

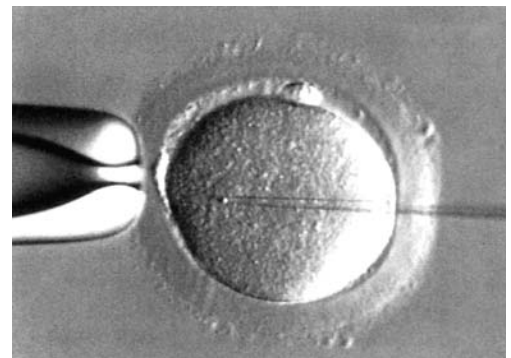
Reproductive, Developmental and Aging Sciences

Reproductive Endocrinology

<http://square.umin.ac.jp/kyobgyn/>

We manage women's reproductive health comprehensively throughout their respective life stages (adolescence, reproductive ages, menopause, and post-menopause). We also aim to develop advanced reproductive techniques, which could be practiced with higher success rates and improved safety, based on experimental and clinical research.

- Establishment of effective and low-risk treatment for infertility
- Development of assisted reproductive technology
- Interaction between the endometrium and embryo during the implantation period
- Pathophysiology of endometriosis
- Local regulation of folliculogenesis
- Technical development of advanced endoscopic surgery
- Development of hormone replacement therapy for postmenopausal women
- Medical treatment for menopausal women



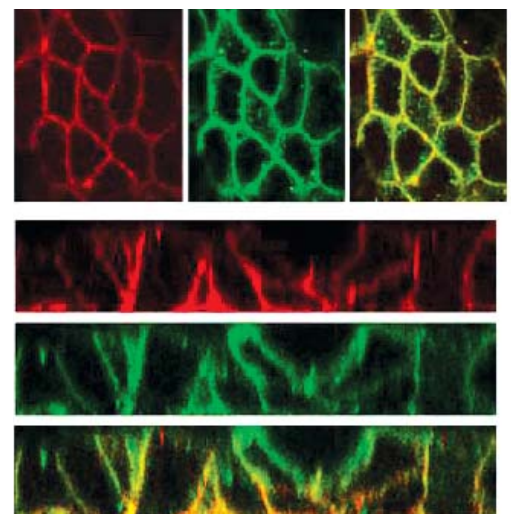
ICSI (intracytoplasmic sperm injection)

Gynecological Oncology

<http://square.umin.ac.jp/kyobgyn/>

We are developing the intensive surgical management and selection of the most suitable chemotherapy regimen, which improved prognosis of the patients with ovarian cancer. The basic researches are focusing on the mechanism of gynecological malignancies, especially cervical cancer. We have identified the tumor suppressors involving in the process of cervical carcinogenesis. We are investigating a possible clinical application of the vaccine against human papillomavirus, which is a causative agent of cervical cancer.

- Intensive surgery including pelvic and paraaortic lymphadenectomy
- Selection of adjuvant chemotherapy based on the pathological and molecular marker
- Tumor suppressors involving carcinogenesis of gynecological malignancy
- Analysis of the molecular marker in tumor cells related to clinical behavior
- Prevention of cervical cancer using the human papillomavirus vaccines



Expression of tumor suppressor scribble in malignant cells

The researches are on going for development of precise prenatal diagnosis on the fetal status using ultrasonography. We are also focusing on the immunological aspects in patho-physiology of pregnancy, developing the therapy for habitual abortion or pregnancy induced hypertension.

- Early diagnosis of abnormal pregnancy
- Development of three dimensional ultrasonography
- Management of habitual abortion
- Management of complicated pregnancy

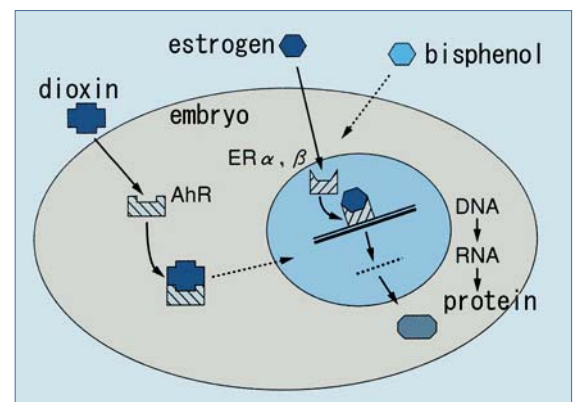


Three dimensional ultrasonography of fetus

Molecular Cellular Reproductive Medicine

We are approaching the molecular mechanisms in various reproductive pathological states, using the knowledge and techniques of molecular biology, cellular biology and genetics. The studies are proceeding on the effects of endocrine disruptors on reproductive phenomena, such as embryogenesis, spermatogenesis and fetal development, and on the prenatal genetic diagnosis.

- Effect of endocrine disruptors on reproduction
 - Embryogenesis
 - Spermatogenesis
 - Intrauterine fetal development
- Prenatal diagnosis using molecular genetics
- Molecular mechanisms of embryonic development



Molecular mechanisms of endocrine disruptors

Pediatrics / Developmental Pediatrics

We are studying all the issues concerning the health of infants, children and adolescents. We have achieved very important investigations to clarify the molecular pathogenesis of human congenital disorders.

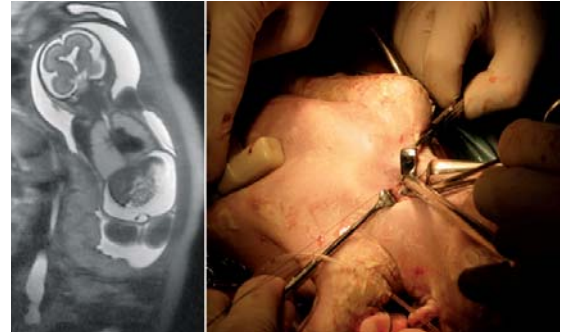
- Molecular diagnosis and analysis and collaborative treatment of intractable renal glomerular and tubular diseases
- Molecular diagnosis and analysis of hematological malignancy and bone marrow transplantation
- Study of Embryonic stem cell (ESC) treatments for various human congenital diseases
- Diagnosis, molecular analysis and collaborative treatment of congenital heart diseases
- Molecular analysis and collaborative treatment of congenital immunodeficiency and allergic diseases
- Collaborative treatment of extremely premature neonates and babies with pulmonary hypoplasia
- Enhancement of the immunological resistance of premature neonates using a new type of lactobacillus
- Diagnosis and treatment of neurological, endocrine and metabolic diseases
- Collaborative study and treatment of psychological disorders
- Investigation of new systems to promote mother and baby co-relationships during rearing



Pediatric Surgery

Pediatric surgical diseases have great variety. In our department all kinds of pediatric surgical conditions are treated, and in these fetal and neonatal surgical care is our main interest. We also treat many pediatric patients using minimally invasive surgeries such as laparoscopy and thoracoscopy.

- The development and differentiation of the fetal lung
- Fetal diagnosis of congenital malformations
- Fetal surgery and treatment
- Pediatric minimally invasive surgery
- Probiotics and prebiotics applied to pediatric surgical patients
- The development and differentiation of intestinal lymphoid organs
- Renal functions in congenital hydronephrosis
- Biliary atresia and biliary dilatation: their treatment and long-term prognosis
- The treatment by regenerative medicine of air way malacia and stenosis

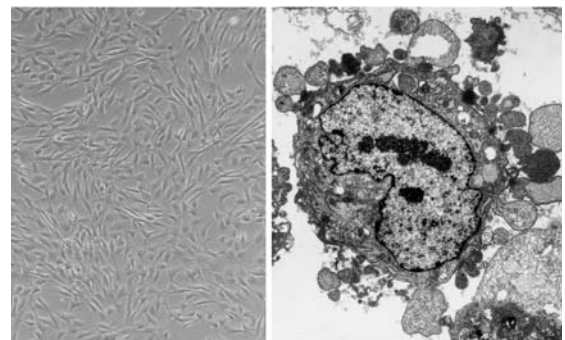


EXIT(ex utero intrapartum treatment):Tracheostomy on a fetus with laryngeal atresia

Pediatric Oncology

Solid tumors in children are dealt with in our department. Appropriate care strategies combining surgical treatment and chemotherapy are decided and carried out on various malignant tumors after extremely close discussion with pediatric oncologists.

- Genetic analysis and investigations for prognostic factors in neuroblastoma
- Tumorigenesis in Wilms tumors
- Analysis of cellular biology in Wilms tumors
- Treatment of rhabdomyosarcoma
- Genetic mutation in hepatoblastoma



Microscopic and ultramicroscopic features of Wilms tumor cell line

Geriatrics

<http://www.h.u-tokyo.ac.jp/patient/depts/1510rounenbyou.html>

Our department is the first established department of Geriatric Medicine in Japan. It is our goal to treat all the geriatric diseases, such as atherosclerosis, hyperlipidemia, osteoporosis, senile dementia, diabetes, COPD, and aspiration pneumonia, and to improve the quality of life of elderly patients.

- Vascular endothelial function and atherosclerosis
- Studies of molecular mechanisms in vascular calcification
- Antioxidants inhibit vascular smooth muscle cell proliferation and induce apoptosis
- Vascular gene therapy using adenoviral mediated gene transfer of estrogen receptors
- New guidelines for hormone replacement therapy in females in Japan
- Novel gene responsible for breast cancer
- Novel gene responsible for osteoporosis
- Molecular cloning of novel Ring finger protein
- Studies of pathophysiology and novel treatment for Alzheimer's disease
- Pathophysiological studies on bronchial asthma using gene-targeted mice
- The antimicrobial peptide, defensin
- The molecular mechanisms of vascular injury in sleep apnea syndrome

