

Reproductive Medicine

Established in 1984, the Reproductive Medicine Unit has pioneered several advances in assisted reproduction technology in Hong Kong. These included the first Gamete intrafallopian transfer (GIFT) baby in 1987, the first baby conceived with cryopreserved embryos in 1990, the first baby conceived with subzonal sperm injection (SUZI) in 1994, and the first baby conceived from *in vitro* matured oocytes and cryopreserved semen in 1999.

Tin Chiu LI, who joined CUHK in 2014, continues to conduct leading research with his team using three-dimensional ultrasound for diagnosing congenital uterine anomalies and Asherman's syndrome. This research involves a randomised controlled trial of 3D versus 2D ultrasound-guided embryo transfer as part of a randomised controlled study of the evaluation of the implantation and pregnancy rate after endometrial scratch prior to natural-cycle FET. The related studies were published in *Human Reproduction*, *Fertility and Sterility*, and *Ultrasound in Obstetrics & Gynaecology*. Recently, his team has been investigating and promoting fertility preservation for young patients with cancers who may need chemotherapy.

Tin Chiu LI | tinchiu.li@cuhk.edu.hk ✉
Jacqueline CHUNG | jacquelinechung@cuhk.edu.hk ✉

Gynaecological Oncology

While treatments for gynaecological cancers (ovarian, cervical and endometrial cancers) have been well established for over 30 years, the survival rate of patients with these cancers has not improved significantly during that time. Developing new therapeutic approaches is urgently needed.

Apart from defining the genomic abnormalities in mutated cancer cells, our research team is also investigating the "microenvironment" of the cancer cells. Through the application of advanced *in vitro* and *in vivo* immunological technologies, we have been exploring the mechanisms of cancer-stromal interactions and immunological responses. These studies allow us to understand how human stromal cells and immune cells interfere with the progression of gynaecologic cancers, which has potential implications for the discovery of new therapeutic modalities for these cancers.

Tak Hong CHEUNG | thcheung@cuhk.edu.hk ✉
Joseph KWONG | josephkwong@cuhk.edu.hk ✉



Urogynaecology

Pelvic floor dysfunction is a prevalent and distressing problem for women. This condition may start during pregnancy and childbirth and worsen in later life. Symphorosa CHAN and her team are members of one of the largest clinical research centres to evaluate female pelvic floor by transperineal ultrasonography. Study cohorts include pregnant women along their gestational period, as well as symptomatic women suffering from pelvic organ prolapse or incontinence. The pelvic floor symptomatology in relation to pelvic floor morphological changes in pregnant women and up to three-to-five years after pregnancy has been reported in *BJOG and Ultrasound in Obstetrics & Gynaecology*. The result improves our understanding of pelvic floor changes and the relationship with pelvic floor symptoms.

We are also working to improve the treatment modalities for women suffering from pelvic floor dysfunction. Results of the first randomised controlled trial in vaginal pessary and pelvic floor exercise in women with pelvic organ prolapse were published in *Obstetrics & Gynaecology*. In addition, our work on treatment outcomes of tension free vaginal tape surgery for stress urinary incontinence, laparoscopic surgery or vaginal mesh surgery for pelvic organ prolapse, which have been published in a number of publications, is enhancing our high standard of care and has put us in a leading role in the field of urogynaecology in Hong Kong.

Symphorosa CHAN | symphorosa@cuhk.edu.hk ✉
Rachel CHEUNG | rachelcheung@cuhk.edu.hk ✉

Gynaecological Endoscopy

The Gynaecological Endoscopy Team has a long track record of pioneering advanced gynaecological endoscopic surgeries in Hong Kong. We were the first in Hong Kong to perform laparoscopic salpingectomy for tubal pregnancy, ovarian cystectomy, myomectomy and hysterectomy in the early 1990s, followed by robotic hysterectomy in 2006 and single-port laparoscopies in 2011. Other achievements by our team include establishing the use of transcervical intralesional injection of vasopressin into submucosal fibroids and a successful reduction of fluid absorption and blood loss during hysteroscopic myomectomy, the results of which were published in *Obstetrics & Gynecology*. We are also conducting a randomised controlled trial to evaluate the impact of electrocoagulation versus FloSeal® (a new haemostatic method) during laparoscopic cystectomy for ovarian endometriomas on ovarian reserve and performing research on the use of green tea on endometriosis.

What's more, we introduced the One-Stop Postmenopausal Clinic in 2002, which streamlined the management of women with postmenopausal bleeding and facilitated early detection of gynaecological cancers (published in *BJOG*). Our team also organises various workshops and symposiums for endoscopy training, including laparoscopic simulation workshops, 3D laparoscopy navigation, and single port surgery.

Eva CHEUNG | evacwcheung@cuhk.edu.hk ✉
Linda FUNG | lindafung@cuhk.edu.hk ✉
Ronald WANG | ccwang@cuhk.edu.hk ✉

www.med.cuhk.edu.hk



香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

Obstetrics and Gynaecology

Our Department is composed of various subspecialty teams, which are expert in clinical practice, productive in research, and enthusiastic in teaching. Our Department is the only centre in Hong Kong accredited by both The Hong Kong College of Obstetricians and Gynaecologists and Royal College of Obstetricians and Gynaecologists for training in Obstetrics and Gynaecology (O&G) as well as all subspecialties. Each year, we publish more than 70 Science Citation Index papers, including many in high impact journals such as *American Journal of Obstetrics & Gynecology (AJOG)*, *Human Reproduction*, *An International Journal of Obstetrics and Gynaecology (BJOG)*, *Ultrasound in Obstetrics & Gynecology Fertility and Sterility*, and *Fertility and Sterility*.

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

“Obstetrics & Gynaecology is the science and art of human life, from fertilisation to childbirth, from childhood to menopause. Our mission is to enhance both fetal and women's wellbeing on these two major life journeys through innovative research that helps us discover new knowledge and treatments and, with our passion, to transform knowledge into practice.”

Tak Yeung LEUNG
Chairman



Fetal Medicine

The diagnosis and treatment of diseases in fetuses, the most precious of patients, is a challenging mission.

Our Fetal Medicine Team is one of the leading centres in this field. Having started the first trimester combined screening of Down syndrome in the early 2000s, this programme was adopted by the Hospital Authority in 2011. As a collaborator of Dennis LO, we participated in the research and implementation of non-invasive prenatal testing of Down syndrome using circulating fetal DNA, which has now become the most accurate screening test of its kind in the world.

In addition to the diagnosis of fetal genetic, structural and growth disorders, our team is dedicated to fetal therapy and pioneered the use in Asia of fetoscopic laser treatment for twin-twin transfusion syndrome in the early 2000s, radiofrequency for the coagulation of umbilical vessels in the 2010s, and the embolisation of chorioangioma. We have also organised two major regional congresses: the Asia Pacific Congress in Maternal Fetal Medicine for 14 years, and Asia Pacific Congress on Fetal Therapy for 4 years, which have become widely-acclaimed platforms for exchanging new knowledge and promoting standards of practice.

Tak Yeung LEUNG | tyleung@cuhk.edu.hk ✉

Gestational Diabetes Mellitus

Gestational diabetes mellitus (GDM) is the most common medical problem in pregnancy, affecting one-fifth of pregnant women. It is associated with several adverse pregnancy outcomes, such as preeclampsia, macrosomia, preterm delivery, polyhydramnios and Caesarean section.

Wing Hung TAM and his team are members of the internationally-renowned Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study, which investigated the threshold of glucose intolerance in pregnancy. The HAPO's definition was subsequently adopted by the World Health Organization (WHO) in 2013 and used worldwide. Recently, Tam's team has discovered that GDM is also associated with an increased cardiometabolic risk in the next generation (published in *Diabetes Care*). When the children of GDM mothers reach an average age of seven years, the risk of prediabetes or diabetes increases by three-fold, while that of overweight or obesity and high blood pressure increases by 50% and 10%, respectively. These findings were subsequently concurred by studies funded by the National Institutes of Health (NIH) and National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) in the United States.

Wing Hung TAM | tamwh@cuhk.edu.hk ✉

Prenatal and Pre-Implantation Genetics

Birth defects affect approximately 5% of infants, many of which have an underlying genetic cause. To accurately diagnose diseases and prevent the vertical transmission of pathogenic genetic variants, our Prenatal and Pre-Implantation Genetic Laboratory applies state-of-the-art technologies in research and clinical services.

The Laboratory's director, Richard CHOY, was the first to implement the chromosomal microarray analysis assay in prenatal diagnosis in Asia. He also pioneered the development of a low-pass whole-genome sequencing approach for comprehensive blind detection of copy-number variants and balanced chromosome abnormality. Additionally, his laboratory was the first to describe balanced translocations and inversions previously unknown in the 1000 Genomes Project. Ongoing collaborations with world-leading groups, including Baylor College of Medicine, Harvard Medical School and The Jackson Laboratory for Genomic Medicine, have enabled us to discover more genetic disorders.

Tak Yeung LEUNG | tyleung@cuhk.edu.hk ✉

Richard CHOY | richardchoy@cuhk.edu.hk ✉

Ronald WANG | ccwang@cuhk.edu.hk ✉



Preeclampsia

Preeclampsia is an important cause of maternal and perinatal mortality and morbidity. The risk for these complications is considerably higher when the disease is severe and of an early onset, leading to preterm birth at less than 37 weeks' gestation rather than term preeclampsia.

A major challenge in modern obstetrics is early identification of pregnancies at high-risk of preterm preeclampsia and undertaking the necessary measures to reduce the prevalence of the disease. In the past decade, Liona POON has established an effective programme for early prediction and prevention of preeclampsia. She is the first in the world to have developed a first-trimester prediction model for preeclampsia, using maternal factors and ultrasonographic and biochemical markers. She has confirmed that low-dose aspirin given to high-risk women identified by the first-trimester prediction model reduces the rate of preterm preeclampsia by more than 60%, a finding that was published in the *New England Journal of Medicine*. Her team is now leading an Asian multicentre collaborative study group to further validate the preventive model and to evaluate the feasibility, acceptability and safety of the model across Asia.

Liona POON | liona.poon@cuhk.edu.hk ✉

Perinatal Medicine

As a major tertiary referral centre, the Perinatal Medicine unit maintains a very low perinatal mortality rate (4/1000 births) and an overall Caesarean section level of 22-24%, as a result of high quality professional training and standard of practice.

Tak Yeung LEUNG of the Perinatal Medicine unit and his team focuses on research in obstetric emergencies, such as shoulder dystocia, urgent Caesarean section, external cephalic version, preterm birth, and vaginal twin delivery, which have helped to improve the safety of the practice. Some of the findings of their research have been published in *BJOG* and *Obstetrics & Gynecology*. Leung has also been running a popular training course, Safe Obstetric Practice in High Risk and Emergencies, in Hong Kong and China to enhance the skill and knowledge of frontline practitioners in managing obstetric complications.

Tak Yeung LEUNG | tyleung@cuhk.edu.hk ✉