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Prepared by Mrs Teresa Morris  
Imaging Facilities Co-ordinator  
Aberdeen Biomedical Imaging Centre

Approved by Dr Gordon D Waiter  
Acting Director of ABIC  
Aberdeen Biomedical Imaging Centre
INTRODUCTION

The Aberdeen Biomedical Imaging Centre is the overarching structure to facilitate communication and synergy across the many scientists and clinicians working in imaging research at the University of Aberdeen. This multidisciplinary group of imaging researchers includes radiologists, medical physicists, computer scientists, biologists, bioengineers, chemists and radiographers, supported by administrative and secretarial staff, who are key members of the team.

During 2019 development continued across the University as Professor Boyne, appointed as Principal in August 2018, steered the University towards his vision to ensure that the University of Aberdeen will continue to be open to all and dedicated to the pursuit of truth in the service of others. This included the development of “Aberdeen 2040”, the strategic plans for the next 20 years and a major recruitment drive aiming to significantly increase academic numbers across the University. Professor Siladitya Bhattacharya was appointed as Head of the School of Medicine, Medical Sciences and Nutrition in August and has shown his support for imaging research through his involvement in both the Philips 3T upgrade and FFC-MRI developments.

Staff compliment in 2019 remained relatively static and although there were some leavers, there were new appointments. We welcomed Dr Sai Man Cheung in April 2019 having been appointed as a research fellow on a CRUK grant awarded to Dr He, moving up from his time as a PhD research student. Dr Amir Dehsari was successful in the interviews for the research fellow post in a grant awarded to Dr G Waiter and was due to start in August 2019. Unfortunately, issues with his visa meant his start date was delayed until January 2020. Dr Tim Smith and Dr Dorota Chapko left in January and February respectively 2019, following completion of grants from which they were funded. June 2019 also saw the departure of Professor Alan Denison from his post as Deputy Director of Institute of Medical and Dental Education to become Dean of Postgraduate Medicine for the Scotland Deanery (North) within NHS Education for Scotland. We wish him well in his new post. We welcomed Dr Brian Morrisey as a SCRED lecturer in October 2019. Finally, in November 2019, Dr Clarisse De Vries was appointed as a research assistant for a short-term appointment following her time as a PhD research student, which subsequently led to appointment as a research fellow in the iC AiRD project until February 2021. Further posts are expected to start during 2020.

This year continued to be a productive one for PhD students, some of whom mentioned above have moved to research posts. One new student started their PhD journey in May 2019, giving a student compliment of 15 at the end of December 2019. Four students were expected to complete their PhD journey during 2019. In addition, staff in the Lilian Sutton Building supported 6 MSc students during the project phase of their Masters degree and also hosted a Hotstart student for a short project with further information noted under the student section. These projects provided excellent opportunities for training in the value of brain imaging, beyond the familiar clinical use.

A major step forward for the year was the refurbishment of the Philips 3T MRI scanner. Work commenced in July 2019 with the programme of building works expected to finish in October. While the project was focused on upgrading the scanner, a significant portion of the time required was dedicated to extensive upgrading of the mechanical services supplying the new system. In particular, the air conditioning and water-cooling provision required substantial upgrades. During the building works required to deliver these upgrades, two significant issues presented themselves: a faulty Faraday cage and significant deterioration of the external flat roof in MRI East. Addressing these issues was vital before other elements of the project could continue. This resulted in a substantial extension to the project timeline of 5 months in total, with the system acceptance testing carried out in mid December. The scanner passed all quality control tests without any issues and the results for quality parameters such as sign-to-noise ratio and stability were substantially better than before the upgrade. As part of the upgrade, instrument features to enable new scanning capabilities were purchased – e.g. “Compressed Sense” – and these will help to significantly decrease scan time across all body areas. This will provide a significant improvement in image-quality by reducing motion artefacts.
Scanner installation

Scan room after the RF cage has been removed with a close-up of the “roller skates” used so the magnet can be moved around the room.

The new RF cage being installed with the magnet in the equipment room.

The final result
During the expected and additional downtime, the radiographic staff were able to undertake periods of in-depth training, either through course attendance or visiting other centres and shadowing staff. Applications training in late December and early January 2020, supervised by a specialist from Philips (the company delivering the upgrade to the system), focused on demonstrating the new capabilities to the radiography team and interested radiologists.

Professor David Lurie’s group continues to see progress with the Fast Field Cycling project, to bring it closer to a clinical system and there are active plans to build and install a next generation system in the scanning suite on the ground floor of the Lilian Sutton Building. Design of the magnet is at an advanced stage and funding for the reconfiguration of the suite has been secured with a generous donation from the Hall Family Charitable Trust. Further public engagement activities by the team were carried out in 2019 (see Public Engagement section for more information) with a series of group meetings including Estates, and a formal Project Board team set-up from January 2020.

ABIC staff and students continue to be a part of the SINAPSE (Scottish Imaging Network: A Platform for Scientific Excellence) community, with Professor Alison Murray continuing with the Director’s role during 2019.

This annual report lists the staff, the grant income, current projects, publications and presentations over the past year. Further information can be found at http://www.abdn.ac.uk/ims/research/abic.
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<th>Name</th>
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<tr>
<td>Professor Alison D Murray</td>
<td>Roland Sutton Chair of Radiology (part-time from Oct 2018)</td>
</tr>
<tr>
<td>Professor Alan R Denison</td>
<td>Personal Professor in Radiology (left June 2019)</td>
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<tr>
<td>Dr Leela Narayanan</td>
<td>Honorary Clinical Senior Lecturer in Radiology</td>
</tr>
<tr>
<td>Dr Arnab Rana</td>
<td>Honorary Clinical Senior Lecturer in Radiology</td>
</tr>
<tr>
<td>Dr Rosalind Mitchell-Hay</td>
<td>Honorary Clinical Senior Lecturer in Radiology</td>
</tr>
<tr>
<td>Professor David Lurie</td>
<td>Professor</td>
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<tr>
<td>Professor Andy Welch</td>
<td>Professor</td>
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<tr>
<td>Dr Gordon Waiter</td>
<td>Senior Lecturer in Computational Neuroimaging</td>
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<tr>
<td>Dr Tim Smith</td>
<td>Senior Research Fellow (left January 2019)</td>
</tr>
<tr>
<td>Dr Brian Morrissey</td>
<td>SCREDS Clinical Lecturer in Radiology (joined October 2019)</td>
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<tr>
<td>Dr Jiabao He</td>
<td>Lecturer in MR Physics</td>
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<tr>
<td>Dr Trevor Ahearn</td>
<td>Honorary Lecturer</td>
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<tr>
<td>Dr Hugh Seton</td>
<td>Lecturer (scholarship)</td>
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<tr>
<td>Dr Lutz Schweiger</td>
<td>Senior Research Fellow &amp; Senior Radiochemist</td>
</tr>
<tr>
<td>Dr Ian Fleming</td>
<td>Lecturer (scholarship)</td>
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<tr>
<td>Dr Vesna Vuksanovic</td>
<td>Research Fellow</td>
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<tr>
<td>Dr Anca Sandu-Giuraniuc</td>
<td>Research Fellow</td>
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<tr>
<td>Dr Gareth Davies</td>
<td>Research Fellow</td>
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<tr>
<td>Dr Lionel Broche</td>
<td>Lecturer since XX/2019</td>
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<tr>
<td>Dr Chris McNeil</td>
<td>Research Fellow</td>
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<tr>
<td>Dr Dorota Chapko</td>
<td>Research Fellow (left February 2019)</td>
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<tr>
<td>Dr James Ross</td>
<td>Research Fellow</td>
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<tr>
<td>Dr Gabriel Cheung</td>
<td>Research Fellow (joined May 2019)</td>
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<tr>
<td>Dr Amir Dehsarvi</td>
<td>Research Fellow (due to commence post August 2019, started Jan 2020)</td>
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<tr>
<td>Dr Nicholas Senn</td>
<td>Research Assistant/Fellow (joined October 2019)</td>
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<tr>
<td>Dr Clarisse DeVries</td>
<td>Research Assistant/Fellow (joined November 2019)</td>
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<tr>
<td>Dr Nicola Miller</td>
<td>Honorary Research Fellow</td>
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<tr>
<td>Mr George Cameron</td>
<td>Senior Research Assistant (scholarship)</td>
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<tr>
<td>Mr Gordon Buchan</td>
<td>Research Technician (MRI)</td>
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<tr>
<td>Mr Stuart Craib</td>
<td>Honorary Research Technician (PET)</td>
</tr>
<tr>
<td>Ms Eleanor Hutcheon</td>
<td>Technician (scholarship)</td>
</tr>
<tr>
<td>Mrs Beverley MacLennan</td>
<td>Lead Superintendent Radiographer</td>
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<tr>
<td>Mrs Nichola Crouch</td>
<td>Radiographer</td>
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<tr>
<td>Ms Laura Reid</td>
<td>Radiographer</td>
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<tr>
<td>Mr Michael Hendry</td>
<td>Radiographer</td>
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<tr>
<td>Mrs Nicola Irwin</td>
<td>Radiopharmacy technician (on extended leave)</td>
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<tr>
<td>Mr Mike Shek</td>
<td>Radiopharmacy technician</td>
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<tr>
<td>Miss Kirsty Murray</td>
<td>Radiopharmacy technician</td>
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<tr>
<td>Mrs Teresa Morris</td>
<td>Imaging Facilities Co-ordinator</td>
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<td>Mrs Dawn Younie</td>
<td>Secretary</td>
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RESPONSIBILITIES AND ACTIVITIES OF STAFF

Professor Alison D Murray
2. Generation Scotland Executive Committee, University of Aberdeen representative.
3. British Society of Neuroradiologists, Academic Subcommittee, Member.
4. Scottish Radiological Society, Member.
5. Medical Research Council, CASE Studentship Review Panel, Member.
7. Alzheimer’s Research UK (Scotland) executive member.
9. School of Medicine, Medical Sciences and Nutrition, Disability Co-ordinator.
10. Radiology Committee, NHS Grampian, Member.
11. Radiology Education and Training Committee, NHS Grampian, Member.
12. Radiology MRI Modality Group, NHS Grampian, Member.
13. Nuclear Medicine Service Committee, NHS Grampian, Member.

Professors Alison Murray acts as regent to 7 undergraduate medical students, to whom she provides advice and support, as and when required by the students.

Professor David J Lurie
1. Institute of Physics & Engineering in Medicine (IPEM), Academic Gold Medal award 2017.
2. Institute of Physics, Fellow
3. Institute of Physics and Engineering in Medicine, Fellow
4. International Society for Magnetic Resonance in Medicine, Member
5. International EPR (ESR) Society, Member
6. European Society of Radiology, Member
7. Fellowship Panel, Institute of Physics, Member
8. Course Accreditation Panel, Institute of Physics and Engineering in Medicine, Vice-chair
9. Research Degrees Committee, University of the Highlands and Islands, Member
10. Academic Line Manager, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen
11. Quality Assurance Committee, University of Aberdeen, Member
12. Senatus Academicus, University of Aberdeen, Member
13. European Congress of Radiology, Physics in Radiology Subcommittee, Chair 2017 meeting
15. European Congress of Radiology, Physics in Radiology Subcommittee, Chair 2017 meeting
16. European Congress of Radiology, Programme Planning Committee, Member for 2018 and 2019 conferences
17. Vice Chair of EU COST Action CA15209, “European Network on NMR Relaxometry” 2016-
19. Hong Kong Association of Medical Physics, Part II Resident Physicist Examinations, Chief Examiner.
20. Royal Society Challenge Grants Panel, Member
21. Planning Committee of the 3rd European Congress of Medical Physics (ECMP 2020), Member
22. Communications and Publications Committee of the European Federation of Organisations for Medical Physics (EFOMP), Chair (Previously Vice-Chair of committee, from 2019.)

Professor Andy Welch
1. Institute of Physics and Engineering in Medicine, Corporate Member
2. Higher Education Academy, Fellow
3. Health and Care Professions Council (HCPC), Registered Clinical Scientist
4. HEE/NIHR ICA Clinical Doctoral Research Fellowship Panel, Member
5. M.Sc./Pg.Dip. programmes in Medical Physics and Medical Imaging, University of Aberdeen, Programme Co-ordinator.
6. University of Aberdeen, Radiation Hazards Sub-committee, Chair
7. Scottish Imaging Network: A Platform for Scientific Excellence (SINAPSE), Member
8. University of Glasgow, MSc in Medical Physics, External Examiner.
9. University of Aberdeen, School of Medicine, Medical Sciences and Nutrition, Academic Line Manager.

Dr Gordon D Waiter
1. Aberdeen Biomedical Imaging Centre, Acting Director (from Oct 2018)
2. Institute of Physics, Member
3. Institute of Physics and Engineering in Medicine (MIPEM), Corporate member
4. Health and Care Professions Council (HCPC), Registered Clinical Scientist.
5. SINAPSE Executive Committee, Aberdeen representative
6. SINAPSE Image Analysis Group, Lead
7. College of Life Sciences and Medicine Ethical Review Board (CERB), Deputy Chair
8. MR Responsible Person, University of Aberdeen
9. Honorary Clinical Scientist and MR Safety Expert, NHS Grampian
10. MSc in Medical Physics/Imaging: MR Imaging, course co-ordinator and lecturer (BP5503); Medical Image Processing (BP5505) Lecturer, Biomedical and Professional Topics in Healthcare Science (BP5003) Lecturer.

Dr Hugh Seton
1. MR Responsible Person for 4.7T preclinical MRI system, University of Aberdeen
2. MSc in Medical Physics/Imaging: IMAGING IN MEDICINE, course co-ordinator and lecturer (BP5005) MR Imaging, lecturer (BP5503).
3. Exams co-ordinator for MSc programmes in SMMSN.
4. Musculoskeletal Programme Executive Group, Member

Dr Jiabao He
1. International Society for Magnetic Resonance in Medicine, Member
2. International Society for Magnetic Resonance in Medicine British Chapter, Member
3. European Society for Magnetic Resonance in Medicine & Biology, Member
4. Biomedical Physics: MSc in Medical Physics, lecturer.
5. Course Co-ordinator, MBChB Year 4 Student Selected Component, Institute of Medical Sciences, University of Aberdeen

Dr Ian Fleming
1. Programme coordinator & lecturer BT3006, Working out: Placement & career skills
2. Programme coordinator BT5007, MSci Industrial Placement
3. Course coordinator & lecturer BP5003, Medical Physics/Medical Imaging
4. Course coordinator & lecturer PA3802, Pharmacology: Mechanisms of disease and principles of chemotherapy
5. Positive Outcomes Task Force (SMMSN representative).
6. Industry Liaison Group (member)
7. Coordinator IMS Hotstart programme
8. Student Support Group Committee (member)
9. Principle Investigator IMS Molecular Imaging laboratory
10. Radiation Protection Supervisor in IMS

All academic staff participate in the Personal Tutor Scheme for undergraduate students at the University of Aberdeen providing general support to students in matters such as achievement of the Graduate Attributes, Employability, Co-curricular opportunities and feedback as well as a pastoral support role.
The radiographic staff are actively encouraged to participate in departmental research, undertake a further qualification and during the upgrade of the MRI scanner a significant effort was made to engage in continuing professional development.

Mrs Beverly MacLennan
1. MRI Lead Superintendent Radiographer, University of Aberdeen & NHS Grampian
2. Aberdeen Biomedical Imaging Centre executive committee, University of Aberdeen, member
3. Radiology MRI Modality Group, NHS Grampian, member
4. Plain Film Orbit Reporting prior to MRI- referrer and reporting radiographer
5. Society of Radiographers, Professional Member
6. Health and Care Professions Council (HCPC), Registered Diagnostic radiographer
7. PgC Health Studies (Clinical Practice) University of Dundee
8. PgC Clinical Reporting (MRI-General Investigations) Canterbury Christchurch University
9. Reporting Radiographer, NHS Grampian (MRI-MSK imaging) including vetting of MSK MRI requests
10. MSc (Merit) Medical Imaging, Queen Margaret University

Continuous Professional Development during scanner upgrade
- Attended EPAD/SINAPSE Conference, King College, University of Aberdeen, Aug 2019
- Attended Prostate Imaging Study Day, Glasgow, Sept 2019
- 3 day visit to Cardiac Imaging Department, Royal Brompton Hospital Trust, London, Sept 2019
- Philips Users Meeting Study day, Manchester, Nov 2019
- Philips Applications training, Dec 2019
- Provide support to clinical NHS MRI service
- Provide clinical support to UoA FFC facility

Mrs Nichola Crouch
1. Research MRI radiographer, University of Aberdeen & NHS Grampian
2. Plain Film Orbit Reporting prior to MRI- referrer and reporting radiographer
3. Society of Radiographers, Professional Member
4. Health and Care Professions Council (HCPC), Registered Diagnostic radiographer
5. MSc. Imaging (with distinction) at University of Edinburgh
6. Adviser role with FFC MRI Group
7. Vetting of specific neuroradiology MRI requests - from Dec 2019
8. Supervise and oversee student visits

Continuous Professional Development during scanner upgrade
- Attended EPAD/SINAPSE Conference, King College, University of Aberdeen, Aug 2019
- Attended Prostate Imaging Study Day, Glasgow, Sept 2019
- 3 day visit to Cardiac Imaging Department, Royal Brompton Hospital Trust, London, Oct 2019
- Philips Users Meeting Study day, Manchester, Nov 2019
- Philips Applications training, Dev 2019.
- Provided support to clinical NHS MRI service
- Provide clinical support to UoA FFC facility
- Practice Educator Training Day - RGU

Mr Michael Hendry
1. Research MRI Radiographer, University of Aberdeen & NHS Grampian
2. Society of Radiographers, Professional Member
4. Health & Care Professions Council (HCPC), Registered Diagnostic Radiographer
5. Plain Film Orbit Reporting prior to MRI- referrer and reporting radiographer
6. CPR Cascade trainer, NHS Grampian

Continuous Professional Development during scanner upgrade
- Attended Neuro-anatomy course, London, July 2019
Attended EPAD/SINAPSE Conference, King College, University of Aberdeen, Aug 2019
3 day visit to Cardiac Imaging Department, Royal Brompton Hospital Trust, London, Aug 2019
Attended Prostate Imaging Study Day, Glasgow, Sept 2019
Philips Applications training, Nov 2019
Provided support to clinical NHS MRI service

Miss Laura Reid
1. Research MRI Radiographer, University of Aberdeen & NHS Grampian
2. NHS Grampian Key Handler for Moving & Handling
3. Society of Radiographers, Professional Member
4. Health & Care Professions Council (HCPC), Registered Diagnostic Radiographer
5. MRI In Practice Course, Essential Guide to Philips in MRI
6. Plain Film Orbit Reporting prior to MRI - referrer and reporting radiographer

Continuous Professional Development during scanner upgrade
- Attended EPAD/SINAPSE Conference, King College, University of Aberdeen, Aug 2019
- Philips Applications training, Nov 2019

PhD STUDENTS

Mr Ahmad Tawfiq Alenezi originally started his PhD in May 2018 under the supervision of Prof Matteo Zanda. Following Prof Zanda’s departure in December 2018, it took a couple of months to find a new project and supervisor. He commenced his current PhD entitled “Investigating synchrony and entropy parameters derived from nuclear ventriculography to predict cardiotoxicity in breast cancer patients” in March 2019. Supervisors - Prof Andy Welch, Dr Fergus McKiddie & Dr Mintu Nath.

Ms Nora Almuqbil commenced her PhD in October 2018 entitled “Radiomic Analysis of PET Hypoxia Markers” and is in her second year. Supervisors - Prof Andy Welch, Dr Fergus McKiddie & Dr Mintu Nath.

Dr Gabriel Cheung graduated in Spring 2019. He then moved to a research fellow position funded by Cancer Research UK from May 2019 on a grant awarded to Dr Jiabao He.

Ms Clarisse de Vries submitted her PhD entitled “Early Life Determinants of Brain Structural and Functional Connectivity and Relationship with Cognitive and Depressive Outcomes” in September 2019, undertaking her VIVA in December 2019. She will formally graduate in June 2020. She was appointed to a research assistant position funded for 3 months from NHSG Endowments to work on development of a graphic user interface (GUI) for resting state entropy in November 2019. Following this she will move to a research fellow position on the iCAIRD project from February 2020. Supervisors – Prof Alison Murray and Dr Roger Staff.

Ms Mina Khezrian is in Year 3 of her PhD entitled “Investigating the Role of Polypharmacy in Brain Ageing, and Cognitive, Physical and Emotional Impairment in Three Well Characterised Cohort Studies in Aberdeen”. She is completing her studies off campus due to family reasons but has regular skype calls with her supervisors. Supervisors: Prof Alison Murray, Dr Chris McNeil and Prof Phyo Myint.

Mr Philipp Loske is in Year 2 of his PhD entitled “Using Brain Network Models to Improve Diagnostic Accuracy of Behavioural Variant of Frontotemporal Dementia and Alzheimer’s Disease and Predicting Determinants of Treatment Response to LMTM” and is funded by Medical Research Scotland and TauRx. Supervisors: Dr Vesna Vuksanovic, Prof Alison Murray and Dr Gordon Waiter.

Mr Naif Majrashi is in Year 3 of his PhD entitled “Lifespan Model of Photo-Induced Neural Plasticity” and is funded by the Saudi Cultural Bureau. Supervisors: Dr Gordon Waiter, Dr Anca Sandu-Giuraniuc and Dr Trevor Ahearn.

Miss Vasiliki Mallokourti is in Year 4 of her PhD entitled “Development and Translation of Advanced Non-Invasive Metabolite Profiling Methods in Breast Cancer Using Magnetic Resonance Spectroscopy (MRS)” funded
by a Princess Royal Tenuos Scotland Medical Research Scholarship award to Dr He. She is due to submit towards September 2020. Supervisors: Dr Jiabao He and Prof David Lurie.

Dr Rosalind Mitchell-Hay commenced her PhD study in August 2019 on a part-time basis while working as a consultant radiologist, with a title of “Developing Imaging Biomarkers in Rectal Cancer”. Supervisors: Professor Alison Murray, Dr David McLernon and Dr Trevor Ahearn.

Ms Nafessa Nazlee commenced her PhD studies in May 2019 entitled “Brain cortical complexity and its association with cognitive performance and life-course factors across adulthood.” Nafeesa is partly self-funded with a grant from RSAT contributing to her project expenses. Supervisors: Dr Anca Sandu-Giuraniuc and Dr Gordon Waiter.

Mr Nicholas Payne formally graduated in June 2019 and initially worked in Kings College London, before moving to University of Cambridge, working as a medical physicist on the “Breast Screening – Risk Adaptive Imaging for Density” (BRAID) trial headed by Professor Fiona Gilbert.

Mr Nick Senn completed his PhD entitled “Development of Non-invasive Advanced Diffusion Magnetic Resonance Imaging Method for Human Skeletal Muscle”, submitting in September and undertook his VIVA in October. He has moved to a research assistant/fellow post with Prof Lurie in the FFC team until April 2020. He will formally graduate in June 2020. Supervisor – Dr Jiabao He & Prof David Lurie.

Mr Shaun Stone is in the writing up phase of his PhD supported by funding from SINAPSE and IXICO entitled “Prediction Models of Dementia Risk from Brain MR Images and Proxies of Cognitive Reserve”. He was awarded a 6 month extension during 2019 and should submit by end March 2020. Supervisors: Prof Alison Murray, Dr Gordon Waiter and Dr Anca Sandu-Giuraniuc.

Mr Robert Stormont continues his part-time PhD entitled “Radiofrequency coils for Fast Field-Cycling MRI” while working from GE Healthcare in the United States. Supervisor: Prof David Lurie.

Mr Shalendra Tripathi is in Year 3 of his PhD entitled “A study of Machine Learning analysis of brain FDG PET as a predictor of treatment response and progression in patients with Alzheimer’s dementia (AD)” Supervisors: Prof Alison Murray, Dr Bjoern Schelter, Prof Claude Wischik.

Ms Jennifer Waymont is in Year 4 of her PhD entitled “Automated detection of brain lesions in the Aberdeen Children of the 1950s and analysis of lifecourse determinants” funded initially University of Aberdeen Development Trust, then by TauRx. She hopes to submit in Spring 2020. Supervisors: Dr Gordon Waiter, Prof Alison Murray and Dr Chris McNeil.

Over the summer of 2019 the Lilian Sutton Building hosted one University of Aberdeen funded Hotstart student, Ms Farah Bassem Alabed, who worked with Mrs Mina Khezrian and Dr Chris McNeil for 6 weeks. Farah worked on this short project entitled “Medication use and cognitive function in the Aberdeen 1936 Birth Cohort” about taking medications and their effect on cognitive function using ABC36 data. Farah started her project with literature review around the topic. She then estimated the association between the exposure to different classes of medications including anticholinergics, PPIs and HRTs and subsequent cognitive function in cohort members. Farah applied various statistical and analytical techniques including descriptive analysis to compare the demographics, socioeconomic status and health conditions, data reduction techniques and linear regressions. The preliminary results showed a positive association between taking HRT and cognitive function at age 68 years. In addition, taking PPIs at wave three of the study, age 68 years, was associated with poorer cognition in this population. However, this association was not significant after adjusting for confounders. More analyses are required to further investigate the preliminary results found in this project. ABC36 dataset could be used to test these hypotheses further in the future.


Clark D, Okada Y, Moore K, Mason D, Pirastu N, Gandin I, Murray AD et al. Associations of autozygosity with a broad range of human phenotypes. Accepted by Nature Communications. September 2019


Vuksanović V, Staff RT, Ahearn T, Murray AD, Wischik CM. Cortical Thickness and Surface Area Networks in Healthy Aging, Alzheimer’s Disease and Behavioral Variant Fronto-Temporal Dementia. International


de Vries C, Staff RT, Walter GD, Sokunbi MO, Sandu AL & Murray AD. Motion during Acquisition is Associated with fMRI Brain Entropy. 1 Apr 2019, In : IEEE journal of biomedical and health informatics.


PRESENTATIONS


Waymont JMJ, McNeil C, Waiter GD, Murray AD. White matter hyperintensity burden is a significant predictor of global measures of white matter integrity and cognitive processing speed. SINAPSE Meeting Dundee 21st June 2019.


Lurie DJ, Broche LM, Davies GR, MacLeod MJ, Ross PJ. “MRI basics and research on Fast Field-Cycling MRI”, AMPERE NMR School, Zakopane, Poland, June 2019.


Senn N, Masannat Y, Husain E, Siow B, Heys SD, He J. Q-space imaging is more sensitive to breast tumour heterogeneity than conventional diffusion MRI. ESMRMB (Rotterdam, Netherlands) 2019.


Cheung SM, Masannat Y, Husain E, Mallikourti V, Heys SD, He J. Lipid composition is associated with lymphovascular invasion (LVI) and serotonin turnover in human breast tumours. SINAPSE (Dundee, UK) 2019 (Awarded Image Analysis Best Proffered Talk Prize).
Senn N, Masannat Y, Husain E, Siow B, Heys SD, He J. Multiparametric q-space imaging provides sensitive assessment of complex breast tumour heterogeneity. SINAPSE (Dundee, UK) 2019.


Senn N, Masannat Y, Husain E, Siow B, Heys SD, He J. Q-space imaging is more sensitive to breast tumour skewness than conventional diffusion MRI. BCISMRM (Sheffield, UK) 2019.


Chen KS, Cheung SM, Senn N, Masannat Y, Husain E, Heys SD, He J. Lipid composition mapping in whole breast tumour. BCISMRM (Sheffield, UK) 2019.


Cheung SM, Husain E, Masannat Y, Mallikourti V, Heys SD, He J. Lipid composition in whole breast tumours using double quantum filtered (DQF) correlation spectroscopy (COSY) is associated with lymphovascular invasion (LVI). BCISMRM (Sheffield, UK) 2019.


Cheung SM, Husain E, Masannat Y, Wahle K, Heys SD, He J. Non-invasive measurement of lactate concentration in multiple quantum coherence (MQC) magnetic resonance spectroscopy (MRS) is associated with breast cancer grading. BCISMRM (Sheffield, UK) 2019.


Senn N, Masannat Y, Husain E, Siow B, Heys SD, He J. Q-space imaging is more sensitive to breast tumour heterogeneity than conventional diffusion MRI. SINAPSE (Dundee, UK) 2019.

BOOK CHAPTERS


INVITED LECTURES


20 April – 16 June 2019. Immobile Choreography, by Beverley Hood. Edinburgh based artist Beverley Hood was commissioned by Grampian Hospital Arts Trust to work with The University of Aberdeen team who are leading the research project, IDentIFY.


Further information about both exhibitions available at https://www.abdn.ac.uk/news/opinion/the-art-of-mri/

11 June 2019 - Professor David Lurie gives the IPEM John Mallard Lecture at the UK Imaging and Oncology Congress (UKIO). President Professor Mark Tooley presented Professor David Lurie with his certificate for the John Mallard lecture at UKIO2019

17 June 2019 - CORDIS coverage of the IDentIFY project, in six languages. A novel full-body scanner will help revolutionise cancer diagnosis. View the full article

11 July 2019 - Professor David Lurie and Dr James Ross lead a series of workshops exploring magnetism, MRI and FFC in HMP Grampian, as part of the Cell Block Science programme. The pair explained the fundamentals of MRI, and of electromagnetism. They helped inmates build their own electromagnets. The engagement was superb and the feedback excellent.
CURRENT GRANTS


Using Brain Network modules to improve diagnostic accuracy of behavioural variant of frontotemporal dementia and alzheimer’s disease and predicting determinants of treatment response to LMTM. Waiter GD, Murray AD, Vuksanovic V. MRS/TauRx funded PhD Studentship – P. Loske. £93,912/£10,000 1/10/2018 to 30/09/2022.


Altered organisation of cholinergic and default mode brain networks in Alzheimer’s disease. Vuksanovic V, & Staff RT. £1,800, ARUK (small grant) 2019.


Hypoxia PET CT Imaging in Cancer. Laws K, Fleming IN, Dall’Angelo S. Friends of Anchor Fellowship £144,403, 2016-2019.
Detection of hypoxia in non small cell lung cancer with 18F FMISO PET/CT. Fleming IN, Dall’Angelo S, Samuel L. NHS Grampian Endowments. £11,634. 2017-2019.


End of Report