

Contents

CentMeRE : **C**enter for **M**edical **R**esearch and **E**ducation

- Gene Analysis
- Lentiviral shRNA Library
- Protein Analysis
- Cell Sorting
- Spectroscopy
- Centrifuge
- Image Analysis
- Optical Microscopy
- Electron Microscopy
- Poster Printing
- Other Equipments

Genome Editing R&D Center

CoMIT Omics Center

Important Notice

For Use

- ✓ Treat politely and clean up
- ✓ Ask staff if you do not understand
- ✓ Report us about device problem
- ✓ Take wastes back to your laboratory

For Reservation

- ✓ Make a reservation in advance
“Except for some equipment”
- ✓ Do not make excessive reservations
- ✓ Extended time must also be recorded

Genetic Analysis Instruments 1

Electroporator



For Cells and Microorganisms
Bio-Rad Gene Pulser Xcell Total System



For Cells
NEPAGENE NEPA21



For Cells
Lonza 4D-Nucleofector X Unit System

Shaking Incubator



TAITEC BR-43FL



Eppendorf Innova 2100

Automated DNA Isolation System



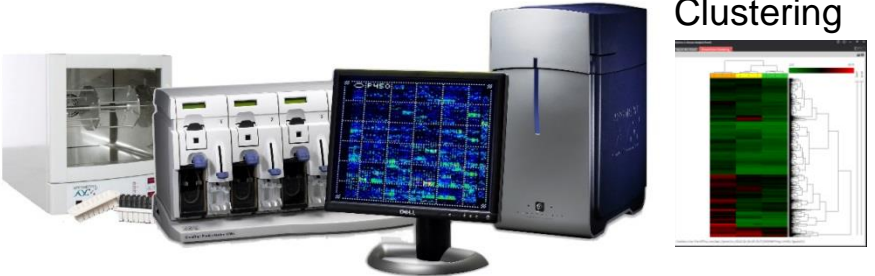
KURABO PI-480



invitrogen BenchPro 2100 MaxiCard

Genetic Analysis Instruments 2

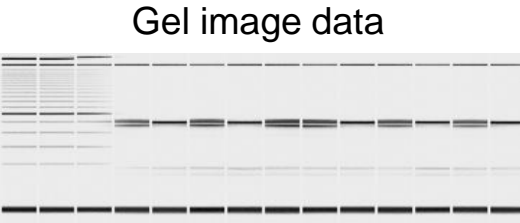
Microarray



Microarray Analysis System
Affymetrix GeneChip Scanner 3000 7G System

This system that comprehensively analyzes tens of thousands to hundreds of thousands of gene expression patterns supports various cartridge arrays, and can analyze not only mRNA but also miRNA and lncRNA.

Electrophoresis



Microchip Electrophoresis System for DNA/RNA Analysis
SHIMADZU MultiNA

This automated electrophoresis device to replace conventional agarose gel electrophoresis enables accurate sizing of DNA/RNA.

- Quantitative analysis of DNA: Real-time PCR system Roche LightCycler96

MultiNA Contract Analysis Service

Suitable for checking on mutations introduced by genome editing, genotyping, etc.

- DNA sample preparation
- Online application from MyPAGE on the website



Process performed by user

Contents of service

The person in charge performs electrophoresis analysis of DNA samples using MultiNA, and returns the data file.

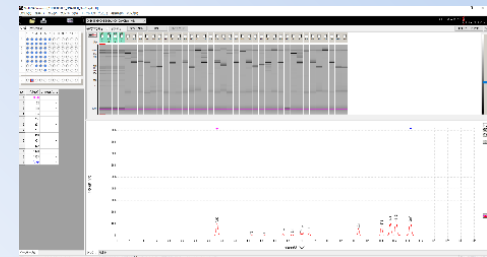
Analysis

Microchip Electrophoresis System for DNA/RNA Analysis, MultiNA



Data file return

Digital data determining DNA fragment size



Process performed by staff of CentMeRE

Lentiviral shRNA Library

Storage (P1)

E. coli glycerol stock

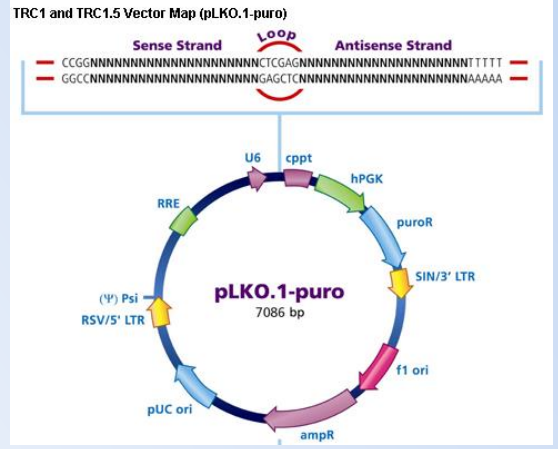
E. coli strain:
DH5 α -T1R
(DH5 α)



- * Human 18,831 gene (108,635 clones)
- * Mouse 18,445 gene (90,495 clones)

Mission TRC1 / TRC1.5

shRNA plasmid "pLK0.1-puro"



Ampicillin resistance gene

2012 President Discretion Budget Project

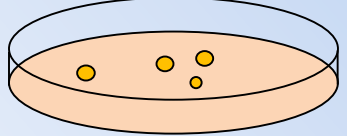
Equipment with lentiviral shRNA library (Sigma · Mission) as bio-research source.

- It is a lineup with almost all genes.
- * Human 18,831 gene (108,635 clones)
- * Mouse 18,445 gene (90,495 clones)

Distribution (P1)

E. coli

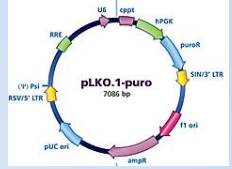
Colony (LB-amp plate)
+
Inoculum into liquid culture medium



- Order form stamped by responsible person
- Cartagena protocol paper

Knockdown experiment (P1/P2)

shRNA plasmid



Lentiviral particle



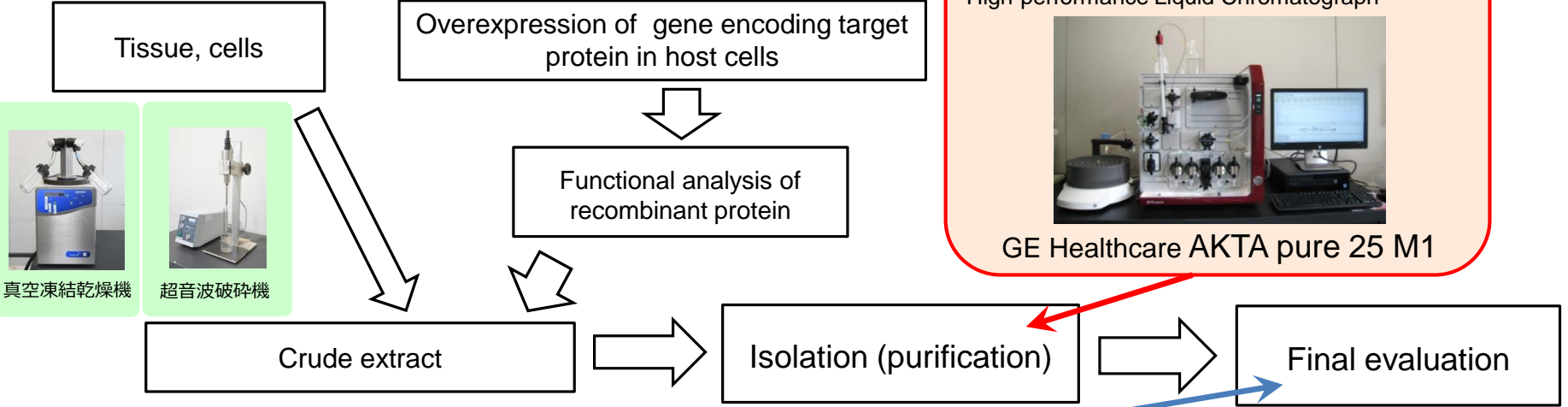
A growth-deficient strain

Process performed by staff of CentMeRE

Process performed by user or staff

Protein Analysis

Experimental flow for purifying the target protein



(2) Evaluation of quality and activity
Surface Plasmon Resonance System



GE Healthcare
Biacore T200

(3) Analysis of peptides and amino acids
High-performance Liquid Chromatograph



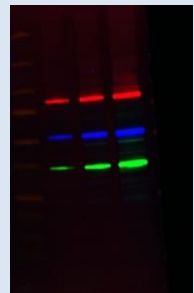
SHISEIDO
NANOSPACE SI-2

(4) Determination of size, expression level of protein
Imaging System



Bio-Rad
ChemiDoch Touch MP

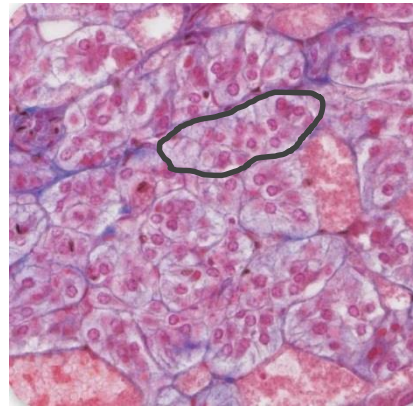
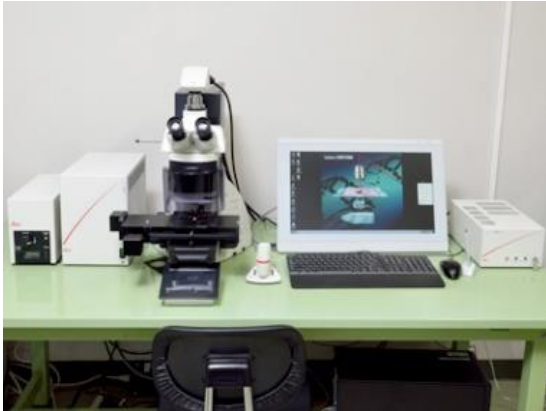
Example
(multiplex fluorescence)



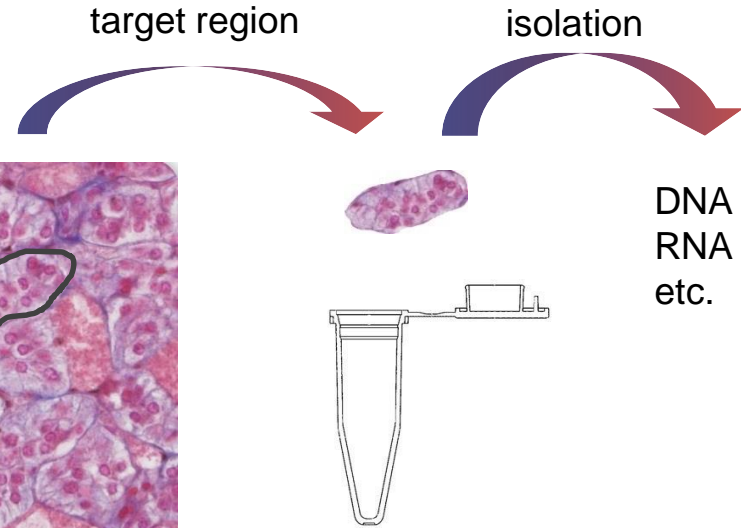
Dissection of Cells

System for extraction of target regions determined in microscopic images of tissue

Laser microdissection Leica LMD7000



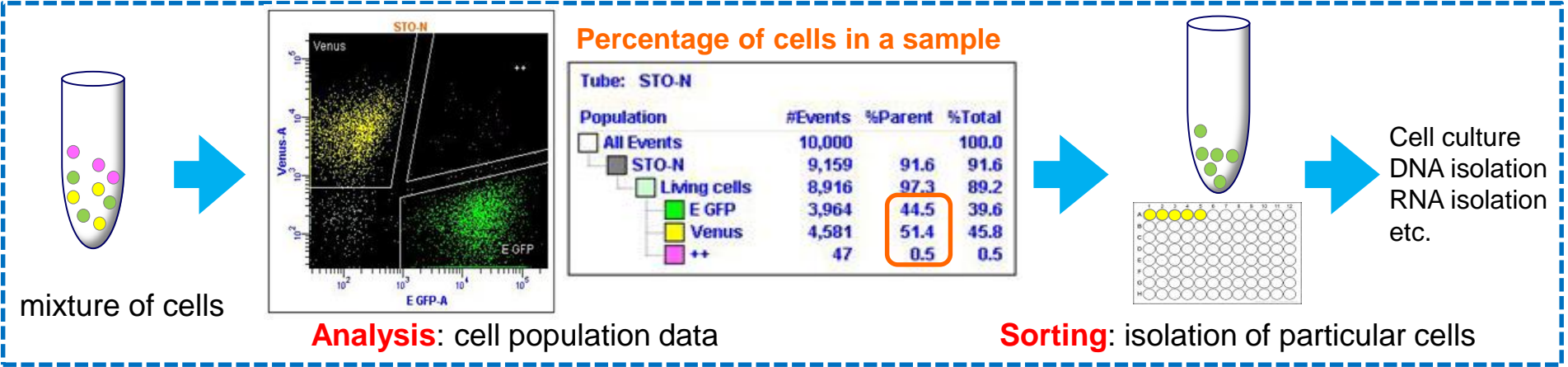
microscope imaging



tube

Isolation of Cells

Instruments for identification and isolation of subpopulations within a complex mixture of cells based on their light scatter and fluorescent-labeled profiles

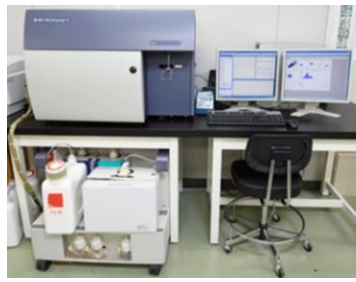


Percentage of cells in a sample

Tube: STO-N

| Population | #Events | %Parent | %Total |
|--------------|---------|---------|--------|
| All Events | 10,000 | | 100.0 |
| STO-N | 9,159 | 91.6 | 91.6 |
| Living cells | 8,916 | 97.3 | 89.2 |
| E GFP | 3,964 | 44.5 | 39.6 |
| Venus | 4,581 | 51.4 | 45.8 |
| ++ | 47 | 0.5 | 0.5 |

Flow cytometer (Analysis)



Becton, Dickinson
FACSCanto II

Cell sorter (Analysis + Sorting)



Becton, Dickinson
FACS Aria II, FACS Aria IIIu



SONY
SH800Z

Cell Sorter Contract Service

- Submission of order form
- Sample Preparation

共同研究実習センター

セルソーター受託業務 利用申込書

利用者氏名 _____
教室責任者氏名 _____
利用者所属 _____
利用者身分 _____
電話番号 _____
メールアドレス _____
共同研予約システムID _____

受託に必要な条件を記入・選択してください。

| 希望日時 | 月 | 日 | 時 | 分 | ～ | 時 | 分 |
|-----------------------|---|------------|-------------|---|---|---|---|
| 実施日時 (備考にお知らせください) | 月 | 日 | 時 | 分 | ～ | 時 | 分 |
| 機種・レーザー (nm) | Aria II (I) : 488 405 640 355 (UV) Aria IIIu : 488 561 633 375 (near UV) SH800Z : 488 | | | | | | |
| ノズル | 70 μ m | 85 μ m | 100 μ m | | | | |
| 抗体・蛍光色素の種類 | | | | | | | |
| 蛍光の数 | 色 | | | | | | |
| 廃液タンク | P0 | P1 | P2 | | | | |

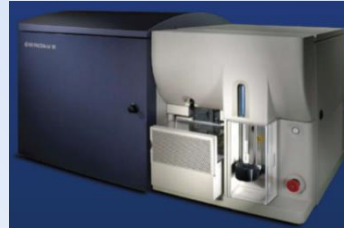
※注意事項および補足事項
廃液は、利用者に持ち帰って処理をしていただきます。

Contents of service

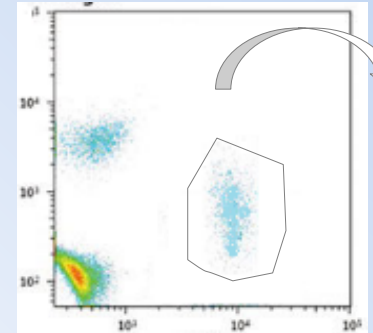
- * Setting up for analysis and sorting
- * Data analysis
- * Cells sorting

Setting up for analysis and sorting

- * FACS Aria II
- * FACS Aria IIIu
- * SH800Z



- Data analysis
- Cells sorting



Process performed by user

Process performed by staff of CentMeRE

Spectral Analysis



Fluorescence Microplate Reader
CORONA SH-9000Lab

Instrument for absorbance and fluorescence based detection assays in 96-well plates



Microplate luminometer
BERTHOLD CentoroXS3 LB960
Instrument for luminescence assays in 96-well plates

Centrifuge

The centrifuge is a instrument which precipitate samples by centrifugal force.
The corresponding centrifuge differs depending on the size of samples.

Low-speed Centrifuge
WAKENBTECH
Puti-hachi



Spin-down

Refrigerated Centrifuge
KUBOTA
3700



Cells, plasmid precipitation

High-speed Refrigerated Centrifuge
Beckman
Avanti HP-30I



E. coli precipitation
Plasmid purification

Ultracentrifuge
Beckman
Optima XE-90, etc.



Exosome isolation
Protein precipitation
Viral concentration
Organelle fractionation

Low

Centrifugal force

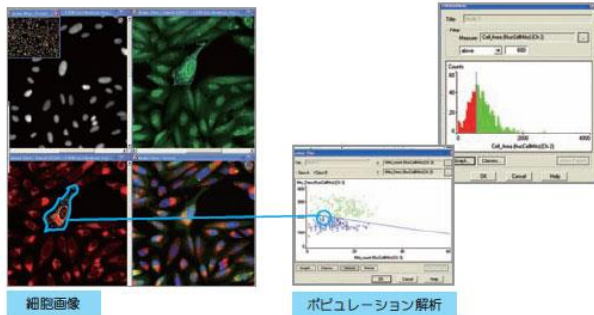
High

Image Analysis

Analysis softwares corresponding to various file formats are available abundant population analysis matching each purpose can be done.

High Contents Image Analysis System

GE Healthcare
In Cell Analyzer 6000



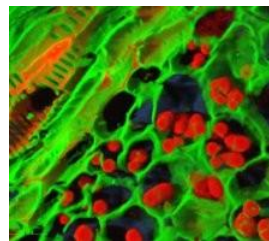
IN Cell Analyzer 6000 is a highly sensitive, laser-based confocal imaging platform for the most demanding high-content assays and screens.

- * Flexible protocol design
- * Multiplex chromatic population analysis
- * Drug screening
- * Analysis of morphological phenotype

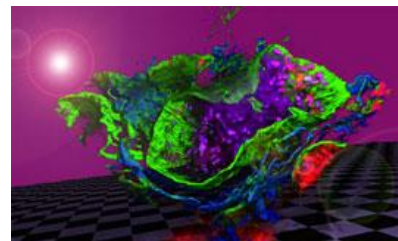
Various image analysis softwares



MetaMorph



IMARIS

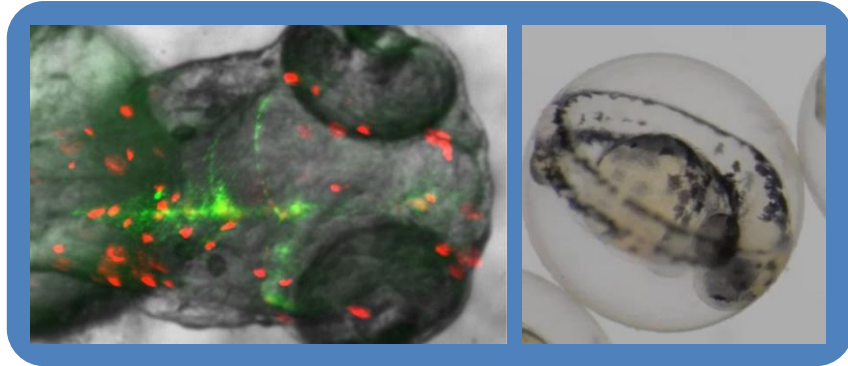


Volocity

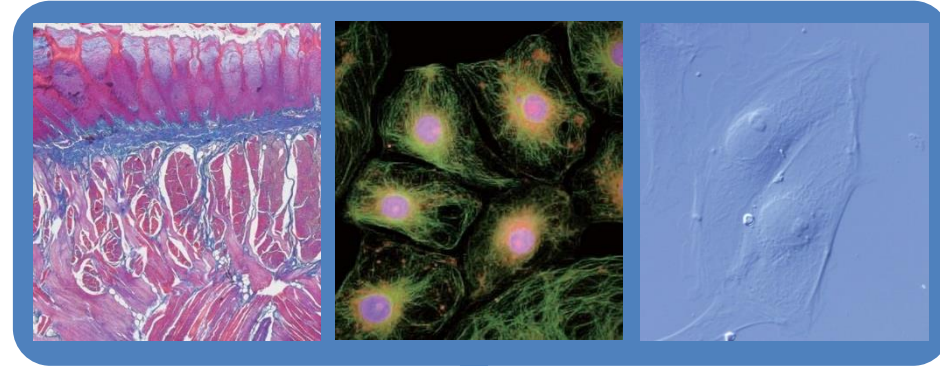
- * Localization analysis in 3D structure
- * Acquisition of fluorescence / emission data of gel and membrane, data analysis

General Biological Microscope ... Bright field, Differential interference contrast, Phase contrast, Polarized light, Fluorescence

Observation of surface structure or internal structure of transparent sample



Observation of the cultured cell or the specimen on microtome slide



Macrofluorescence
Imaging system
Leica AF6000 macro



Stereo microscope
Olympus SZX12



Intelligent
Microscope
Olympus BX63



Time-lapse microscope
Olympus IX83

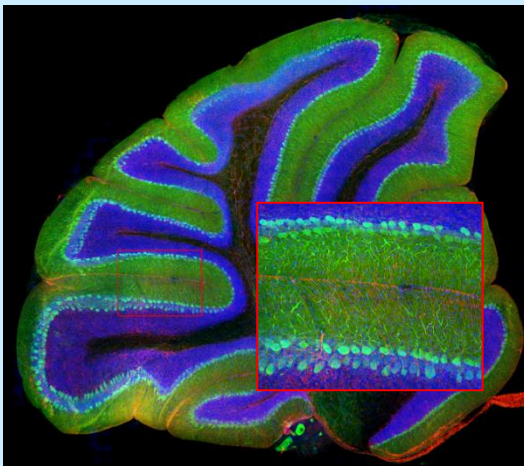


All-in-one
fluorescence microscope
Keyence BZ-X700

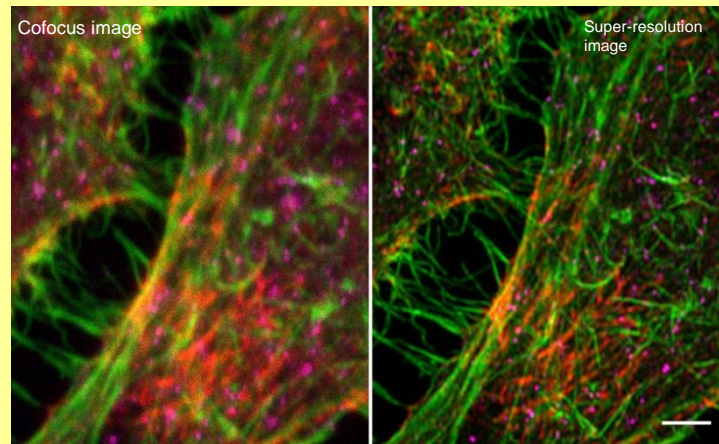
Microscope using the Laser Beam ... Confocal laser scanning microscope

Super resolution optical microscope

Microscopes foe get the in-focused images



Microscopes foe get the super resolution images



Confocal laser scanning microscope
Olympus FV3000



Confocal laser scanning microscope
Carl Zeiss LSM710

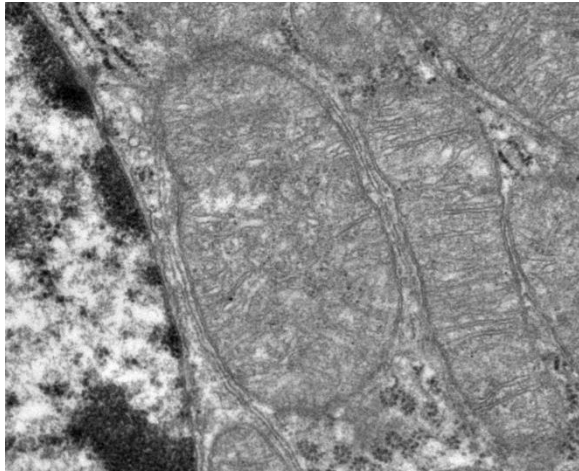


Confocal laser scanning microscope
Carl Zeiss LSM880 with Airyscan

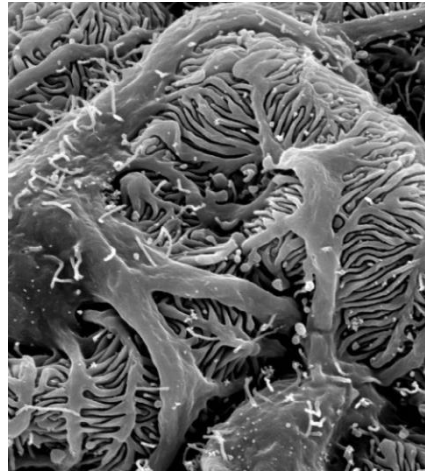


Super resolution optical microscope
Carl Zeiss ELYRA S.1

Microscope which Observes Ultrastructure --- Electron Microscope



Internal structure



Surface structure



Transmission electron microscope
Hitachi H-7650



Scanning electron microscope
Hitachi S-4800

Instruments for TEM preparation manufacture
For resin embedding For ultra thin section



Embedding incubator



Ultramicrotome

Instruments for SEM preparation manufacture

For vacuum freeze-drying



Lyophilizer

For metal coating



Osmium coater



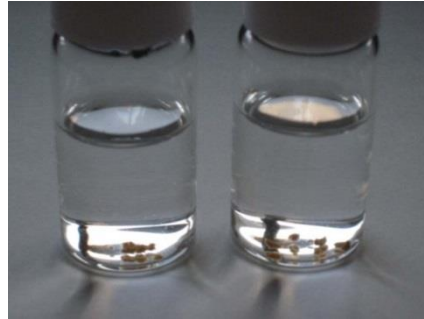
Sputter coater

Sample Preparation for Transmission Electron Microscopy (TEM)

Preparation schedule for tissues

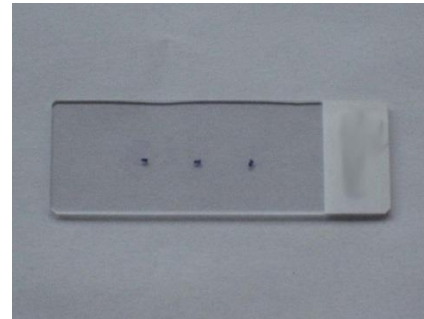
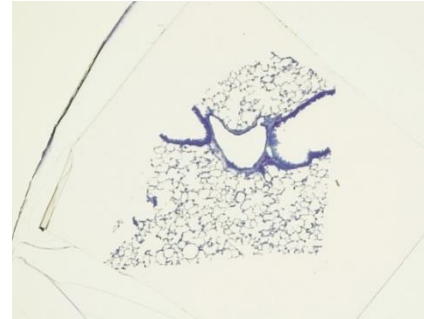
- Excision
 - Cut into 1mm³ blocks
 - Primary fixation
 - Post fixation
 - Block staining
 - Dehydration
 - Resin infiltration
 - Resin polymerization
 - Rough Trimming
 - Semi thin section
 - Placing section onto microscope slide
 - Toluidine blue staining
 - Positioning
 - Trimming
 - Ultra thin section
 - Placing section onto EM grid
 - EM staining
 - Carbon shadowing
- ↓
Observation

(1) Resin embedding



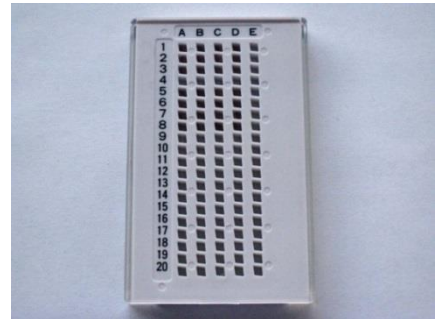
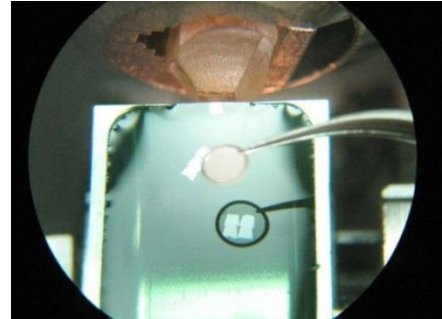
Sample submission
 Sample processing (Post fixation, Dehydration, Resin infiltration, Resin polymerization, etc.)
 Preparation of resin block

(2) Semi thin section



Sample processing (Semi thin section, Placing section onto microscope slide, Toluidine blue staining, etc.)
 Return sample of microscope slide

(3) Ultra thin section



Sample processing (Trimming, Ultra thin section at 80nm, Placing section onto EM grid EM staining, etc.)
 Return it in EM grid case

Poster printer



Large format inkjet printer (Cloth)

EPSON PX-H9000

Cloth roll size: 914mm × *25m
1118mm × *20m



Large format inkjet printer (Paper)

EPSON SureColor T7250

Paper roll size: 914mm × *25m

Others

The instrument which makes the preparation of the optical microscope



Spin tissue processor



Paraffin embedding center



Cryostat



Sliding microtome



Rotary microtome



Vibratome

Supplying equipment of pure water and the flake ice



Super demineralizer



Flake Ice Machines

Liquid nitrogen institution



Cryopreservation system
(fluid phase, gas phase)
LN₂ supply stand

Special laboratory



Cold room, Thermostatic chamber,
Recombinant room et.al.,

Printing



printing machine



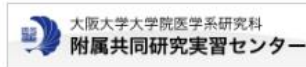
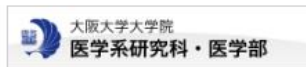
Gathering machine

Genome Editing Center



NEWS 過去のNEWS一覧

- 2021.03.01 **NEWS** ゲノム編集関連書籍のお知らせ
- 2020.10.08 **セミナー** 共同研・ゲノム編集センター使用説明会(オンライン)『ゲノム編集』を開催します
- 2020.06.11 **NEWS** 遺伝子改変動物作製支援(マウス)の受付を再開しました



Genome Editing Center

contract analysis service department

model animal production department

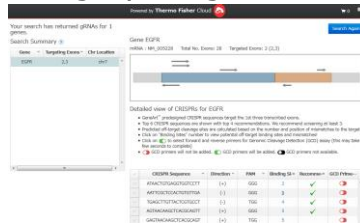
The entire experimental support provided by the GERDC



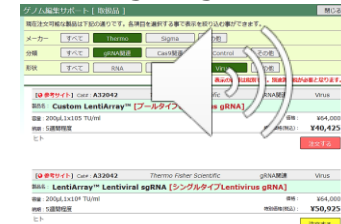
「実験ワークフロー」はThermo Fisher Scientific HPを参照



Step 1. Design your guide RNA



Step 2. Ordering of guide RNA



Step 3. To deliver Cas enzyme and guide RNA to cells



NEPA21

Step 4. Confirm edits



BZ-X700

Step 5. Sort cells



FACS AriaIII

Step 6. Analyze and make discoveries



MultiNA

Public Relations

大阪大学大学院医学系研究科
附属共同研究実習センター
Center for Medical Research and Education

共同研

- HOME
- お知らせ
- セミナー
- 共同研の紹介
- 設備機器
- 産学連携機器
- 受託サービス
- 液体窒素室

メールマガジン スケジュール フロアマップ
リンク アクセス ダウンロード

web予約システム (MyPAGE)

光学顕微鏡関連
Optical microscope

>>詳しくはこちら

お知らせ MORE

2017.04.20. 論文発表時の謝辞および出版の連絡につ
いて

2016.12.26. **！！重要！！** 新予約システム(My Page)
の利用にはユーザーIDの本登録が必要
です

2016.10.14. 新規ユーザー登録はこちら

セミナー情報 MORE

2017.08.07. 共同研ハンズ
オン

2017.08.28. 第40回 IN Cell Analyzer アプリケーション相
談会

2017.09.13. 第83回 共同研テクニカルセミナー『画像不正と疑われ
ないための画像処理』

2017.09.13. 共同研デモセミナー『研究者のためのポスターデザ
イン』

セミナー情報

MORE

2017.08.07.

共同研ハンズオン使用説明会『IMARISを用いた画像解
析』

2017.08.28.

第40回 IN Cell Analyzer アプリケーション相談会

2017.09.13.

第83回 共同研テクニカルセミナー『画像不正と疑われ
ないための画像処理』

2017.09.13.

共同研デモセミナー『研究者のためのポスターデザ
イン』

Technical
seminar

Use briefing
session ・
Demonstration
seminar

Kawaraban
E-mail magazine
(every other
Thursday)

Instrumental
analysis
seminar

Staff of CentMeRE

Director
Yasushi Okamura

Manager
Tomomitsu Miyoshi
Fumi Tashiro
Satsuki Miyazaki

Reviewer of gene
modification experiments
Kouichirou Irie

Staff
“Equipment specialty”

Eiji Oiki
Yuri Terao
Hiroshi Yamasaki
Katsutoshi Niwa
Tomoaki Mizuno
Toma Gabriel
Tomoko Yonezawa
“Management”
Kyoko Muroya
Sumire Oomiya



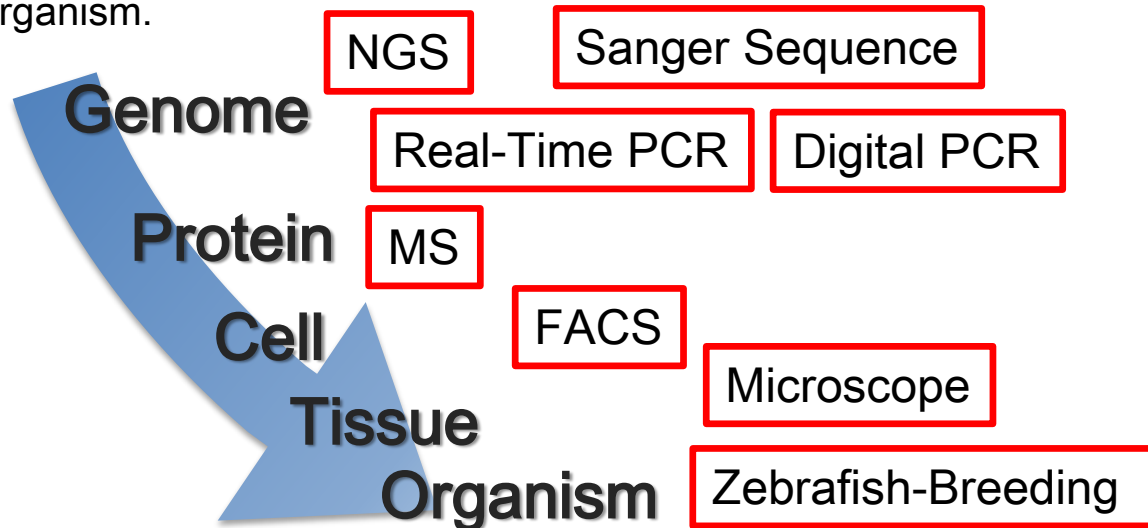
Genome Editing Research and Development (R&D) Center

Yukio Kawahara “Director”
Yasuhide Yoshimura “Departmental manager”
Yuri Terao “Departmental manager”

CoMIT Omics Center



- CoMIT Omics Center was established for the purpose of promoting the omics studies in the Graduate School of Medicine of Osaka University.
- This focused on genome and protein analysis became independent of Center for Medical Research and Education.
- We comprehensively support project in each hierarchy from genome to organism.





【Genomics】

- By the Next-generation sequencer comprehensive sequencing analysis of genome, transcript etc.
- Gene mutation analysis by amplicon sequencing analysis
- Gene expression analysis
- DNA methylation analysis
- Metagenome analysis
- Single cell analysis

【Proteomics】

- By Mass Spectrometer comprehensive proteome analysis of sample solution or a band that is subjected to cataphoresis
- Confirmation of expression of recombinant protein
- Identification of interaction factor
- Identification of stress or drug response factor



CoMIT Omics Center



Access



Floor map



<https://www.coc.med.osaka-u.ac.jp/>

Three types of contract Services

▼ Next-generation sequencers

- Single cell analysis
- RNA-seq analysis
- Gene mutation analysis by amplicon sequencing
- DNA methylation analysis
- Bacterial genome analysis
- Target resequencing analysis
- Metagenome analysis
- Gene panel testing for cancer and other diseases



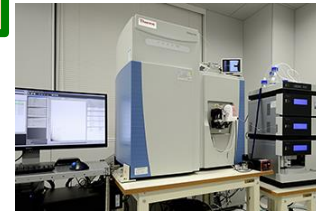
Ion S5 System



MiSeq System

▼ Protein identification analysis

- Protein identification analysis (gel)
- Protein identification analysis (solution)
- Protein identification analysis (phosphorylation analysis)



UltiMate 3000 Nano LC systems, Q-Exactive

▼ Sanger method DNA sequencers

- DNA sequence analysis



3730DNA Analyzer



Real-time PCR

QuantStudio 7
ViiA 7
QuantStudio 5

General-purpose equipments

Agilent 2100 BioAnalyzer
Agilent 2200 TapeStation
Qubit 2.0 Fluorometer
DNA Shearing System
Tissue Dissociator
Digital PCR System

FACS

Aria II
Canto II

Experimental equipments

A white speaker icon with sound waves is positioned in the center of the "Experimental equipments" box.

Microscope

Lightsheet Z.1
CSU-W1

Cell culture laboratory

Safety cabinet
CO2 incubator
Multi-Gas Incubator

Ultracentrifuge

Hitachi CP80WX
Hitachi CS150GX

Please make reservations in advance before usage.

For more information, please visit our website at
<http://www.coc.med.osaka-u.ac.jp/>

