OCMR Philosophy

OCMR own Research Programme
Collaboration with other groups
Clinical CMR Service NHS
MR Physics: The MRI Toolbox

Major Research Projects

- Hypertrophic & dilated cardiomyopathy
- Coronary artery disease
- Heart in obesity
- Valvular heart disease
- Myocarditis
- Energetics in heart failure
- Diabetic cardiomyopathy
- Vascular MR
- Marfan syndrome
- Liver imaging
- MR Physics development (including 3 & 7T)
  - MR spectroscopy including $^{13}$C-Hyperpolarisation and $^{31}$P imaging at 7T
  - T1 mapping
  - 4D-flow imaging
  - Oxygenation imaging
  - Ultra short TE
- Advanced MR image analysis

The OCMR team 2002 → 2016
Director: Professor Stefan Neubauer

Metrics of success

- Scans performed: ~40,000
- Total project-specific grant funding: >£26m
- >597 manuscripts published, 44 in Circ/JACC/EHJ
- Total number of citations >14,000
- >40 DPhil and MD degrees completed, 12 ongoing
- Trainees appointed to senior positions worldwide (QMUL London, Birmingham, Adelaide, Sydney, Cape Town, Wellington)
- 6 international congresses organised (CMR, Metabolism, 4D flow)
- Many authorships of citations in clinical guidelines
- Recognition of senior staff by national and international Awards and Committee memberships
- European hub for HCMR multicentre study (with Christopher Kramer, Virginia, North American hub)
- Collaborating with >30 leading CMR researchers worldwide

Contributions to SCMR

- SCMR Program Committee Chair (2004), Past President (2006-2008) & Gold Medal Winner (2013) – Stefan Neubauer
- Technologist Committee Chair – Jane M Francis
- SCMR Board of Trustees – Vanessa Ferreira (2016-2019)
- SCMR Young Investigator Award (8 winners since 2004) [F Wiesmann 2004; A Cheng 2006; J Selvanayagam 2008; C Holloway 2010; S Dass 2013; V Ferreira 2014; A Lewis 2015; V Stoll 2016]
- Others – multiple oral presentations, posters and invited talks in all categories

Landmark papers

- Selvanayagam, J - Perfusion (Circulation 2005)
- Neubauer, S – Metabolism (NEJM 2007)
- Rider, O - Obesity (JACC 2009)
- Piechnik, S and Robson, M – ShMOLLI T1-mapping (JCMR 2010)
- Myerson, S - Aortic Regurgitation (Circulation 2013)
- Karamitsos, T - BOLD (JACC 2013)
- Ferreira, V – Pheochromocytoma and the heart (JACC 2016)
- Levelt, E - Diabetes (JACC 2016)

Plans for the next 15 years

- Continue proof-of-principle studies and MR physics development, e.g.
  - $^{13}$C-Hyperpolarizer
  - 7T clinical application
  - Parametric mapping, DTI
  - 4D flow
  - Other organs – Liver, spleen
  - Image analysis group/core lab
- Lead/co-lead large-scale multicentre clinical trials
- Build on HCMR (An international registry of 44 sites to study 2750 HCM patients, to change the paradigm of risk stratification, using CMR, genetic and biomarker analyses): Extend follow up to 10 years, imaging repeat
- Imaging for large scale population studies, e.g. UK Biobank/Big Data Institute

Funding Acknowledgments:

- SCMR Program Committee Chair (2004), Past President (2006-2008) & Gold Medal Winner (2013) – Stefan Neubauer
- Technologist Committee Chair – Jane M Francis
- SCMR Board of Trustees – Vanessa Ferreira (2016-2019)
- SCMR Young Investigator Award (8 winners since 2004) [F Wiesmann 2004; A Cheng 2006; J Selvanayagam 2008; C Holloway 2010; S Dass 2013; V Ferreira 2014; A Lewis 2015; V Stoll 2016]