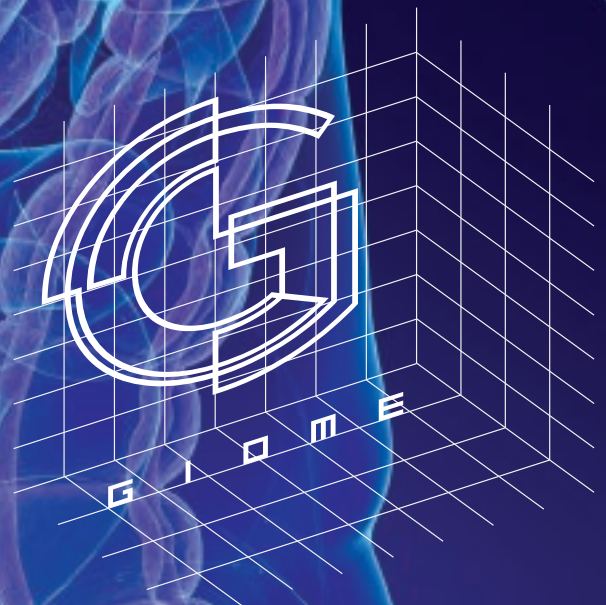


GIOME  
Department of Surgery, Prince of Wales Hospital  
Chinese University of Hong Kong  
Shatin, Hong Kong

GIOME 香港中文大學, 外科學系, 威爾斯親王醫院, GIOME  
香港新界沙田



**GIOME**  
REVOLUTIONIZING BIOENGINEERING  
THE GASTROINTESTINAL TRACT





hag@giome.org

# 胃腸道生物工程的變革



# THE GIOME CONCEPT

GIOME 概念

**T**he GIOME is a multidisciplinary multi-scale effort to gain new insight in the function of the gastrointestinal tract. The term comes from "GI" (the organ) and "-ome" (as a whole). The GIOME is a completely new concept derived from the human physiome project.

GIOME 是一系列多学科及多方面的科研工作的总称其研究的目的是从全新的角度全面深刻的理解胃肠道的功能。GIOME 术语由“GI（胃肠道器官）”和“-ome（整体来看）”两部分组成。GIOME 是源于人类“Physiome计划”的全新概念。

The physiome is the quantitative description of the functioning organism in normal and pathophysiological conditions. The GIOME project is a multi-centric, integrated program to design, develop, implement, test, document, archive and disseminate quantitative information and integrative models of the functional behavior of the GI tract.

The GIOME describes the physiological dynamics of the normal intact GI tract and is built upon interdisciplinary approaches with application to GI diseases. The development of comprehensive models of the GI tract is key to pharmaceuticals and design of drugs and interventional procedures, in the aim of better predicting the results of treatments. There is a special focus on development of new medical devices and technologies including computational models.

Physiome是对正常和病理条件下的机体功能的定量描述。而GIOME项目则是一个多中心的整合项目，其目的在于开发、实施、测试、记载、存档及传播关于胃肠道功能行为的定量信息和综合模型。以可应用于胃肠道疾病研究的跨学科方法为基础，GIOME全面描述了正常且完整的胃肠道生理动力特性。开发胃肠道综合模型对于药理学研究、药物设计以及干预过程研究都是至关重要的，开发该模型的目的是为了能够更好地预测药物的治疗效果。注重新的醫療設備和技術，包括計算模型的發展。

The GIOME has facilities at the Chinese University of Hong Kong and in Prince of Wales Hospital in Hong Kong, at the GIOME Center at Chongqing University in China and at the GIOME Academy at Aarhus University in Denmark. Currently the GIOME participates in projects in Asia, Europe and USA and receives funding from the regions in the World.

GIOME設施位於香港中文大學威爾斯親王醫院，中國重慶大學GIOME中心和丹麥奧胡斯大學。目前GIOME參加的項目遍及亞洲，歐洲和美國，並在世界不同地區獲得資助。

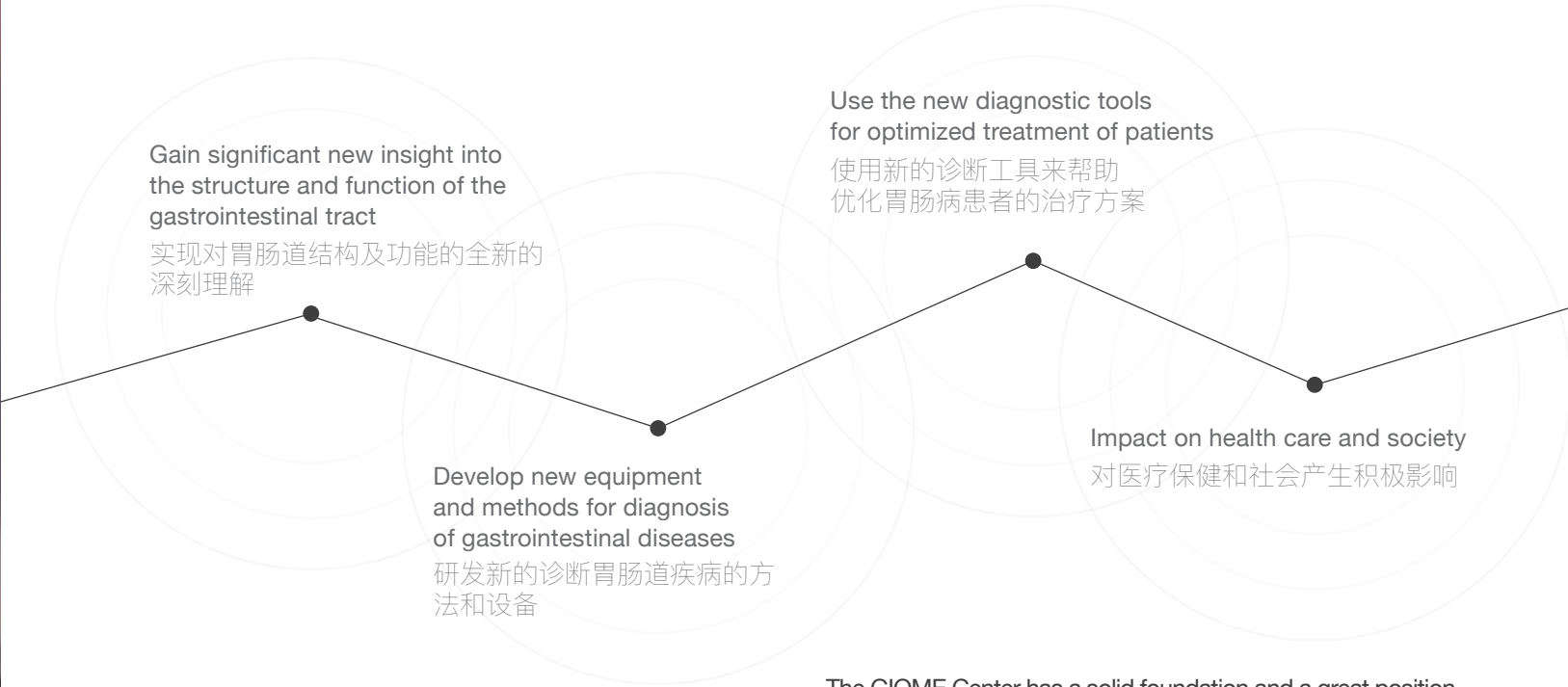


# MISSION AND VISIONS

任務及願景

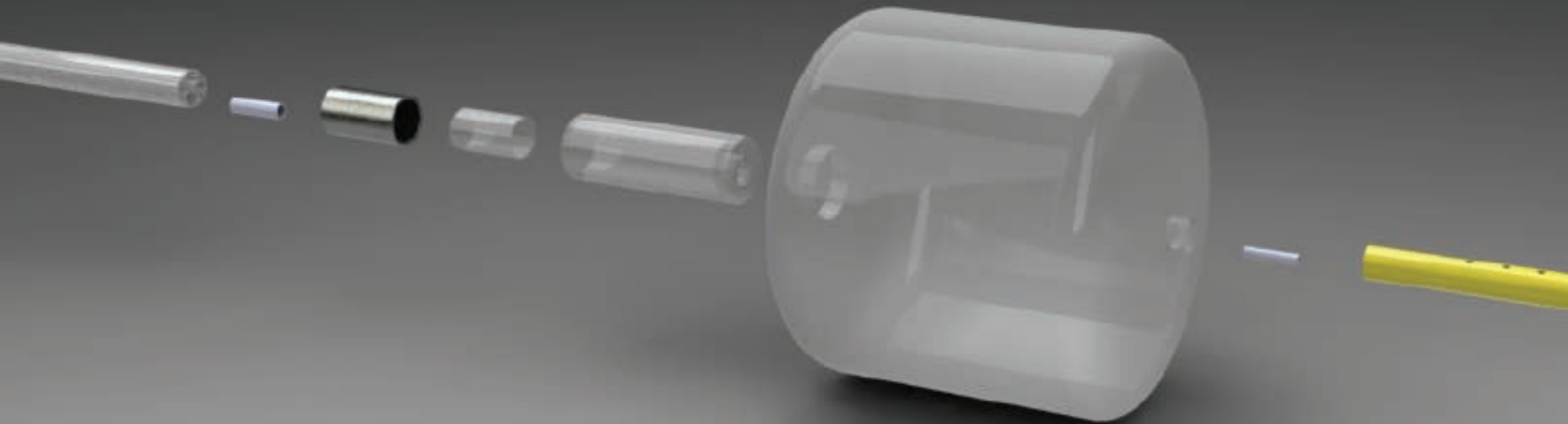
The mission of GIOME is quite simple but demanding. The mission is to bring modeling and neuro-mechano-physiology of the GI tract and other soft tissues to the World ! The visions and goals will be reached through an interdisciplinary effort.

GIOME 研究的任务很简单但是确极具挑战性。GIOME 研究的主要任务是建立胃肠道及其他软组织的“神经机械感应生理学”的模型和理论，该项目的前景及目标将通过跨学科研究实现。



The GIOME Center has a solid foundation and a great position from which to contribute to academia, business development and society. It will focus on what is unique to the GIOME platform that is being developed. To reach the visions and to maintain focus, we will prioritize quality, R&D, supervision, networking and continued development.

GIOME中心有一个坚实的基础并对于促进学术、企业和社会发展都具有重要意义。GIOME中心将专注于正在发展的对于GIOME平台来说非常特别的技术和领域。为了实现目标和愿景并维持GIOME的特色，我们将强调品质、研发、监督管理、合作网络及可持续发展。



Multilumen probe design from the GIOME Lab  
GIOME 實驗室設計的多模式探頭

# THE VALUE OF INTERDISCIPLINARY WORK AND EXCHANGE

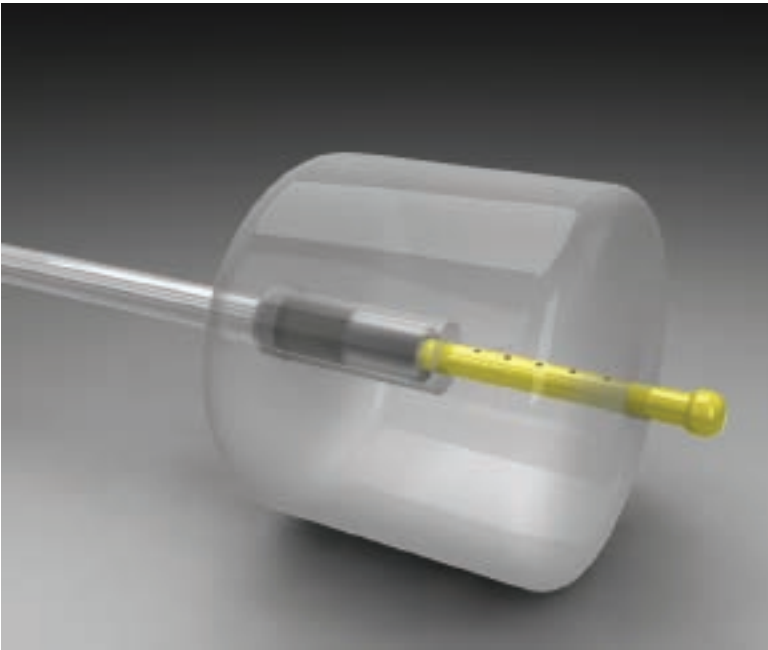
跨學科研究及交流的價值

Interdisciplinary work has much to offer science and society. The major leaps often occur in the interface between disciplines which is a core element in the strategy of the GIOME.

跨多学科的研究工作对于科学及社会的发展将做出重要贡献。重大的成果往往产生于各学科之间的碰撞及融合，而这种各学科之间的碰撞及融合也正是GIOME发展战略的核心要素。

People with different educational background and experience can contribute with their unique competencies. Each person evaluates a problem from a different angle and by joining forces new ideas arise. Since each person is unique, the leadership structure varies from time to time dependent on the project and the people involved.

具有不同教育背景及经历的人才都能为GIOME贡献他们特有的能力。每个人思考问题的角度不同,当不同的思维碰撞融合在一起时便迸发出新的思想。由于每位团队成员都有自己独有的能力，所以团队的领导结构将根据不同时期的研究项目及参与人员进行新的调整 and 安排。



Exchange and collaboration with other partners are key to success in such a model. Students and scientists stationed in another academic environment or in a company for a period of time will return with a new mind and visitors will also challenge current concepts and provide new ideas.

合作伙伴之间的交流与合作对于GIOME 的工作模式的成功至关重要。在其他学术领域或公司工作过的学者和学生来到GIOME时都会带来新的想法。另一方面，来GIOME工作室访问的学者也会对GIOME的研究理念提出更具挑战性的想法。



# OBJECTIVES AND GOALS

宗旨及目標

Based on the mission and vision, the objectives and major goals for GIOME are to:

基于研究的任务和前景，GIOME的首要目标包括：

1

Continue ongoing studies and initiate a sufficient number of new studies every year in the field of gastroenterology with focus on neuro-mechano-physiological mechanisms relation to functions of the gastrointestinal sphincters, pain mechanisms in functional gastrointestinal diseases, and tissue remodeling associated with diabetes, intestinal obstruction, diverticulosis and constipation.

在胃腸領域，每年繼續正在進行的研究和開展很多新的研究，重點集中在與胃腸括約肌功能有關的神經-力學-生理機制，功能性胃腸疾病引起的疼痛機制和與糖尿病，腸道梗阻，憩室和便秘有關的組織重構方面的研究探討。

2

Develop at least one new technology every 2-3 years with significant impact in basic and clinical science and with potential to be commercialized

每2-3年至少研发一项对基础及临床研究具有重要影响且具有商业价值的新技术

3

Interact with public institutions and commercial partners for development and consultancy with mutual benefits.

與公共機構和商業開發以及諮詢合作夥伴進行互惠互利的互動。

4

Publish the results in highest ranked scientific journals in the fields of gastroenterology, biomechanics, bioengineering and physiology

将科研成果发表到在胃肠病学、生物力学、生物工程及生理学领域具有极高声誉和影响力的学术期刊

5

Gain achievements and win awards  
取得重要成就并获取相关奖项

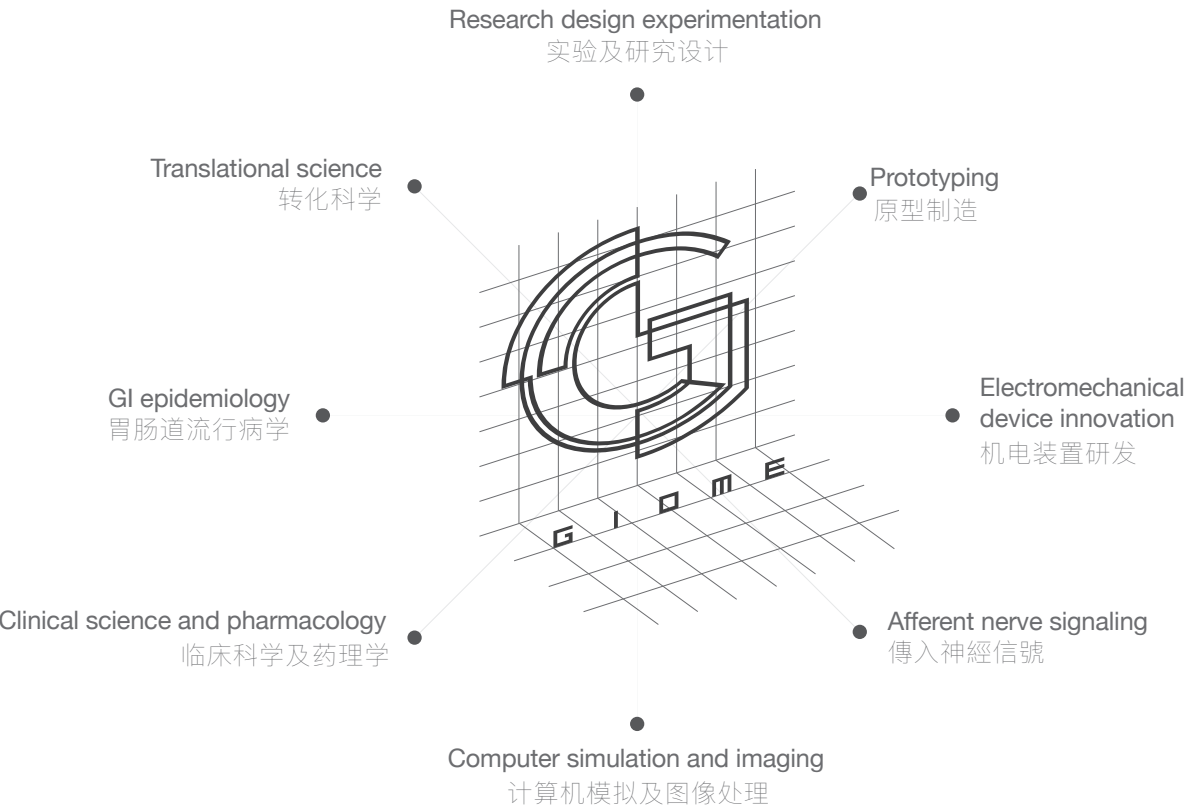


# ORGANIZATION

組織結構

The GIOME is organized in units according to specific purpose and function. Each unit has its own focus but working closely together for the GIOME mission and vision.

根据明确详细的科研目的及功能,GIOME由不同的研究组组成  
每一个研究组都有自己特定的目标，但是所有研究组都必须  
携手合作以GIOME的使命和前景为工作目标。







# FOUNDER AND CHAIRMAN

創始人及主管



Hans Gregersen was born in Denmark where he obtained his MD and Dr.m.sci (PhD) degrees. He worked at universities in Denmark, Norway, Ireland, USA and China as professor in gastrointestinal physiology, bioengineering, biomechanics and medical device innovation. Hans Gregersen established the Mech-Sense Center in 2003 and the Idea Clinic in 2008 at Aalborg Hospital, and the GIOME in 2013. Hans Gregersen served as the executive director of the Sino-Danish University in Beijing from 2010 to 2013 during the establishment phase and initiated 7 new master degree programs.

From January 2013 Hans Gregersen was nominated as a distinguished foreign expert in the 1000talent program in China and became professor at Chongqing University.

Hans Gregersen was appointed professor at Chinese University of Hong Kong and at the Prince of Wales Hospital in Hong Kong in 2016.

Hans Gregersen 出生于丹麦并在丹麦获得了医学博士及医学科学博士学位。他曾在丹麦、挪威、爱尔兰、美国和中国的高校担任过胃肠道生理学、生物工程、生物力学及医疗器械创新方面的教授职务。漢斯·格雷格森在奧爾堡醫院於2003年建立了機械-感覺中心,於2008年建立了理念門診,和於2013年漢斯·格雷格森建立了GIOME。此外, Hans Gregersen 曾于2010—2013年担任了北京中丹联合大学的首任丹方执行董事, 在此期间, 主要负责中丹联合大学的基础设施建设并成功引进了7个新的硕士学位项目。

2013年1月, Hans Gregersen入选了中国“外专千人计划”并成为了重庆大学的全职教授。

漢斯·格雷格森在2016年被香港中文大學威爾斯親王醫院聘任為教授。

Hans Gregersen has among other awards received the Walton Award named after Irish Nobel Laureate in physics E.T.S Walton, the American Gastroenterology Association Award, the Special Recruited Foreign Expert Award in China and the National Friendship Award (China).

Hans Gregersen 还获得了由爱尔兰诺贝尔奖获得者E.T.S Walton 命名的沃顿奖 (Walton Award)、美国胃肠病学会授予的“胃肠病学大师奖”以及中国“国家特聘专家”称号並獲得國家友誼獎 (中國)。

Hans Gregersen contributed several innovations from his research among them the EndoFLIP device that was commercialized for diagnosis of gastro-esophageal reflux disease and the multimodal technology for pain diagnosis. Other inventions are the Fecobionics expulsion test and the Fungibionics obesity therapy.

Hans Gregersen 有数项发明专利, 其中的EndoFLIP已经成功实现商业化, 并被用于胃-食道返流疾病的诊断, 而多模式探头技术则可用于内脏疼痛的诊断。其它發明有肛腸排洩檢測(Fecobionics)及肥胖癥的腔內膨脹療法(Fungibionics)。

*Photos showing the Danish PM and the CAS President at the inauguration of the Sino-Danish University in Beijing in 2012, the Presidents of the OESO Congress in Monaco in 2015, the National Friendship Award Ceremony in 2014 and Hans Gregersen at the stairs of the CAS Library.*





Hans Gregersen  
Professor, Director  
Hans Gregersen 教授，主任



Barry McMahon  
PhD, Innovation Advisor  
博士，創新顧問



Jiang Hongbo  
Administrator, PhD-student  
蔣洪波 行政主管，博士生



Lingxia Bao  
Res. Assistant, PhD-student  
包凌霞 研究助理，博士生



Liu Yue  
Res. Assistant, PhD-student  
劉玥 研究助理，博士生



Lam Chi Leung  
Master Student  
林志良 碩士生



Daming Sun  
Res. Assistant, PhD-student  
孫大明 研究助理，博士生



Ma Zhiyao  
Master Student  
馬之瑤 碩士生



Zhuang Zhuoli  
Master Student  
莊卓力 碩士生



Jesper Seegert  
Master Student  
碩士生



Flemming Lundager  
Phd, Engineer  
博士，工程師



Liao Donghua  
Associate professor, Co-director  
廖東華 副教授，中心主任



Jingbo Zhao  
Associate professor, Co-director  
趙靜波 副教授，中心主任

Professors Liao Donghua and Jingbo Zhao consistently played key roles in the development of the GIOME as co-directors. Professor Donghua has developed several innovative models of gastrointestinal function and remodeling and is in charge of the computational projects. Professor Zhao’s core competence is in remodeling of the gastrointestinal tract due to diabetes and intestinal obstruction as well as animal experimental models.

廖東華和趙靜波教授在GIOME發展中作為聯合主管一起發揮了關鍵作用。廖教授已經開發了數個胃腸功能和重塑的創新模型，並負責計算項目。趙教授的核心競爭力是在由糖尿病和腸梗阻，以及動物實驗模型所引起的胃腸道重構方面。



Ward Chen  
Administrative Assistant  
大強 博士後



Peter Kunwald  
Electromechanical Engineer  
Peter Kunwald 機電工程師





# EDUCATION AND SUPERVISION

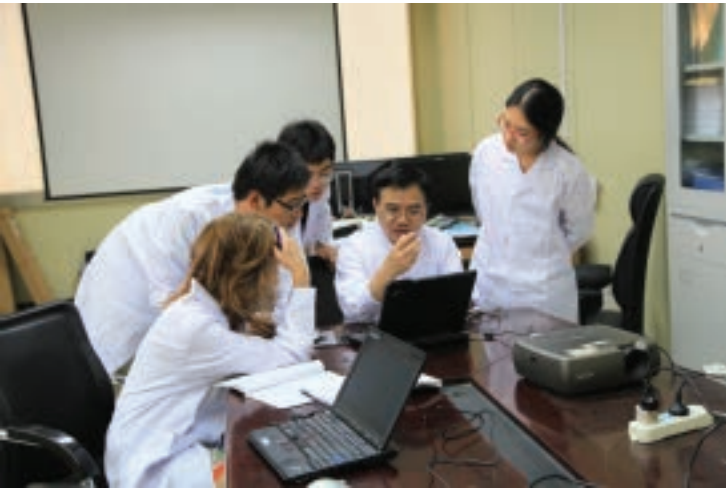
培養及指導



GIOME has educational activities on several levels. The majority of are courses on the postgraduate level and span from herb biochemistry, electromechanics, neuro-physiology, imaging and modeling to clinical research.

Supervision of PhD students and master students are on an individual basis face-to-face or by videoconferences and with supervisors from professors as well as by post-docs.

Quite often guest professors are take part in supervision and gives lectures. In the future it is the plan to offer a structured program of courses at an international level. The course program will include courses in innovation, medical device technology, epidemiology and strategic management in academic institutions.



GIOME 有不同層次的培訓及指導活動，其中最重要的是研究生培訓指導課程，這些課程包括草藥生物化學，機電學，神經生理學，醫學成像及模擬的臨床研究。對博士生、研究生的指導及管理是根據學生的個人能力與導師面對面交流，視頻會議，以及其他教授及博士後的指導來實現。通常來GIOME訪問的教授也會給我們的學生做一些講座。

在未來我們計劃開展國際化的學習及指導課程，這些課程將包括科技創新，醫療設備技術，流行病學，以及對學術機構的戰略管理等。





# FACILITIES

設施

GIOME has several laboratories in addition to the access to facilities at collaborating institutions  
GIOME中心拥有数个实验室，此外还可以使用合作机构拥有的设施

Cell culture lab  
细胞培养实验室

Biomechanics lab  
生物力学实验室

Catheter design and construction lab  
导管设计及制作实验室

Neuro-mechano-physiology lab  
神经电生理实验室

Electromechanical design lab  
机电设计实验室

Imaging and modeling lab  
图像处理及模拟实验室

Animal lab  
动物实验室

GIOME has several offices and provide good conditions and the newest office equipment for students, scientists and visitors.  
GIOME 中心有多个条件完善的办公室，可以给学生、研究者及来访的学者提供最新的办公设备。

## IMPORTANT EQUIPMENT AND TECHNOLOGIES / 重要設備及技術

Functional luminal imaging probe (endoFLIP)  
功能性腔内成像探头

Multimodal pain stimulation technology  
多模式疼痛激发技术

Advanced anorectal expulsion test (Fecobionics)  
先进的肛肠排洩检测(Fecobionics)

Tri-axial mechanical testing equipment  
三轴向力学测试机

Expandable endoluminal therapy for obesity (Fungibionics)  
肥胖症的腔内膨胀療法(Fungibionics)

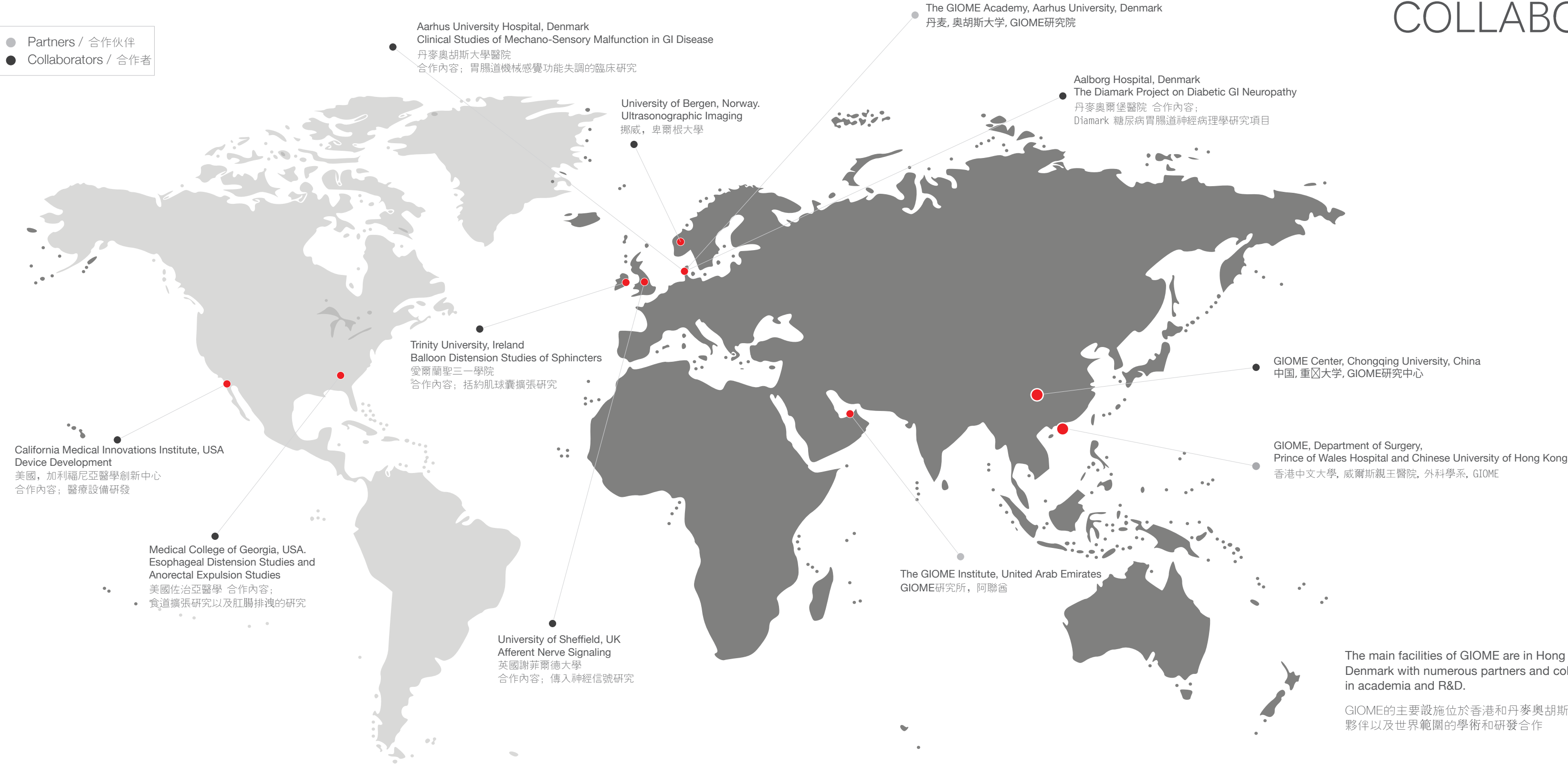
Endoscopic ultrasound equipment  
超声内窥镜





KEY INTERNATIONAL  
COLLABORATORS  
主要的國際合作者

- Partners / 合作伙伴
- Collaborators / 合作者



The main facilities of GIOME are in Hong Kong and Aarhus, Denmark with numerous partners and collaborators worldwide in academia and R&D.

GIOME的主要設施位於香港和丹麥奧胡斯, 擁有眾多的合作夥伴以及世界範圍的學術和研發合作



# INNOVATIONS AND TRANSLATIONAL SCIENCE

創新及轉化科學

Based on basic and clinical science the key persons behind the GIOME have developed several new technologies and innovations in the past. Well-known examples are:

基于對基礎和臨床的研究，GIOME團隊的關鍵成員已經成功的研發了新的技術和方法。其中較為知名的包括；

The impedance planimeter  
阻抗測面儀

The multimodal pain model  
多模式疼痛模型

EndoFLIP  
EndoFLIP（功能性腔內成像探頭系統）

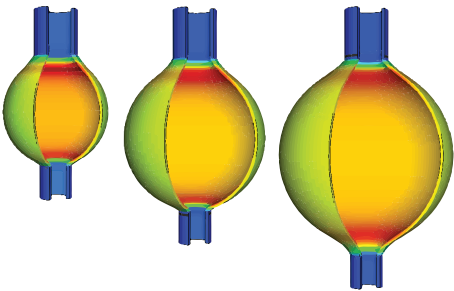
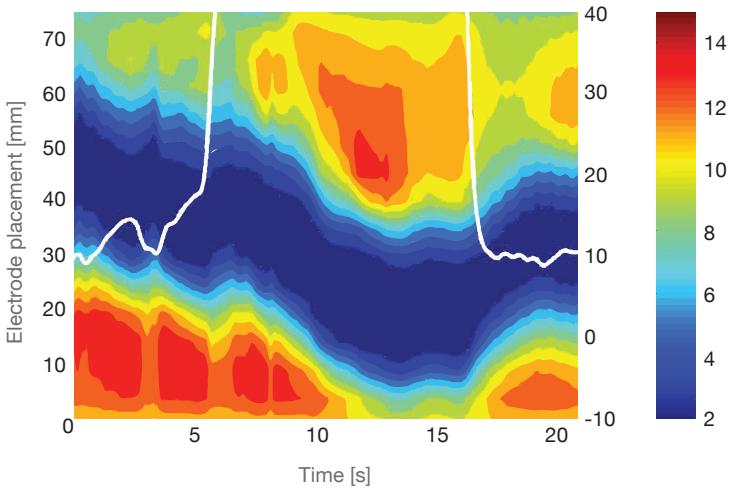
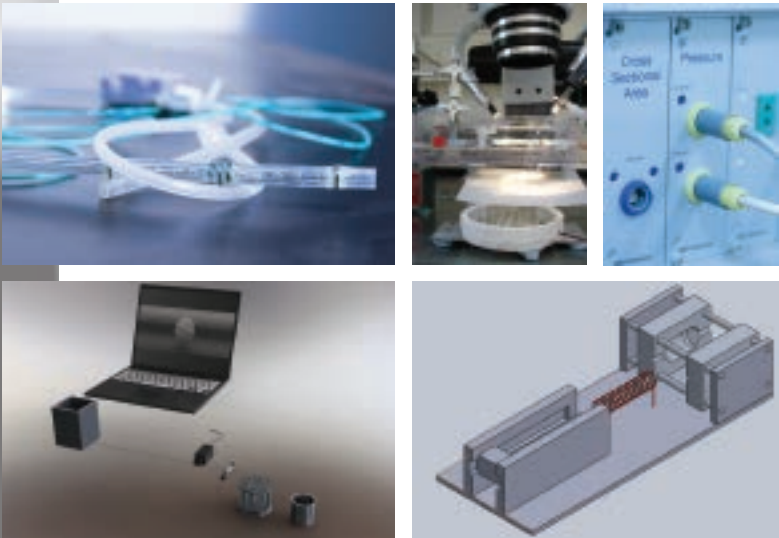
Advanced smooth muscle analysis  
先進的平滑肌分析技術

The tri-axial test machine  
三軸向力學測試機

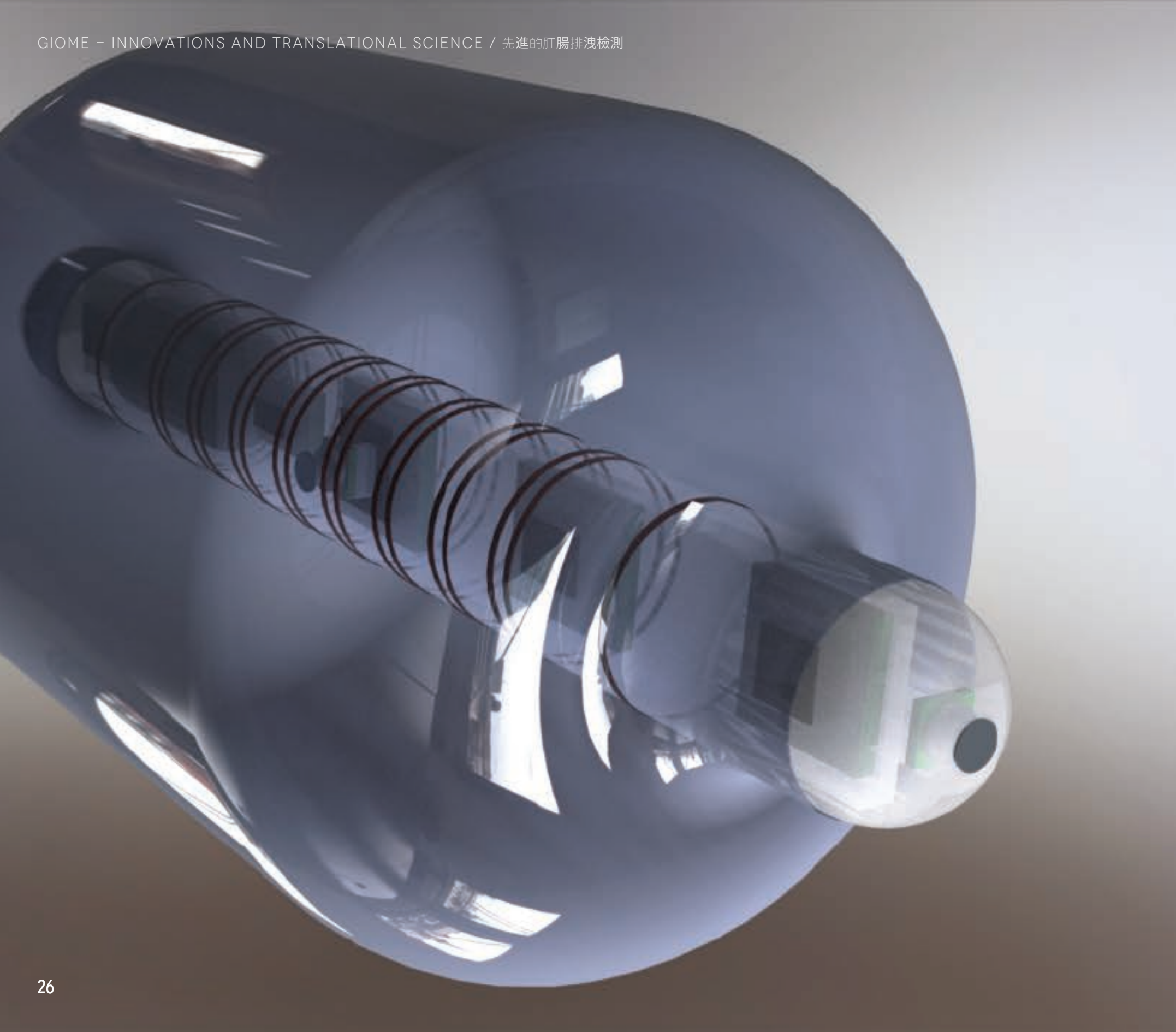
Advanced anorectal expulsion test (Fecobionics)  
先進的肛腸排洩檢測（Fecobionics）

Current innovations span a wide range from devices to treat obesity and gyroscope catheters to laboratory equipment such as robotic machines for collections of insulin-producing cells based on image analysis.

當前的創新工作涵蓋的範圍很廣 包括了肥胖癥治療裝置陀螺儀導管以及各類新型實驗室設備，比如基于圖像分析技術的胰島素細胞高效自動收集裝置等。



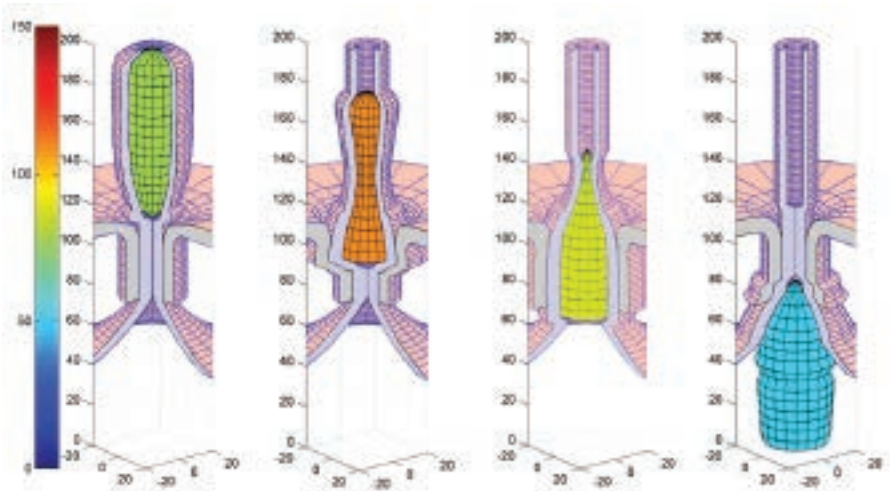




# FECOBIONICS

## ADVANCED ANORECTAL EXPULSION TEST

先進的肛腸排洩檢測

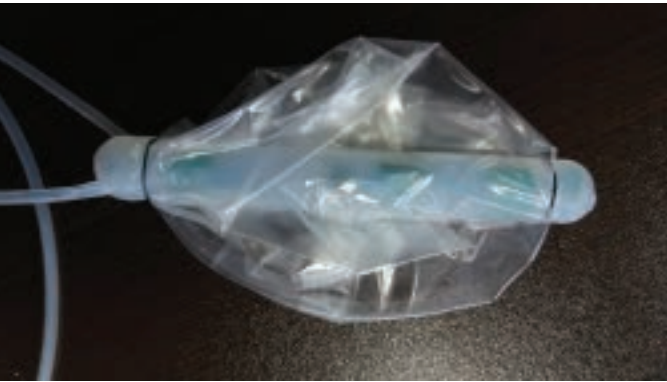


*Distended bag before expulsion attempt (left), bag entering the anal canal, bag inside the anal canal during the expulsion, and bag leaving the anal canal (right).*

排洩檢測前的擴張氣袋（左），氣袋進入肛管，排洩期間肛管內的氣袋，氣袋離開肛管（右）。

Fecobionics is one of the most recent innovations from GIOME and is considered to have a huge potential in clinical diagnostics and therapy of anorectal disorders. Fecobionics is a very advanced anorectal expulsion test. It combines several clinical tests such as the balloon expulsion test, anorectal high-resolution manometry and defecography with its advanced pressure measurements, geometric profiling and anorectal bending measurements. It is by far the test that comes closest to the defecation as it takes place in healthy volunteers and patients with constipation and fecal incontinence. The word Fecobionics comes from fecal and bionics which means electronics in biology. A bionic device imitates a physiological process without interfering with the process.

Fecobionics是GIOME最近創新之一，其在臨床診斷和肛門直腸疾病的治療方面具有巨大潛力。Fecobionics 是一個非常先進的肛腸排洩檢測系統。Fecobionics檢測結合了眾多的臨床檢測，如氣球排洩檢測，肛腸內高分辨率壓力檢測，基於先進壓力測量的肛腸排洩造影，以及肛腸的幾何特征和彎曲測量。Fecobionics檢測 是迄今為止最直接反應排便行為的檢測，因為檢測是發生于健康志願者和大便失禁患者的排便過程。Fecobionics 來自于 fecal (糞便) 和bionics (仿生學)，意味著生物學中的電子學。仿生裝置模仿生理過程而不干擾過程。



Fecobionics has already proven valuable for studying the normal defecation process that can be divided into several phases. It is currently under investigation for its diagnostic value in patients suffering from constipation and fecal incontinence. Fecobionics is also considered useful as a technology for biofeedback training in dyssynergia patients.

Fecobionics已經證明在研究正常排便過程方面非常有價值，其將排便過程分成幾個階段。這是目前正在研究其在便秘和大便失禁患者的診斷價值。對共濟失調患者的生物反饋訓練，Fecobionics也被認為是有用的技術。



# THE MULTIMODAL TECHNOLOGY AND FLIP

多模式探頭技術及FLIP

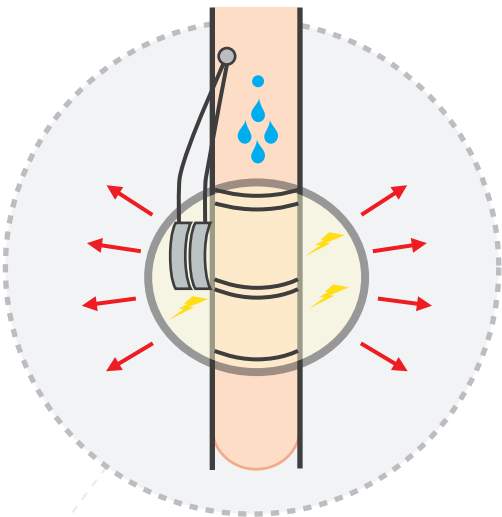
The idea for the multimodal technology originated from Professor Asbjørn Drewes and Professor Hans Gregersen at the Mech-Sense Center in Denmark. The probe based technology is useful for differentiating pain mechanisms in the GI tract by mechanical, thermal and chemical stimulation.

The technology has been used in many experimental pain studies. The major clinical application is in studies of functional GI disorders such as functional chest pain, non-erosive reflux disease (NERD) and irritable bowel syndrome (IBS).

As an example it can be used to differentiate patients with pain and symptoms of unknown origin into subgroups that need different types of treatment. It also proved to be useful in phase 3 studies of new drugs.

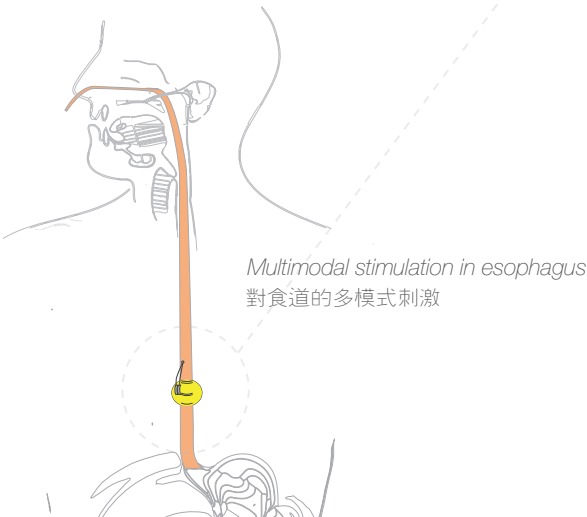
多模式探頭技術的创意诞生于Asbjørn Drewes教授和Hans Gregersen教授在丹麦Mech-Sense研究中心开展的一系列研究工作。探头技术对于区分各类胃肠道疼痛是非常有用的。这一技术已成功运用于身体机能，热能变化和化学刺激领域里关于疼痛病理的研究。

而该技术在临床方面的主要应用领域是胃肠道功能性失调。这类疾病包括了功能性胸痛、非糜烂性返流症（NERD）以及肠易激综合征（IBS）等。多模式探头技术可以将具有不明原因内脏疼痛和症状的患者划分为不同的治疗组。此外，该技术还可有效应用于新药的三期临床测试。



The functional luminal imaging probe (FLIP) is an impedance-based technology to study sphincters and narrowing regions in internal organs. It was originally developed by Dr. Barry McMahon and Professor Hans Gregersen and the technology was successfully tech-transferred to Irish company Crospon and commercialized.

功能性腔内成像探头（FLIP）是一种基于阻抗测面技术并用于研究内脏器官的括约肌及狭窄部位功能的创新技术。该技术由Barry McMahon博士及Hans Gregersen教授开发，之后被成功转让给Crospon公司并成功实现了商业化。FLIP已经被主要应用于研究胃食道连接部以及肛门括约肌的几何特性及机械特性。



The EndoFLIP invented by McMahon and Gregersen. Courtesy of Crospon Ltd  
由馬克馬洪和格雷格森發明的EndoFLIP。愛爾蘭Crospon公司



# COLLABORATION

## WITH INDUSTRY AND ACADEMIA

與企業和學術組織的合作

Private-Public Partnerships (PPP) are important for economic development, not least for bringing innovations and early stage ideas born at universities to the market.

公私合作对于经济发展是非常重要的，尤其是对于高校创新技术在早期的商业转化来说具有重要意义。

Companies have a demand for obtaining knowledge and recruiting talented students from academia whereas universities need focus on applications.

商业公司有从学术团体获得人才和技术的需求而高校也有技术转化的需求。

GIOME promotes collaboration and partnerships with industrial partners and welcome interested parties to join. Collaboration can have different forms such as consultancy agreements, R&D agreement, IP agreements, and test services.

GIOME将积极开展企业合作，并欢迎志同道合的伙伴加盟。合作方式多元化，包括顾问合约，研发合约，知识产权协议以及检测服务等。

GIOME employees serve as consultants for several multinational medical device companies. Furthermore, GIOME techtransferred technologies like the FLIP technology that is now commercialized. Furthermore, several companies originated in work done at GIOME.

GIOME員工為多家跨國醫療器械公司提供諮詢服務。此外GIOME也進行技術轉化，比如目前已經商業化的FLIP技術。此外一些公司起源于GIOME的工作成果。





# SCIENTIFIC

## KEY PUBLICATIONS FROM 2015–16

2015-2016年度的主要論文發表

Scientific papers

Zhao J, Chen P, Gregersen H. Stress-strain analysis of contractility in the ileum in response to flow and ramp distension in streptozotocin-induced diabetic rats - Association with advanced glycation end product formation. *J Biomech* 2015;48:1075-83.

Chen P, Gregersen H, Zhao J. Advanced glycation expression is upregulated in the gastrointestinal tract of type 2 diabetic rats. *World J Diabetes* 2015;6:662-72.

Lottrup C, Gregersen H, Liao D, Fynne L, Frøekjaer JB, Krogh K, Regan J, Kunwald P, McMahon BP. Funtional lumen imaging of the gastrointestinal tract. *J Gastroenterol* 2015;50:1005-16.

Oscar Casares-Magaz, Maria Thor, Donghua Liao, Jens B. Frøkjær, Pia Kræmer, Klaus Krogh, Asbjørn M. Drewes, Hans Gregersen, Vitali Moiseenko, Morten Høyer & Ludvig P. Muren. An image-based method to quantify biomechanical properties of the rectum in radiotherapy of prostate cancer. *Acta Oncologica* 2015;54:1335-42.

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Zhao D, Sha H, Zhao JB, Liu GF, Zhen Z, Tong XL, Gregersen H. Effects of Changruntong Decoction on the colonic remodeling in rats with diabetes. *J Diabetes Res* 2016;2016:1826281. *Epub* 2015 Dec 28.

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Wu X, Zhao, Y, Tang C, Yin T, Du R, Tian J, Huang J, Gregersen H, Wang G. Re-endothelialization study on endovascular stents seeded by endothelial cells through VEGF up/down- regulation. *ACS Appl Mater Interfaces.* 2016;8:7578-89.

Reviews

Gregersen H, Liao DH, Drewes AN, Drewes AM, Zhao JB. Ravages of diabetes on Gastrointestinal Sensory-Motor Function: Implications for pathophysiology and Treatment. *Curr Gastroenterol Rep* 2016;18:6-.

Farmer AD, Brock C, Frøkjaer JB, Gregersen H, Khan S, Lelic D, Lottrup C, Drewes AM. Understanding the sensory irregularities of esophageal disease. *Expert Rev Gastroenterol Hepatol* 2016;1-8. *[Epub ahead of print]*

Du P, Yassi R, Gregersen H, Windsor JA, Hunter PJ. The virtual esophagus: investigating esophageal functions in silico. *Ann N Y Acad Sci.* 2016 Jun 16. doi: 10.1111/nyas.13089. *[Epub ahead of print]*

Farmer AD, Franchina M, Gregersen H, Penagini R, Shaker A, Soffer E. Provocative testing of the esophagus and its future. *Ann N Y Acad Sci.* 2016 Jun 16. doi: 10.1111/nyas.13109. *[Epub ahead of print]*

Books

Gregersen H and Christensen J. Clinical Biomechanics in the Gut. *Bentham Scientific Publishers.* 2016.

Newer publications can be found in databases such as <http://www.ncbi.nlm.nih.gov/pubmed> or by contacting employees at the GIOME center.  
還可以在某些數據庫（比如 <http://www.ncbi.nlm.nih.gov/pubmed>）中找到最新發表的論文，或直接與 GIOME 研究中心的員工聯系，索取最新發表的論文。