Use of DIIR MRI Facility (For CUHK research users)

To promote the use of imaging facilities for research studies, the Department of Imaging and Interventional Radiology (DIIR) has established the MRI facility booking system which is exclusively for both DIIR internal and other CUHK researchers to perform imaging studies. PIs should study and adhere to the workflow and guidelines stipulated in this **Policies for Research Users,** hereafter "the Policy".

A. Facility

- Philips 3T MRI Scanner

B. Pricing

Facility	Net Price (HK$)*[1,2]		
	CUHK projects (Fulltime CUHK staff as PI / Co-PI and budget holder)	Joint Projects (CU staff as Co-I/ Co-PI, funding from other institutes)	Commercial sponsored projects (CU staff as sole PI and budget holder)
Philips 3T MRI Scanner	$4,800/hr	$6,400/hr	From $8,000/hr[*3]
Reporting	From $1100/scan/report[*3]		
MRI protocol test	NA	$3,000/scan	
Contrast (Gadolinium)*[4]	$1,000 per case		
Image upload to non-DIIR platform	HK$300 /scan		
Weekend surcharge (for HA manpower)	NA		

Remarks (*):

1. *Overhead / service charge to the University and HA is **NOT** included. Overhead (if applicable) should be arranged by the PI with the University (ORKTS) / HA directly.*
2. *The above charges include machine time, operator support, data download charges, consumables (i.e. ear plugs, hair net, hospital gowns). All other consumables not provided by DIIR should be obtained by the users.*
3. *Cost will be reviewed case by case and subject to sequence complexity.*
4. *HA clinical management system (CMS) report is compulsory for the use of contrast.*
5. *A medical doctor needs to be in attendance in the MRI suite area in case of contrast reaction.*

All charges are subject to annual adjustments based on cost changes.

C. Scanning Time

Weekends

Weekend sessions are limited to plain MRI scans (no contrast), involve ambulatory participants who are able to follow instructions, and will be subject to staff's availability. Booking of at least one session below is required.

- AM session: 9:00 – 13:00 (4 hours)
- PM session: 14:00 – 18:00 (4 hours)

Weekdays (only when available)

Monday – Friday (except public holidays and university holidays)

- PM session: 14:00 – 17:00 (3 hours)

The booking is mainly tailored for research studies requiring IV contrast injection. However, availability of time slots is limited and advanced planning and discussion with collaborating radiologists is required.

D. Application procedures

D1. Required documents

- Research ethics approval from Joint Chinese University of Hong Kong – New Territories East Cluster Clinical Research Ethics Committee (CREC).
- Template of participant consent form (should include statement of risks and discomforts, and data repository). Incidental findings policy is compulsory for studies WITHOUT HA Clinical Management System (CMS) clinical report issued by a radiologist. Please refer to Appendix 1 for sample statements of subject consent form.

D2. Online application (link)

Project details should be submitted to DIIR for record, including but not limited to: -

- Project abstract
- Scan protocol
- Funding source
- Project period

D3. Scan booking

Scan booking may be made once application is approved. Scanning should commence within 6 months of approval.

To facilitate scan preparation and manpower arrangement, we accept booking 3 months in advance at the earliest for weekday sessions. For weekend sessions, bookings are made on a quarterly basis. Bookings submitted less than 7 working days will NOT be accepted.

PIs may request for a maximum of 2 timeslots per week (3 hour per timeslot) or a maximum of 6 hours per week. Booking priority will be reserved for RGC-funded projects. It is the PI's responsibility to plan and reserve sufficient time for scanning to meet the project timeline.

Projects will be considered as withdrawn or completed if no scan has been arranged for one year. In such case, new application should be submitted for resumption of scanning.

DIIR reserves the right to adjust the booking schedule for any ad hoc and sudden events.

D4. Scanning

The researchers should ensure that the scan subjects are ready to enter the MRI suite at least 5 minutes before the booking time. It is expected by then that the screening form and consent form-taking have been completed, and that the experiment and scan procedures have been fully discussed with the subject.

PIs or research members must ensure that scans can be completed within the reserved time, as overruns cannot be guaranteed and/or will incur overtime charges. Overrun of scan is allowed only if there is no subsequent booking and is subject to staff availability. An overrun of 15 minutes of the booking time will be charged as half hour, and an overrun of 30 minutes will be charged as a full hour.

Hardware changes and changes to any standard scanner software configurations are not allowed.

Research team may be liable for damages incurred by improper use of the MRI suite facilities.

E. Safety

- For the use of fMRI, PIs/research members who will directly interact with participants during the scan are required to complete a safety video briefing and pass the online MRI safety test conducted by the Department.
- Research members are responsible to ensure the scan is conducted in compliance with the scan safety checklist (Appendix 2).
- Research teams involved in image acquisition are responsible for the health and safety of themselves and subjects. For vulnerable subjects, at least one member from the research team must be present before, during and after the scan to assist subject preparation and care.
- The researchers should strictly comply with all safety rules and regulations at all times.

F. Billing

Interdepartmental transfer form will be issued to the PIs twice a year in January and July, with scan cut-off on 31 December and 30 June respectively.

Advanced payment is not accepted.

G. Cancellation

Cancellation and booking changes should be sent to diirmri@cuhk.edu.hk. Charges may be incurred for late cancellation and no-show cases, with charges as below:

Notification period	Cancellation Fee
More than 7 working days	NA
Less than 7 working days	20% of scan charge
Less than 2 working days	100% of scan charge

Charges will apply for the following:

- Researcher and/or subject failing to arrive or arriving late for the scanning session.
- Subjects not passing the MRI scan screening.
- Subjects failing to meet experiment criteria or unable to perform tasks required during scan acquisition.

Charges will NOT be applied for the following circumstances:

- Facilities closed due to severe weather conditions or unforeseen circumstances.
- Malfunctioning of standard equipment.
- Illness and other unforeseen circumstances related to DIIR staff.

H. Severe Weather Arrangement

If pre-Tropical Cyclone Signal No. 8 (or above)/Tropical Cyclone Signal No. 8 (or above) is hoisted, the booking will be cancelled. Scan service will resume in 2 hours if the signal(s) is removed before 2 pm. If the signal(s) is removed at or after 2 pm, our service will be closed for the whole day.

If the Black Rainstorm Signal is hoisted within 2 hours before the scan time, the booking will be cancelled. If the Black Rainstorm Signal is issued during the scan time, the booking will still be held unless the inclement weather affects the safety of users.

I. Incidental Findings

For studies WITHOUT HA CMS report or report issued by a radiologist, Incidental Findings Policy is COMPULSORY to be included in the subject consent form. (Appendix 1).

The project is required to incorporate statements on incidental findings procedures on the project's subject consent form. It is important to emphasize to the subjects that the scans obtained are for research purposes and NOT for medical purposes. The scans will not be reviewed by a qualified radiologist or other medical professionals.

J. Data Handling

Data Repository

All acquired imaging data include all anatomical (T1, T2, DTI, etc) and resting-state fMRI data, if acquired, as well as the age (year, month and day), gender, and disease status (if applied) of the subject are uploaded to the DIIR server which doubles as the DIIR Image repository.

Access to the repository is limited to DIIR staff, and PI's may obtain study imaging data per data transfer requirements stipulated in Appendix 3. Data sharing with other CUHK or non-CUHK investigators will require consent from PI and will be subject to a separate ethics application process as needed.

For studies requiring HA CMS report, clinical sequences will be additionally uploaded to the HA server.

Confidentiality and Data Transfer

Subject to the requirements of legislation, all information obtained about subjects during a study is confidential unless otherwise agreed in advance. In order to protect an individual's identity during data analysis, anonymization of data will be performed by using coded information as the subject ID. The key to this code is only accessible to members of the research team using that information.

PI's should submit the request for imaging data by completing the data transfer form (Appendix 3) with a list of subjects and their Study ID. For anonymisation purposes, imaging data will be provided with confidential information replaced by the Study ID.

Pls are strongly advised to review and analyze imaging data as soon as possible upon receipt in case corrections or amendments to the MRI scanning parameters and protocols are required. PI's are recommended to back up their own data as repeat data transfer may incur additional data handling charges.

Data Analysis

DIIR does not provide data analysis service. It is the responsibility of the PI to ascertain that their data are analyzed according to their scientific goals.

Reporting

CMS report will be issued upon request. PI should submit CMS request to the HA system at least two working days prior to the scan. CMS report is compulsory for the use of contrast.

If non-HA reports issued by DIIR radiologist are required, template of the report should be provided for reference. Non-HA report will NOT be uploaded to HA's medical system.

PI's must ensure that the ethics application and approval covers the data handling process above, and subjects provide consent accordingly.

K. Acknowledgements

The MRI Facility is jointly funded by Kai Chong Tong, HKSAR's Research Matching Grant and DIIR. Proper acknowledgement is essential for DIIR to secure funding and support to advance CUHK's imaging facilities and improve your research experience. We appreciate being acknowledged and grateful that you inform us of the publication of any images that were created by DIIR MRI Facility.

The following language is suggested:

" The research was conducted in part at CUHK DIIR MRI Facility, which is jointly funded by Kai Chong Tong, HKSAR Research Matching Grant Scheme and the Department of Imaging and Interventional Radiology, The Chinese University of Hong Kong."

Radiologists, radiographers and other research staff of DIIR frequently contribute to the scan protocol design, Authorship would be strongly encouraged if a DIIR staff made a significant contribution to your research set up.

The Policy may be changed from time to time without prior notice.

Appendix 1- Sample statement for subject consent form

The PIs are required to obtain participants' consent regarding Risks and Discomforts, MRI Data Repository, and Incidental Findings Policy. Sample statements below are for PIs' adaptation and modification as deemed appropriate, and subject to ethics approval from CREC.

Risks and Discomforts 潛在危險和副作用

The known risks or side effects associated with conventional MRI procedures are minimal, except for those people who have electrically, magnetically or mechanically activated implants (such as cardiac pacemakers) or those who have intracerebral vascular clips. The greatest risk is of a metallic object flying through the air toward the magnet and hitting you. To reduce this risk we require that all people involved with the study remove all ferrous metal from their clothing and pockets before entering the magnet room. No ferrous metal objects are allowed to be brought into the magnet room at any time, unless they are permanently installed.

除去那些身上裝有電子的、磁的或機械的設備（如心臟起博器）的人，已知的核磁共振成像對人的危 害或副作用非常小。本研究的唯一已知的潛在的危險是金屬物體受磁場吸引並擊中您。為了減少這個 潛在的威脅，我們要求所有參與研究的人，包括研究者，在進入試驗區之前除去所有的鐵質物品。在 任何時候，所有金屬物件均不得帶進掃描室，永久裝置除外。

A magnetic resonance scan is not uncomfortable but if you are prone to claustrophobia (i.e., fear of enclosed spaces) you should notify the researcher in charge of the scan. You can expect to hear a knocking sound during the imaging; ear plugs will be provided so the sound should not be bothersome.

掃描成像不會帶來不適；但如果您不習慣留在一個封閉的空間，您應該在實驗前告訴主試。在實驗 中，您會聽到敲擊的聲音。耳塞會提供給您以減少噪音強度。

It is important in these studies that you remain motionless. Subject to scan requirement, tools may be used to keep your body immobilized and in a relaxed position. Should you experience any discomfort during the scan, you should notify the researcher in charge of the scan. You are free to stop the study at any point if for any reason you do not wish to continue.

在實驗中保持靜止對本研究非常重要，我們或會使用輔助器材讓您保持靜止和舒適。如在掃描時感到 任何不適，請立刻通知主試。同時，您可以在實驗的任何時候，無需任何理由終止實驗。

MRI Data Repository 數據保存

To benefit future research, your MRI scan which includes personal information will be deposited into the CUHK MRI Data Repository. When shared with CUHK collaborating partner(s), your MRI data will be de-identified from personal information. Only your gender, age, and disease status (if applied) will be included. If you wish to delete your data in the CUHK MRI Data repository (at any time), please inform the Study PI and provide written confirmation to the Department of Imaging and Interventional Radiology.

所有收集到的數據和影像包含個人資料會儲存於香港中文大學磁力共振數據庫，作日後科研用途。若日後與香港中文大學合作夥伴分享數據和影像時，您的個人資料會被移除，只會顯示您的性別、掃描時的年齡和疾病狀況。如果您希望在香港中文大學資料儲存庫中刪除你的數據和影像資料，請通知主試並向影像及介入放射學系提供書面確認。

Incidental Findings Policy 發現異常的處理 (Compulsory for studies WITHOUT HA clinical report / CMS report / report issued by a radiologist.)*

THIS IS NOT A MEDICAL OR DISEASE DIAGNOSTIC SCAN and will not be formally reviewed by a radiologist, and therefore your scan will not be examined for abnormalities. The scan will not benefit you directly, and does not form part of any medical diagnosis or treatment. However, if in the course of processing the research images, our research staff notices any abnormality that would be potentially relevant to your health, we will notify you and a physician you designate. Please note that the research staff is NOT qualified to assess the scans for medical purposes.

這不是一個醫療或病症診斷的掃描，本研究進行的掃描影像並不會由放射治療師審閱。您參加本研究 對您本人並不帶來直接的利益，也不會構成任何醫學診斷和治療的部分。但是，如果主試在實驗中發 現異常的東西，他們會通知您和您指定的醫生。研究人員不得以是次掃描作任何醫療用途。

** For studies aim to collect clinical scan data, PIs should arrange HA clinical reports / CMS reports/ reports issued by a radiologist. The reports should be reviewed by a qualified professional and reported to the subjects for any incidental findings. PIs are reminded to make pre-arrangement with the radiologist(s) or please contact DIIR for the arrangement.*

Appendix 2 - Scan safety checklist

磁力共振安全篩檢表格

英文全名：_____ 性別：男 / 女

身份證號碼 / 研究號碼：_____

出生日期 (dd/mm/yyyy)：_____

磁力共振掃瞄日期：_____

磁力共振檢查籍強力的磁場及無線電波以造成影像，若閣下**曾被植入金屬物件或儀器**而又未經本院核實為安全，其強大磁場及電波可引致設備失靈，並可能令你身體受傷。

安全篩檢表格

1. 如閣下體內懷有以下物件或有以下狀況， 請「✓」出適用者:

☐ 假牙或補牙	☐ 人造關節/義肢	☐ 助聽器
☐ 心臟植入式電子設備	☐ 神經刺激器/體內電極	☐ 血管內金屬性堵塞物/ 支架 /濾器
☐ 外科血管夾	☐ 體內引流導管	☐ 內置胰島素注射器/灌注器
☐ 人造內耳窩	☐ 人造心瓣/ 心臟封堵器	☐ 子宮環/子宮帽
☐ 眼內金屬異物	☐ 金屬篩網/縫線	☐ 紋身 / 紋眉
☐ 骨科金屬釘、金屬片或金屬線		☐ 藥物貼劑

☐ 其他，請列明：_____

2. 曾被金屬碎片或子彈所傷、或現時體內仍有該等金屬物・・・・・・・・・・・・・☐ 是 ☐ 否
3. 曾接受任何類型之手術・・・・・・・・・・・・・・・・・・・・・・・・・・・・☐ 是 ☐ 否
   如有，請列明：_____

4. 個人身體狀況・・・・・・・ 體重：_____ (公斤) 高度:_____ (釐米)

下列兩項(5 及 6)只供女性填寫。

5. 最近一次經期(首天)之日期為：_____年_____月_____日
6. 現正或可能現正懷孕・・・・・・・・・・・・・・・・・・・・・・・・・・・・・☐ 是 ☐ 否

7. 是否有以下病歷?

☐ 腎衰竭病歷 ☐ 高血壓 ☐ 糖尿病 ☐ 哮喘

☐ 對磁力共振靜脈造影劑 有 過敏反應。 請說明其反應： _____

本人在此聲明上述資料全為確實，並無隱瞞。本人亦已閱讀及明白本表格內容，並有機會就這些資料作出提問。

填表人簽署：_____ 日期：_____

Recorded by:
Name of Staff:_____ Signature of Staff:_____ Date:_____

This form must be reviewed and signed by on duty MRI radiographer before patient enters the MRI Scan room.

MRI Radiographer's signature:_____

Appendix 3 – Form A (For imaging data involving >10 cases)

Guidelines regarding Application for Transfer of Imaging Data from Dept of Imaging and Interventional Radiology (DIIR)

(1) Principal investigator (PI) should be staff member within the CU or PWH network.

(2) For imaging data involving >10 cases, a person from DIIR, and preferably a CU staff, should be involved in the project.

(3) All requests regarding data transfer of > 50 cases must be first endorsed by DIIR Dept Board.

(4) Downloaded DICOM data should be stored in an encrypted external hard disc and collected by the PI (or representative) in person from DIIR. Agreement as below must be signed by the principal investigator ensuring that the data will be handled in a secure manner

(5) Details regarding exported image data will be filed by DIIR and submitted periodically to the COS of DIIR for review.

(6) Only DIIR IT staff will handle transfer. Non-DIIR staff are not allowed to access image data under any circumstances.

(7) Handling charges will be applied according to the nature and amount of data to be transferred. Such costs are necessary due to the acquisition and maintenance of the CU PACS system, additional logistics and manpower involved in handling the request as well as the data transfer. Handling charges (HKD) for transfer of DICOM data:

Types / number of exams	Number of exams <50	Number of exams 50-100	Number of exams > 100
Plain CT	350 per case	280 per case	210 per case
Contrast CT	500 per case	400 per case	300 per case
MRI	600 per case	480 per case	360 per case

Transfer of Imaging Data from Dept of Imaging and Interventional Radiology (DIIR)

Part 1: Application

Project Title: _____

Principal Investigator:
_____

Name of Department: _____

For what purpose do you require the imaging data: _____

(a) Type of examinations (e.g. MRI, CT, XR, DSA):
_____

(b) Total number of examinations requested:_____

DIIR staff involved in project:

_____

Expected completion date of project: _____

** Please provide an **encrypted** list of requested image data required with the following information:

(1) Name of patient
(2) HKID number
(3) Date of examination
(4) Imaging modality (e.g. MRI, CT, XR, DSA)

Part 2: Agreement

I fully understand the guidelines implemented by the Dept of Imaging & Interventional Radiology, CUHK and agree to adhere to the following measures:

(1) The anonymized digital data will be transferred to a password-protected secure device belonging to the PI and returned to DIIR following completion of the project.

(2) All transferred anonymized data will be kept secure and, on no account, shared to a third party or transferred to any persons or devices outside PWH/CUHK premises.

(3) This DICOM data can only be used in the research project as specified above and not in any other project.

(4) Involved staff from DIIR Department should be informed when the project is complete.

Request submitted by (Signature): _____

Date: _____

Full Name and Post: _____

Staff ID: _____

Contact number/ email: _____

Appendix 3 – Form B (For imaging data involving <10 cases)

Transfer of Imaging Data from Dept of Imaging and Interventional Radiology (DIIR)

Part 1: Application

Project Title: _____

Principal Investigator: _____

Name of Department: _____

For what purpose do you require the imaging data: _____

(a) Type of examinations (e.g. MRI, CT, XR, DSA): _____

(b) Total number of examinations requested: _____

DIIR staff involved in project: _____

Expected completion date of project: _____

** Please provide an encrypted list of requested image data required with the following information:

(1) Name of patient
(2) HKID number
(3) Date of examination
(4) Imaging modality (e.g. MRI, CT, XR, DSA)

Part 2: Agreement

I fully understand the guidelines implemented by the Dept of Imaging & Interventional Radiology, CUHK and agree to adhere to the following measures:

(1) Anonymized digital data will be transferred to a password-protected secure device belonging to the PI and returned to DIIR following completion of the project.

(2) All transferred anonymized data will be kept secure and, on no account, shared to a third party or transferred to any persons or devices outside PWH/CUHK premises.

(3) This DICOM data can only be used in the research project as specified above and not in any other project.

(4) Involved staff from DIIR Department should be informed when the project is complete.

Request submitted by (signature): _____

Date: _____

Full Name and Post: _____

Staff ID: _____

Contact number / email: _____