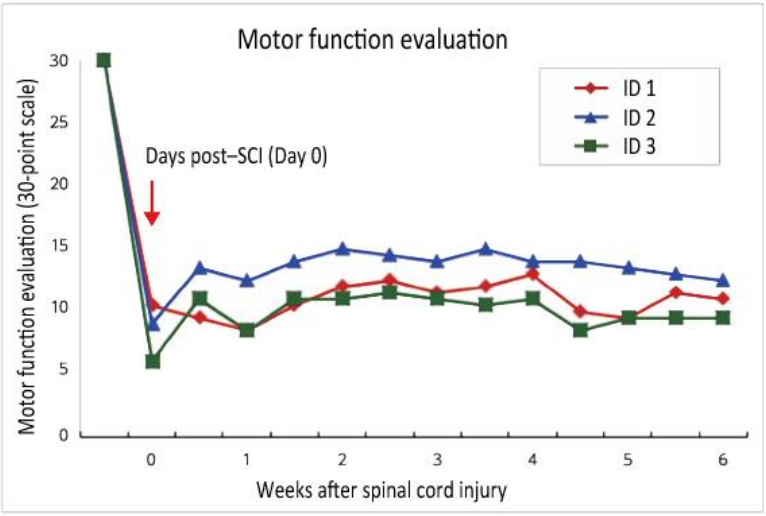


Cat Walk XT analysis can be used to evaluate footprints in spinal cord injury (SCI) rats. In spinal cord injury animals, coordination of all four limbs during gait is disrupted. This parameter can therefore be used to assess recovery of motor function. Multiple parameters can also be obtained.

*** Regularity Index (%): Reflect interlimb coordination. Normal animals typically show a value of 100%**

② Marmoset spinal cord injury model and motor function recovery effects

- A spinal cord injury model is established using a spinal cord injury device (IH-400, PSI)
- Regenerative medicine products are transplanted into the injury site, and therapeutic effects are evaluated.。
- Continuous intrathecal administration of low-molecular-weight compounds is also possible using an Alzet osmotic pump.
- Motor function recovery is assessed using an original open-field scoring system and MRI.。
- Comprehensive veterinary care is also provided.

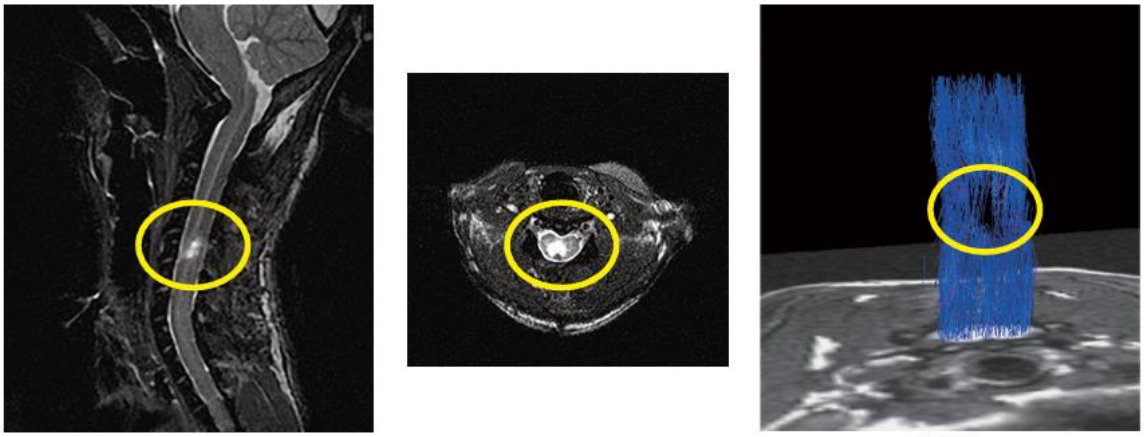


Motor function evaluation example

Evaluation item	Evaluation	
	YES	NO
Supine-to-prone turning	+1	0
Hindlimb weight-bearing with forward movement	+1	0

Motor function is evaluated using an additive scoring system (maximum 30 points).
Motor function before and after spinal cord injury is compared within the same individual to assess therapeutic effects.

Motor function scores after spinal cord injury remained at 15 points or lower (30 points full score pre-injury), with no recovery of motor function observed during the observation period.

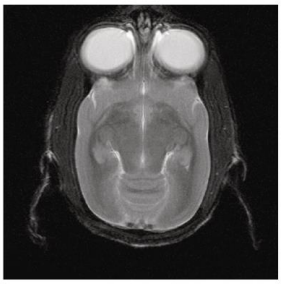


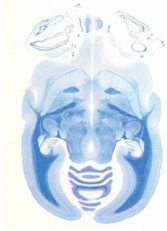
DTT analysis

MRI analysis also enables longitudinal, non-invasive monitoring of lesion sites within the same individual.

3. Contract analytical services

Animal experimental analysis technologies are essential for conducting biomedical research. CIEM provides live imaging technologies for in vivo monitoring of disease progression in real time, as well as pathological analysis to validate imaging findings and investigate disease mechanisms. These approaches broadly support research, including disease elucidation and drug efficacy evaluation.





As live imaging and pathological analysis are both integrated within CIEM, comparative evaluation on the same tissue section is possible.

As normal control data for disease models, a large-scale database of brain imaging in developing common marmosets is available (e.g., age-specific average brain atlases published in the Brain/MINDS project). This enables longitudinal comparison between disease models and normal development. Additionally, brain imaging databases for several commonly used mouse strains are also available.

References : Hikishima K, et al., Neuroscience. 2013 Jan 29; 230: 102-113.
Seki F et al., Neuroscience. 2017 Nov 19; 364: 143-156.
Uematsu A et al., Neuroimage. 2017 Dec; 163: 55-67.

（1）Contract analytical services using live imaging equipment

Live imaging enables non-invasive, longitudinal tracking of pathological changes in the same individual in vivo. As it uses analytical methods comparable to those used in humans, it offers strong clinical translational relevance. It can be applied throughout the entire workflow from model generation to evaluation, and researchers may also perform MRI analyses in person. If other analytical approaches are desired, consultation and proposal are also available.

7T MRI

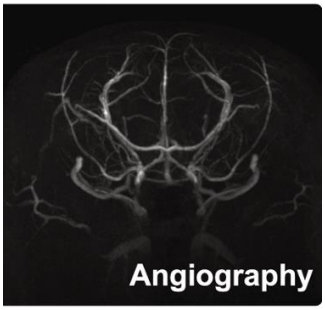
11.7T MRI

MRI acquires images using magnetic resonance。
- Imaging time: Several minutes to several hours or days
- Target animals: Mice, rats, and common marmosets
- Target organs: Central nervous system, liver, kidneys, joints, and blood vessels (non-contrast)

3D micro X-ray CT

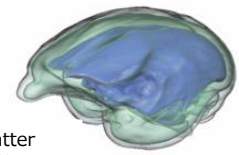
CT acquires images using X-ray absorption
- Imaging time: 18 sec, 20 min
- Target animals: Mice, rats, and common marmosets
- Target organs: Bone, lungs, adipose tissue, heart, abdominal organs, and blood vessels (with contrast). Respiratory and cardiac gating.

① Brain and cerebrovascular analysis (MRI)
The 7T MRI system enables detailed analysis of disease models.
Consultation is available for analytical approaches and the development of new analysis methods.



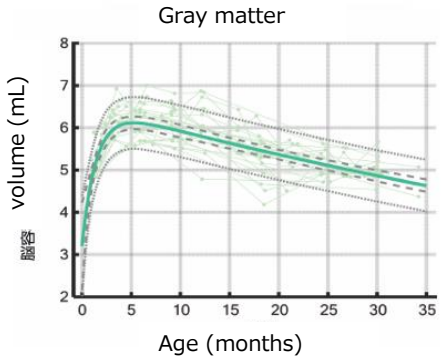
Example of mouse brain angiography: Cerebral blood vessels can be selectively visualized without the use of contrast agents. No catheterization is required, making the procedure minimally invasive for the animal.

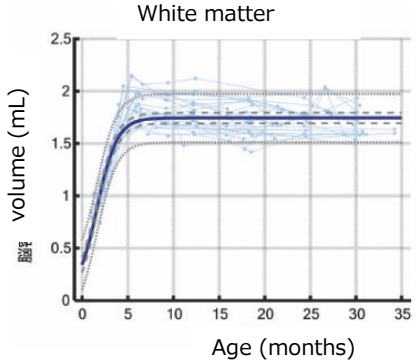
Example of common marmoset brain analysis



Green: Gray matter
Blue: White matter

Changes in total gray matter and white matter volumes were examined across developmental stages in common marmosets. Gray matter increased rapidly up to 5.3 months, followed by a gradual decline. This pattern is considered consistent with synaptic pruning observed in human brain development. In contrast, white matter reached a plateau at 9.9 months, and no gradual increase similar to that seen in humans was observed.

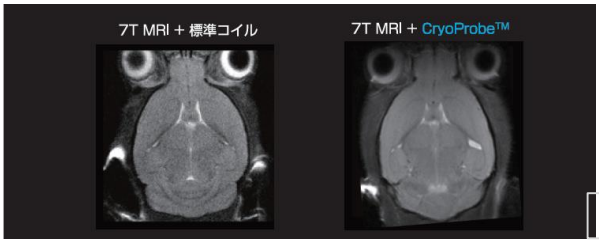




Reference: Seki F et al., Neuroscience. 2017 Nov 19; 364: 143-156.

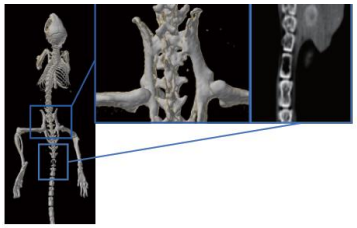
② Example of mouse brain analysis (mouse-specific coil)

- A mouse-specific ultra-high sensitivity coil has been introduced in addition to 7T MRI.
- With 2–3-fold higher signal-to-noise ratio (SNR) compared with conventional systems, MRI enables mouse head measurements that were previously difficult and allows evaluation of neuropathic pain and psychiatric disease models.
- CIEM also provides brain image templates from various mouse strains, which are available for use.

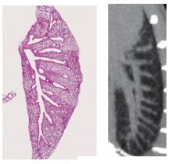


Reference: Hikishima K. et al., Sci. Rep. 2017 Mar 7; 7(1) : 85.

③ Analysis of mouse tumor models (3D Micro X-ray CT)

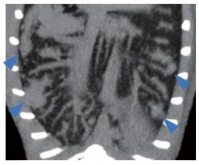


Whole-body CT of a mouse multiple myeloma model: Punched-out lesions caused by increased osteoclast activity can be observed in thin bone structures. Whole-body bone morphology can be assessed within minutes.

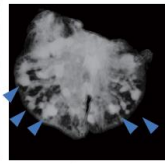


H&E staining (pathology)

CT image



Lung cancer metastasis

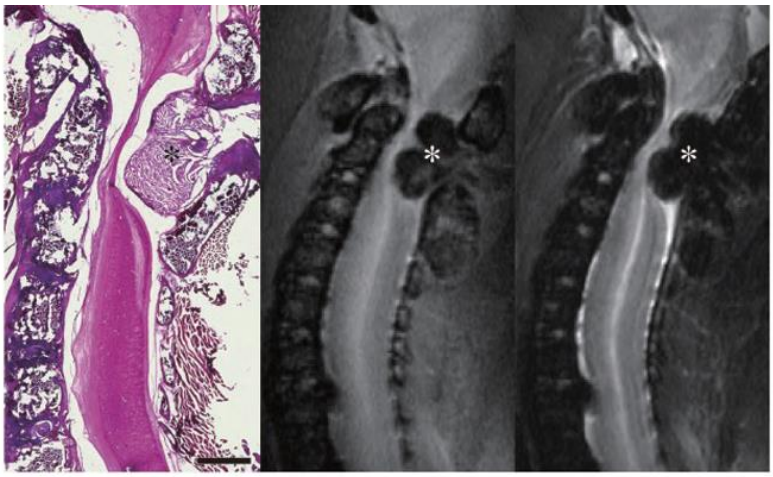


3D MPR image (ex vivo)

Mouse lung metastasis model: High-resolution imaging of the lung can be obtained. Lung metastatic lesions (▲) can be visualized in three dimensions.

④ Longitudinal evaluation of disease model animals

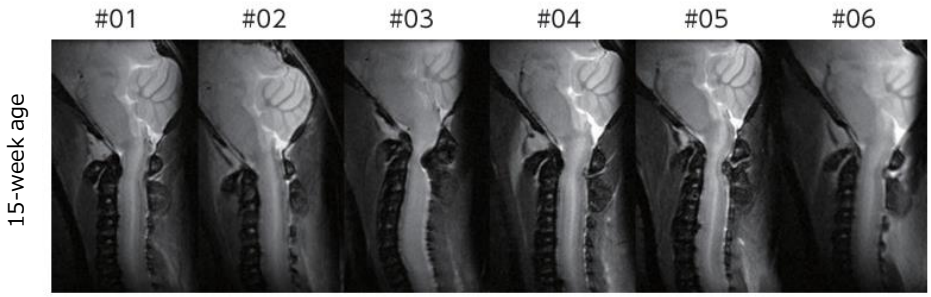
twy Mouse: a mouse model of spinal ligament ossification

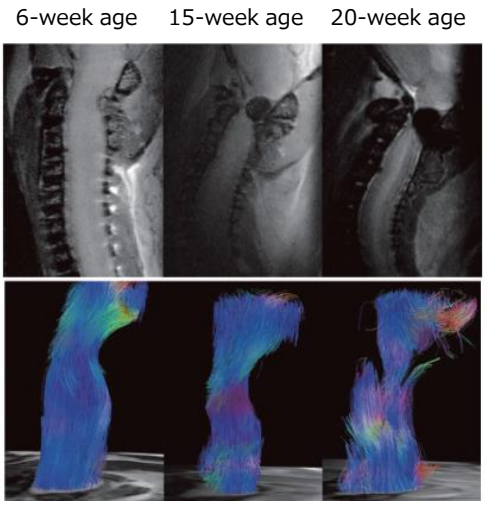


H&E staining (pathology) T1WI T2WI

Comparison of pathological sections and MRI from the same individual: MRI enables in vivo observation of tissue structures resembling pathological sections in living animals and allows direct observation

Even at the same age, the severity of disease onset varies among individuals.





Longitudinal observation of the same animal

The natural disease model twy mice show variability in disease severity even at the same age. MRI enables repeated imaging of the same animal, allowing longitudinal, three-dimensional assessment of disease progression and contributing to a reduction in the number of animals used.

Upper and upper left: T2-weighted sagittal image
lower left: Diffusion tensor tractography

Reference: Takano M. Komaki Y. et al., Spine, 2013:38: E66-72

（2）Pathology specimen preparation services

■ Preparation of pathology specimens

・Tissue specimens are prepared from experimental animals or formalin-fixed materials.

・Paraffin blocks are also prepared from cultured cells for analysis equivalent to tissue specimens.

■ Specimen preparation

・Preparation of tissue blocks (paraffin and frozen sections) from tissue samples

・Preparation of cell blocks from cultured cells and other cell materials

■ Staining

・H&E staining

・Various special stains

・Immunohistochemistry (using an automated immunostaining system)

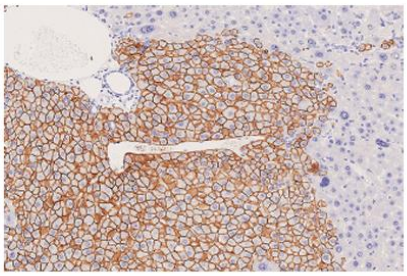
■ Pathological diagnosis and analysis

・Pathological diagnosis of morphological changes and lesions based on H&E-stained sections

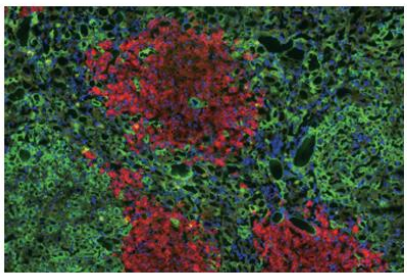
・Pathological analysis using H&E staining, special stains, and immunohistochemistry

■ Digital Slide Service

・Digitization of glass slide specimens using a digital slide scanner



Human E-cadherin staining
(NOG mouse liver)



Dual staining for human
and mouse ALB
(NOG mouse liver)

Automated immunostaining
system (BOND-Max)

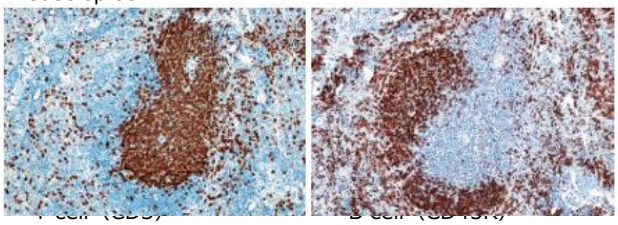
Digital slide scanner
(NanoZoomer S60)

①Preparation of pathology specimen for various laboratory animals

Pathology specimens are prepared from mouse, rat, and common marmoset tissues, including H&E staining, special stains, and immunohistochemistry. In in vivo studies, human cells derived from transplantation of normal human cells or stem cells can also be specifically detected in regeneration experiments.

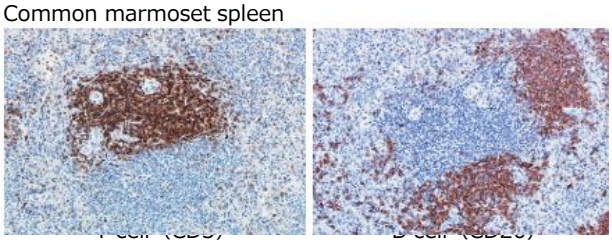
Analysis using immunostaining in experimental animals (lymphocyte surface markers)

Mouse spleen



T cell（CD3）　B cell（CD45R）

Common marmoset spleen



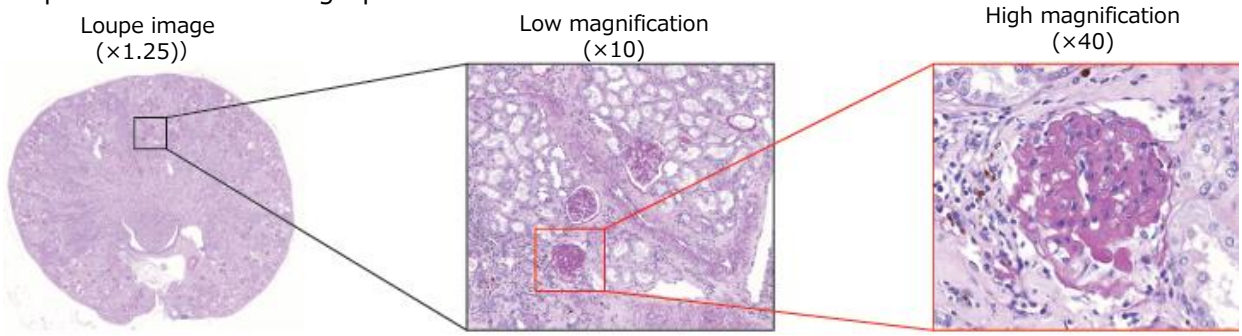
T cell（CD3）　B cell（CD20）

②Preparation of digital pathology specimen slides

・PC-based observation: Digital slide images can be viewed and imported using the image analysis software NDP.View2 (Windows or Mac OS, free of charge).

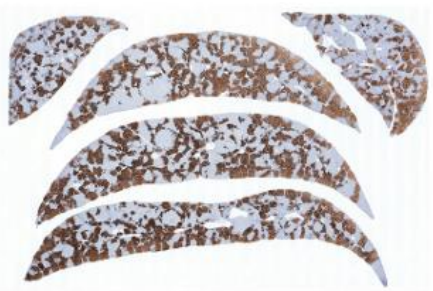
・Slide storage and database management: Digital data avoid issues such as slide breakage, loss, and deterioration and enable long-term observation in digital form. Database management also allows data sharing among researchers and supports the construction of image libraries.

(1) High-resolution images can be smoothly accessed at any required magnification, from low-power overview to high-power detailed views.



(2) Digital images can be used for image analysis.

Measurement of human liver replacement rate in humanized liver chimeric mice (Anti-human mitochondria staining)



4. Commitment to ethical laboratory animal research

At CIEM, research and operations are conducted with the utmost consideration for the welfare of experimental animals. When the use of animals is necessary to support human health and improve quality of life, all relevant laws and guidelines are strictly observed, including the Act on Welfare and Management of Animals. The international principle of the “3Rs” in animal experimentation is implemented. Institutional regulations are in place, and the Institutional Animal Care and Use Committee (IACUC) has been established to review experimental protocols, inspect housing conditions, provide training for personnel conducting experiments, and independently review and monitor the appropriateness of animal experiments. Additionally, an experimental procedure code table has been developed to appropriately classify levels of pain and distress in animal experiments, and is publicly shared with other research institutions. CIEM also plays a leading role in promoting animal experiments aligned with the 3Rs principle.

These efforts have been evaluated and certified by an independent third-party organization, the Japan Pharmaceutical Information Center (Center for Accreditation of Laboratory Animal Care and Use, CALAC), and accreditation has been obtained. Through these initiatives, a balance between scientific validity and animal welfare is maintained. Model animals such as common marmosets and humanized mice, along with related experimental technologies, have been translated into practical applications. They contribute as foundational technologies supporting human health and daily life.

JAPIC:CALAC

認 定 証

公益財団法人実験動物中央研究所　殿

貴研究機関の動物実験実施施設は厚生労働省が通知した「厚生労働省の所管する実施機関における動物実験等の実施に関する基本指針」に基づき当財団動物実験実施施設認証センターが評価した結果、適合していると認められますのでここに認定します。

認定番号　21－025
認定日　2021年6月11日
有効期間　2024年6月10日

一般財団法人日本医薬情報センター
理事長　赤川　治郎