Clarence Han-Wei Yapp

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EDUCATION

University of Oxford, UK

DPhil Biomedical Engineering (2007 - 2011)

MSc Biomedical Engineering (Distinction) (2006 - 2007)

Monash University, Malaysia

BEng Mechatronics Engineering (First Class Honors) (2002 - 2006)

EMPLOYMENT HISTORY

Laboratory of Systems Pharmacology / Image and Data Analysis Core, Harvard Medical School, USA

Research Associate (2016 – present)

- Advising and training IDAC users on image analysis techniques
- Developing new custom image analysis code or modifying existing solutions for IDAC users
- Maintenance of the microscopes in the LSP
- Advising and training LSP and NIC users on microscopy techniques

Botnar Research Centre, University of Oxford, UK

Head of Microscopy Facility (2011 - 2016)

- Provided experimental design, training, troubleshooting and support for 16 collaborative projects from 5 departments on time-lapsed, single, multiphoton and high-content microscopy. Users gave a 100% positive experience on training based on feedback survey
- Improved microscopy facility's financial state and cleared annual loss of $23,000 by expanding subscriptions from 3 to 36 users and consolidating equipment
- Managed the acquisition of $460,000 of imaging equipment resulting in an overall 100% satisfaction rating

Structural Genomics Consortium (SGC), University of Oxford, UK

Postdoctoral Research Scientist (2011 - 2016)

- Involved in multi-disciplinary collaborative projects between academia and industry to validate chemical probes for understanding the role of chromatin modifications
- Undertook ambitious projects by being lead developer of two image-based cellular assays:
  - High-throughput immunofluorescence assay for screening small molecule inhibitors
  - Automated Fluorescence Recovery After Photobleaching (FRAP) assay. Wrote custom MATLAB scripts with image analysis and fuzzy logic toolbox to automatically identify cells suitable for FRAP and analyze recovery times. Eliminated human bias and oversight.
- Collaborated with the Wellcome Trust Centre for Human Genetics, Kennedy Institute of Rheumatology, and the Weatherall Institute of Molecular Medicine to validate demethylase inhibition using FRET-FLIM, FCS, and STED microscopy respectively

Department of Engineering Sciences / Botnar Research Centre, University of Oxford, UK
PhD Research (2007 - 2011)

- Developed an image analysis algorithm in MATLAB to automatically identify stem cell colonies from microscopy images
- Used optoporation, an advanced optical cell-manipulation technique, as a drug screening tool by delivering membrane-impermeable small molecule inhibitors and proteins into living cells. Selected for showcasing (out of 20 other projects) in Oxford's International Year of Light 2015 video

TECHNICAL SKILLS

- Routine use of PerkinElmer Operetta and Zeiss LSM710 confocal and multiphoton microscopes for high-content screening and imaging live fluorescent cells, 3D tissue cultures, and *ex vivo* samples respectively
- Competent in developing custom MATLAB scripts and using image and data analysis software such as Columbus, Prism, Imaris, CellProfiler, ImageJ, and ZEN
- Experienced with culturing cell lines and differentiating embryonic stem cells in a 3D collagen scaffold
- Frequent implementation and optimization of transfection methods such as electroporation and lipofection
- Experienced with molecular biology techniques involving bacterial transformation and plasmid preparation
- Preparation of posters, manuscripts and presentations with Microsoft Word, Excel, and Powerpoint

TEACHING & PUBLIC ENGAGEMENT EXPERIENCE

- Communicated with school leavers about the usefulness of microscopy as part of public engagement at the Botnar Research Centre (2012 - 2016)
- Delivered a workshop that was oversubscribed by 3-fold (40 attendees) at the BRS/BORS Joint Meeting to demonstrate the applications of confocal and multiphoton microscopy for musculoskeletal research (2013)
- Co-organized the inaugural 3-day microscopy workshop with Olympus for 80 attendees (2012)
- Provided microscopy training for time-lapsed, single, multiphoton and high-content microscopy (2011 - 2016)
- Supervised 'Tissue Engineering' lab session in MSc Biomedical Engineering, University of Oxford (2008)

COMMITTEE EXPERIENCE

Nuffield Department of Medicine, University of Oxford, UK
Laser Safety Officer (2015 - 2016)
Implemented measures for safe usage of laser equipment during operation and servicing

Wolfson College Boat Club, University of Oxford, UK
President (2009 - 2010)
Led a 60-member club to earn the 'Most Successful Boat Club of the year' award out of 36 clubs by maintaining a high-quality level of coaching and equipment

GRANTS / AWARDS / PRIZES

- 1st Prize NDM Microscopy Contest (2015)
- Grant awarded by Medical Research Fund, University of Oxford ($14,800) (2013)
  "Development of an automated image-based FRAP system for screening Bromodomain inhibitors"
- 1st Prize OxTalent Awards – Digital Imaging (2013)
- 1st Prize Olympus Microscopy Image contest (2012)
- Man Group Engineering Scholarship ($37,000) (2009 - 2011)
- Oxford BioSignals Prize for 'Best performance in MSc (Biomedical Engineering)' (2007)
- Overall Best Graduating Student award in Mechatronics at Monash University (2006)
- Monash University Entrance Scholarship (2002 - 2006)

POSTER PRESENTATIONS

C Yapp, A Noble, U Oppermann, 2014, Automated targeted laser-based delivery of proteins and chemical compounds into living cells for drug development, MPE User Group Meeting and Workshop, Oxford, UK

C Yapp, M Philpott, C Rogers, S Müller, 2014, Automated FRAP for screening inhibitors of bromodomain, SGC 10th year Symposium, Oxford, UK

C Yapp, M Philpott, C Wells, U Oppermann, S Müller, 2013, Advanced microscopy techniques for assessing inhibitors of epigenetic targets in cell-based assays, SGC Symposium, Oxford, UK

C Yapp, A Noble, U Oppermann, 2011, Automated targeted laser-based delivery of proteins and chemical compounds into living cells for drug development, Contemporary Strategies and Practices in Medicinal Chemistry, Singapore

PUBLICATIONS

SB Hatch*, C Yapp* (*authors contributed equally), RC Montenegro, P Savitsky, V Gamble, A Tumber, GF Ruda, V Bavetsias, O Fedorov, B Atrash, F Raynaud, R Lanigan, L Carmichael, K Tomlin, R Burke, SM Westaway, JA Brown, RK Prinjha, ED Martinez, U Oppermann, CJ Schofield, C Bountra, A Kawamura, J Blagg, PE Brennan, O Rossanese and S Müller, 2017, Assessing histone demethylase inhibitors in cells: lessons learned, Epigenetics and Chromatin, 10:9

A Kawamura, M Munzel, T Kojima, **C Yapp**, B Bhushan, Y Goto, Anthony Tumber, T Katoh, ONF King, Toby Passioura, LJ Walport, SB Hatch, S Madden, S Muller, PE Brennan, R Chowdhury, RJ Hopkinson, H Suga, CJ Schofield, 2017, Highly selective inhibition of histone demethylases by de novo macrocyclic peptides, Nature Comm. (preprint)

A Tumber, A Nuzzi, ES Hookway, SB Hatch, S Velupillai, C Johansson, A Kawamura, P Savitsky, **C Yapp,** A Szykowska, N Wu, C Bountra, C Strain-Damerell, NA Burgess-Brown, GF Ruda, O Fedorov, S Munro, KS England, RP Nowak, CJ Schofield, NB La Thangue, C Pawlyn, F Davies, G Morgan, N Athanasou, S Müller, U Oppermann, PE Brennan, 2017, Potent and Selective KDM5 Inhibitor Stops Cellular Demethylation of H3K4me3 at Transcription Start Sites and Proliferation of MM1S Myeloma Cells, Cell Chem. Bio., 24(3):371–380

DN Fusco, H Pratt, S Kandilas, SSY Cheon, W Lin, DA Cronkite, M Basavappa, KL Jeffrey, A Anselmo, R Sadreyev, **C Yapp**, X Shi, JF O'Sullivan, RE Gerszten, T Tomaru, S Yoshino, T Satoh, RT Chung, 2017, HELZ2 Is an IFN Effector Mediating Suppression of Dengue Virus. Frontiers in Microbiology, 8:240

MJ Niederhuber, TJ Lambert, **C Yapp**, PA Silver, JK Polka, 2016, Super-resolution microscopy of the beta-carboxysome reveals a homogenous matrix. (preprint)

C Yapp, U Oppermann, A Price, AJ, Carr, SJB Snelling, 2016, H3K27me3 demethylases regulate in vitro chondrogenesis and chondrocyte activity in osteoarthritis, Arthritis Res. Ther., 18(1):158

C Yapp, C Rogers, Pavel Savitsky, Martin Philpott, S Müller, 2016, Frapid: achieving full automation of FRAP for

chemical probe validation, Biomed. Opt. Express, 7(2):422-441

MK Kuzniarska, **C Yapp**, PA Hulley, 2016, Using fluorescence recovery after photobleaching to study gap junctional communication in vitro, Gap Junction Protocols, 1437:171-179

SG Dakin, FM Estrada, **C Yapp**, G Wells, U Oppermann, B Dean, RDJ Smith, K Wheway, B Watkins, L Roche, AJ Carr, 2016, Inflammation activation and resolution in human tendon disease, Sci. Transl. Med., 7(311):173

CL Sutherell, C Tallant, O Monteiro, **C Yapp**, J Fuchs, O Federov, P Siejka, S Müller, S Knapp, J Brenton, P Brennan, S Ley, 2016, Identification and development of 2,3-Dihydropyrrolo[1,2-*a*]quinazolin-5(1*H*)-one Inhibitors Targeting Bromodomains within the Switch/Sucrose Nonfermenting Complex, J. Med. Chem., 59(10):5095-5101

RDJ Smith, A Carr, SG Dakin, SJB Snelling, **C Yapp**, O Hakimi, 2016, The response of tenocytes to commercial scaffolds used for rotator cuff repair, Eur. Cell. Mater., 31:107-118

TM Grant, **C Yapp**, Q Chen, JT Czernuszka, MS Thompson, 2015, The Mechanical, structural, and compositional changes of tendon exposed to elastase, Ann. Biomed. Eng., 43:2477

CC Thinnes, A Tumber, **C Yapp**, G Scozzafava, T Yeh, MC Chan, TA Tran, K Hsu, H Tarhonskaya, LJ Walport, SE Wilkins, ED Martinez, S Müller, CW Pugh, PJ Ratcliffe, P Brennan, A Kawamura, CJ Schofield, 2015, Betti Reaction enables efficient synthesis of 8-hydroxyquinoline inhibitors of 2-oxoglutarate oxygenases, Chem. Commun. 51:15458-15461

M Philpott, CM Rogers, **C Yapp**, C Wells, JP Lambert, C Strain-Damerell, NA Burgess-Brown, AC Gingras, S Knapp, S Müller, 2014, Assessing cellular efficacy of bromodomain inhibitors using fluorescence recovery after photobleaching, Epigenetics & Chromatin, 7:14

MK Kuzniarska, **C Yapp**, TW Pearson-Jones, AK Jones, PA Hulley, 2014, Functional assessment of gap junctions in monolayer and three-dimensional cultures of human tendon cells using fluorescence recovery after photobleaching. J. Biomed. Opt. 19(1), 015001

O Hakimi, R Poulson, D Thakkar, **C Yapp**, A Carr, 2014, Ascorbic acid is essential for significant collagen deposition by human tenocytes in vitro, Oxid. Antioxid, Med. Sci., 3(2):119-127

D Rotili, S Tomassi, M Conte, R Benedetti, M Tortorici , G Ciossani , S Valente, B Marrocco, D Labella, E Novellino, A Mattevi , L Altucci, A Tumber , **C Yapp** , ONF King, RJ Hopkinson, A Kawamura, CJ Schofield, and A Mai, 2014, Pan-Histone Demethylase Inhibitors Simultaneously Targeting Jumonji C and Lysine-Specific Demethylases Display High Anticancer Activities. J. Med. Chem., 57 (1):42–55

O Fedorov, H Lingard, C Wells, OP Monteiro, S Picaud, T Keates, **C Yapp**, M Philpott, SJ Martin, I Felletar, BD Marsden, P Filippakopoulos, S Muller, S Knapp, and PE Brennan, 2014, [1,2,4]Triazolo[4,3‑a]phthalazines: Inhibitors of Diverse Bromodomains. J. Med. Chem. 57(2):462–476

RJ Hopkinson*, A Tumber*, C Yapp*, R Chowdhury*, (*these authors contributed equally), W Aik, KH Che, XS Li, JBL Kristensen, ONF King, MC Chan, KK Yeoh, H Choi, LJ Walport, CC Thinnes, JT Bush, C Lejeune, AM Rydzik, NR Rose, EA Bagg, MA McDonough, TJ Krojer, WW Yue, SS Ng, L Olsen, PE Brennan, U Oppermann, S Müller, RJ Klose, PJ Ratcliffe, CJ Schofield and A Kawamura, 2013, 5-Carboxy-8-hydroxyquinoline is a broad spectrum 2-oxoglutarate oxygenase inhibitor which causes iron translocation. Chemical Science 8(4):3110-3117

I Adekanmbi, NZ Baboldashti, **C Yapp**, S Franklin, MS Thompson, 2013, A novel in vitro loading system for high frequency loading of cultured tendon fascicles. Med Eng Phys. 35(2):205-10

U Tirlapur & **C Yapp**, 2011, Near Infrared Three-Dimensional Nonlinear Optical Monitoring of Stem Cell Differentiation. Optical Fluorescence Microscopy

C Yapp & ASK Bin, 2008, Teaching Image Processing: A Two Step Process. Computer Applications in Engineering Education. 16(3):211-222

LB Leong & **C Yapp**, 2008, Dissipative Relativistic Standard Map. Chaos, Solitons & Fractals. 37(5): 1300-1304