BIRMINGHAM CENTRE FOR GENOME BIOLOGY

BCGB Symposium 10th June 2022

Programme Draft and Overview

Leonard Deacon Lecture Theatre and Wolfson Common Room

9:00	**Welcome**	**Ferenc Mueller**
		Chair: **Conny Bonifer**
09:10	Short talk (12 min +3)	**Ben Edginton-White** *A genome-wide relay of signalling-responsive enhancers drives hematopoietic specification*
09:25	Short talk (12 min +3)	**Alice Ormrod** *Investigating how MRE11 lysine methylation regulates DNA metabolism*
09:40	Short talk (12 min +3)	**Megan Burley** *Deregulation of CTCF-YY1-dependent oncogene transcription regulation in HPV-driven disease*
09:55	Short talk (12 min +3)	**David McQuarrie** *ELAV forms a saturable complex on extended RNA, but can nucleate requiring multiple spaced U-rich motifs*
10:10	Short talk (12 min +3)	**Claire Palles** *Germline MBD4-deficiency causes a multi-tumor predisposition syndrome*
10:25	Refreshments	Tea/Coffee Water
		Chair: **Matthias Soller**
10:55	Short talk (12 min +3)	**Hannah Dixon** *UPF1 is required for productive pre-mRNA splicing of ribosomal protein genes*
11:10	Short talk (12 min +3)	**George Ronson** *The basis of the synthetic lethal relationship between BRCA gene deficiency, 53BP1 deficiency and DNA Polymerase theta loss.*
11:25	Short talk (12 min +3)	**Csilla Varnai** *3D genome organisation in spermatozoa*
11:40	Short talk (12 min +3)	**Rachel Bayley** *MYBL2 is required for maintaining pluripotency and DNA repair in triple negative breast cancer stem cell**s***
11:55	Short talk (12 min +3)	**Rui Monteiro** *Lineage skewing and genome instability underlie marrow failure in a zebrafish model of GATA2 deficiency*

12:10	Lunch and posters. Poster Panel Judges:	Platters served Tea/Coffee Water
		Chair: **Rui Monteiro**
13:50	Short talk (12 min +3)	**Matthew Gillespie** *Investigating the Role of PRMT5 in the DNA Damage Response of Breast Cancer Stem Cells*
14:05	Short talk (12 min +3)	**Assunta Adamo** *Definition and interrogation of the gene regulatory network of CEBPA double-mutated Acute Myeloid Leukaemia*
14:20	Short talk (12 min +3)	**Anoop Singh Chauhan** *Isomerization dependent SUMOylation of RNF168 restrains its chromatin accumulation*
14:35	Short talk (12 min +3)	**Paul Badenhorst** *Combinatorial histone modifications direct ATP-dependent chromatin remodeling by NURF to promoter proximal nucleosomes.*
14:50	Refreshments	Tea/Coffee Water
		Clare Davies
15:10	Short talk (12 min +3	**Ada Jimenez-Gonzalez** *Intergenerational effects of paternal starvation manifests in variation in metabolic gene expression in zebrafish development*.
15:25	Short talk (12 min +3	**Shaun Scaramuzza** *The ubiquitin ligase TRAIP plays an essential role during S-phase of unperturbed cell cycles for the resolution of DNA replication – transcription conflicts*
15:40	Keynote Speaker (30 mins +10)	**Chair and introduction: Ferenc Mueller** **Kristian Helin,** ICR, London ***Novel Targets for the Treatment of Acute Myeloid Leukaemia***
16:20	Prizes, thanks and close	**Ferenc and members of the executive**
16:30-	Wine reception (donations accepted) and bring in share: Venue to be determined	The Best of International BCGB Grub, Bring and Share! To see what others are bringing (and to give a two-word description of your contribution) go to:https://doodle.com/meeting/participate/id/bmZ1XE9d

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Talks

A genome-wide relay of signalling-responsive enhancers drives hematopoietic specification
Edginton-White, B.[1+], Maytum, A[1+]; Kellaway, S.G.[1], Goode, D.K.[2], Keane, P.[1], Pagnuco, I.[3,1], Assi, S.A.[1], Ames, L.[1], Clarke, M[1], Cockerill, P.N., Göttgens, B.[2], Cazier, J.B.[1,3], and Bonifer, C[1].
[+]Equal contribution

Investigating how MRE11 lysine methylation regulates DNA metabolism
Alice Ormrod, Amalia Goula, Shabana Begum and Martin Higgs

Deregulation of CTCF-YY1-dependent oncogene transcription regulation in HPV-driven disease
Megan Burley

ELAV forms a saturable complex on extended RNA, but can nucleate requiring multiple spaced U-rich motifs
David McQuarrie and Matthias Soller
School of Biosciences, University of Birmingham, Birmingham, UK, B15 2TT

Germline MBD4-deficiency causes a multi-tumor predisposition syndrome
***Claire Palles*[1,*]**, Hannah D. West[2,*], Edward Chew[3,*], Sara Galavotti[1,*], Christoffer Flensburg[3,*], Judith E. Grolleman[4,*], Erik A.M. Jansen[4], Helen Curley[1], Laura Chegwidden[1], Edward H. Arbe-Barnes[5], Nicola Lander[2], Rebecca Truscott[2], Judith Pagan[6], Ashish Bajel[7], Kitty Sherwood[8], Lynn Martin[1], Huw Thomas[9], Demetra Georgiou[10], Florentia Fostira[11], Yael Goldberg[12,13], David J. Adams[14], Simone A.M. van der Biezen[4], Michael Christie[3,15], Mark Clendenning[15,16], Laura E. Thomas[17], Constantinos Deltas[18], Aleksandar J. Dimovski[19], Dagmara Dymerska[20], Jan Lubinski[20], Khalid Mahmood[15,16], Rachel S. van der Post[21], Mathijs Sanders[22], Jürgen Weitz[23], Jenny C. Taylor[24], Clare Turnbull[25], Lilian Vreede[4], Tom van Wezel[26], Celina Whalley[1], Claudia Arnedo-Pac[27], Gulio Caravagna[25], William Cross[28], Daniel Chubb[25], Anna Frangou[5], Andreas J. Gruber[29], Ben Kinnersley[25], Boris Noyvert[1], David Church[5], Trevor Graham[30], Richard Houlston[25], Nuria Lopez-Bigas[27], Andrea Sottoriva[28], David Wedge[29], Genomics England Research Consortium[a], The CORGI Consortium[b], WGS500 Consortium[c], Mark A. Jenkins[16,31], Roland P. Kuiper[4,32], Andrew W. Roberts[3,6,16,33], Jeremy P. Cheadle[2], Marjolijn J.L. Ligtenberg[4,21], Nicoline Hoogerbrugge[4], Viktor H. Koelzer[34], Andres Dacal Rivas[35], Ingrid M. Winship[36,37], Clara Ruiz Ponte[38], Daniel D. Buchanan[15,16,36], Derek Power[39], Andrew Green[40], Ian P.M. Tomlinson[8,#,$], Julian R. Sampson[2,#,$], Ian J. Majewski[3,31,#], Richarda M. de Voer[4,#]

UPF1 is required for productive pre-mRNA splicing of ribosomal protein genes
Hannah L. Dixon[1], Anand K. Singh[1,2,] Matthew Wright[1], Saverio Brogna[1].
School of Biosciences, University of Birmingham, Edgbaston, Birmingham, B15 2TT, UK
Interdisciplinary School of Life Sciences, Banaras Hindu University, Varanasi, 221005, India

The basis of the synthetic lethal relationship between BRCA gene deficiency, 53BP1 deficiency and DNA Polymerase theta loss.
George Ronson, Katarzyna Starowicz, Elizabeth Anthony, Lucy Clarke, Alexander J. Garvin, Andrew D Beggs[1,2], Celina M Whalley[2], Matthew Edmonds[1], James Beesley[1] and Joanna R Morris
1: Birmingham Centre for Genome Biology and Institute of Cancer and Genomic Sciences, College of al and Dental Schools, University of Birmingham, B15 2TT, UK.
2. Genomics Birmingham, College of Medical and Dental Schools, University of Birmingham, B15 2TT, UK.

3D genome organisation in spermatozoa
Csilla Várnai*[1], Gregor Jessberger*[2], Roman R Stocsits[2], Wen Tang[2], Georg Stary[2], Jan-Michael Peters[2]
1: Centre for Computational Biology, University of Birmingham, Birmingham, UK
Institute of Cancer and Genomic Sciences, University of Birmingham, UK
2: Research Institute of Molecular Pathology (IMP), Vienna Biocenter (VBC), Vienna, Austria

MYBL2 is required for maintaining pluripotency and DNA repair in triple negative breast cancer stem cells
Rachel Bayley, Anna Munsey, Amber Stiby, Bohdana-Myroslava Briantseva, Marco Saponaro, Clare Davies, Paloma Garcia

Lineage skewing and genome instability underlie marrow failure in a zebrafish model of GATA2 deficiency
Christopher B. Mahony[1,2], Pavle Vrljicak[4], Boris Noyvert[3], Chrystala Constantinidou[4], Lucy Copper[1,2,3], Sofia Browne[1,2], Yi Pan[3], Claire Palles[1,2,3] ,Sascha Ott[4], Martin R. Higgs[1,2,3], **Rui Monteiro[1,2,3,]**
[1] Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham (UK)
[2] Birmingham Centre of Genome Biology, University of Birmingham, UK
[3] Cancer Research UK Birmingham Centre and Centre for Computational Biology, Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, UK
[4] Division of Biomedical Sciences, Warwick Medical School, University of Warwick, Coventry, UK

Investigating the Role of PRMT5 in the DNA Damage Response of Breast Cancer Stem Cells
Matthew Gillespie, Debashish Sahay, Kelly Chiang, Paloma Garcia, Clare Davies

Definition and interrogation of the gene regulatory network of CEBPA double-mutated Acute Myeloid Leukaemia
Assunta Adamo[1], Paulynn Chin[1], Peter Keane[1], Salam A. Assi[1], Sandeep Potluri[1], Sophie G. Kellaway[1], Daniel Coleman[1], Anetta Ptasinska[1], H. Ruud Delwel[2], Peter N. Cockerill[1] and Constanze Bonifer[1]
[1]Institute of Cancer and Genomic Sciences, School of Medicine and Dentistry, University of Birmingham, Birmingham, UK
[2]Department of Hematology, Erasmus MC Cancer Institute, Rotterdam, The Netherlands

Isomerization dependent SUMOylation of RNF168 restrains its chromatin accumulation
Anoop Singh Chauhan[1], Matt MacKintosh[1,2] Alexander James Garvin[1], Mohammed Jamshad[1], Aneika Leney[2], Joanna R. Morris[1] Birmingham Centre for Genome Biology and Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, B15 2TT, UK.
School of Biosciences, University of Birmingham, B15 2TT, UK.

Combinatorial histone modifications direct ATP-dependent chromatin remodeling by NURF to promoter proximal nucleosomes.
So Yeon Kwon[1], Boyun Jang[1], Valentina Grisan[1], Michelle AC Reed[1], Hyeim Jung[1], Ye Eun Lee[1], Robyn Halston[1], Giovanni Bottegoni[2], Ulrich Gunther[3,4], Carl Wu[5], and **Paul Badenhorst[1]**
[1] Institute of Cancer and Genomic Sciences, University of Birmingham, Edgbaston, B15 2TT, United Kingdom
[2] Università degli Studi di Urbino Carlo Bo, Via Aurelio Saffi, 2, 61029 Urbino PU, Italy
[3] Wellcome Trust Biomolecular NMR facility, University of Birmingham, Edgbaston, B15 2TT

Intergenerational effects of paternal starvation manifests in variation in metabolic gene expression in zebrafish development.
Ada Jimenez-Gonzalez[1], Federico Ansaloni[1,3,4] Ghazal Alavioon[2], Constance Nebendahl[2], Remo Sanges[3,4], Ferenc Müller[1], Simone Immler[2]
[1] Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, Vincent Drive, Edgbaston, B15 2TT, Birmingham, UK
[2] Department of Evolutionary Biology, Uppsala University, Uppsala, Sweden, School of Biological Sciences, University of East Anglia, Norwich, United Kingdom [3] Central RNA Laboratory, Istituto Italiano di Tecnologia (IIT), Genova, Italy
[4] Area of Neuroscience, Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy

The ubiquitin ligase TRAIP plays an essential role during S-phase of unperturbed cell cycles for the resolution of DNA replication – transcription conflicts
Shaun Scaramuzza, Martina Muste Sadurni, Divyasree Poovathumkadavil, Toyoaki Natsume, Patricia Rojas, Masato Kanemaki, Marco Saponaro, Agnieszka Gambus

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Poster Presentations

1. *Understanding the roles of the RNA helicases FaL1 and Upf1 on gene expression in Schizosaccharomyces pombe*
   Md Nazmul Hossain, Reece P Summers, Precious O Owuamalam and Saverio Brogna*
   School of Biosciences and Birmingham Centre of Genome Biology (BCGB), University of Birmingham, UK

2. *A versatile vertebrate cell-free extract system to observe replication fork collisions with non-canonical DNA structures and protein-based obstacles at the ensemble and single-molecule level.*
   Neville S Gilhooly and Agnieszka Gambus
   Institute of Cancer and Genomic Sciences, Birmingham Centre for Genome Biology, University of Birmingham, UK.

3. *Phosphorylation of ubiquitin as a novel post-translational modification in the double strand break response*
   Abigail Farrell, Dr Agnieszka Gambus
   Institute of Cancer and Genomic Sciences, University of Birmingham, UK

4. *USP50 promotes replication fork progression and restart via a ubiquitin interaction and WRN-FEN1 mediation.*
   Hannah L. Mackay[1], Helen R. Stone[1] George E. Ronson[1], Alexandra K. Walker[1], Katarzyna Starowicz[1], Alexander J. Garvin[1], Alina Vaitsiankova[2], Sobana Vijayendran[1,3], Katherine Ellis[1], Anoop Singh Chauhan[1], James Beesley[1], Keith W. Caldecott[2], Eva Petermann[1], Eric J. Brown[4], Ruth M. Densham[1] and Joanna R Morris[1].
   Birmingham Centre for Genome Biology and Institute of Cancer and Genomic Sciences, University of Birmingham. B15 2TT. UK
   Genome Damage and Stability Centre, School of Life Sciences, University of Sussex, Falmer, Brighton, BN1 9RQ, UK.
   Present address: University Hospital Birmingham NHS Foundation Trust Queen Elizabeth Hospital Birmingham, Mindelsohn Way, Birmingham. B15 2TH. UK
   Abramson Family Cancer Research Institute, Perelman School of Medicine University of Pennsylvania Institute, 421 Curie Boulevard 421 Curie Boulevard PA 19104-6160. USA.

5. *Investigating the role of PRMT1 mediated methylation of FXR1 in DNA repair.*
   Karan Sharma, Agnieszka Zielinska, James Jarrold, Mark Skehel and Clare C. Davies.

6. *Modification of the SUMO activating enzyme directs SUMO isoform bias and mitotic fidelity*
   Alexandra K Walker[1], Alexander Lanz[1], Mohammed Jamshad[1], Alexander J Garvin[1], Peter Wotherspoon[2], Benjamin F Cooper[2], Joanna R. Morris[1]
   Birmingham Centre for Genome Biology and Institute of Cancer and Genomic Sciences, College of al and Dental Schools, University of Birmingham, B15 2TT, UK.
   School of Biosciences, University of Birmingham, Birmingham, B15 2TT, U.K.

7. *Characterisation of PRMT5-mediated gene regulation in breast cancer*
   Kelly Chiang, Debashish Sahay[1], Clare C Davies
   Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, Vincent Drive, Birmingham, B15 2TT, UK.

8. *Identification of signalling-responsive cis-regulatory elements regulating blood development*
   Maytum, A1+; Edginton-White, B.1+*, Kellaway, S.G.1, Goode, D.K.2, Keane, P.1, Pagnuco, I.3,1, Assi, S.A.1, Ames, L.1, Clarke, M1, Cockerill, P.N., G ttgens, B.2, Cazier, J.B.1,3, and Bonifer, C1*.

9. *Arginine methylation and ubiquitylation crosstalk controls DNA end-resection and homologous recombination repa*ir
Maria Pilar Sanchez-Bailon[1,4,6], Soo-Youn Choi[1,6], Elizabeth R. Dufficy[1,6], Karan Sharma[1], Gavin S. McNee[1], Emma Gunnell[2], Kelly Chiang[1], Debashish Sahay[1], Sarah Maslen[3], Grant S. Stewart[1], J. Mark Skehel[3,5], Ingrid Dreveny[2] and **Clare C. Davies[1]**
[1] Institute of Cancer and Genomic Sciences, University of Birmingham, UK
[2] Biodiscovery Institute, School of Pharmacy, University of Nottingham, Nottingham, UK
[3] MRC Laboratory of Molecular Biology, Cambridge, UK
[4] Present address: Max Delbrück Center for Molecular Medicine, Berlin, Germany
[5] Present address: The Francis Crick Institute, London, UK.

10. Small Ubiquitin-like Modifier 4 regulates DNA double strand break repair independently of conjugation
Alexander J. Garvin, Alexander Lanz, Ruth Densham & Joanna R. Morris
Birmingham Centre for Genome Biology, Institute of Cancer and Genomic Sciences, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom.

11. *The differential activity of TRAIP in replisome disassembly in S-phase and mitosis*
Divya Poovathumkadavil and Agnieszka Gambus
Institute for Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK

12. *Investigation into PIN1's interaction with various DNA damage response proteins.*
Matt Mackintosh[1,2], Anoop Chauhan[1], Aneika Leney[2], Joanna R. Morris[1]
Birmingham Centre for Genome Biology and Institute of Cancer and Genomic Sciences, College of al and Dental Schools, University of Birmingham, B15 2TT, UK.
School of Biosciences, University of Birmingham, B15 2TT, UK.

13. *Stratifying tumour heterogeneity through imaging and transcriptomic profiling of colorectal organoids.*
Paige-Louise White[1], Joseph Wragg[1], Yavor Hadzhiev[1], Louise Tee[1], Aleksandar Atanasov[1], Andrew Beggs[1], Ferenc Mueller[1]
[1] Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, Vincent Drive, Edgbaston, B15 2TT, Birmingham, UK

14. *Leukaemic stem cells cell hijack lineage inappropriate signalling pathways to activate growth*
Alice Worker[1], Sophie G Kellaway[1], Sandeep Potluri[1], Luke Ames[1], Peter Keane[1], Paulynn S Chin[1], Anetta Ptasinska[1], Salam Assi[1], Helen Blair[2], Olaf Heidenreich[3], Peter N Cockerill[1], Constanze Bonifer[1]
Institute of Cancer and Genomic Sciences/Birmingham Centre for Genome Biology, University of Birmingham, B15 2TT, UK
Translation and Clinical Research Institute, Newcastle University, NE1 7RU, UK
Prinses Máxima Centrum voor kinderoncologie, 3584CS Utrecht, Netherlands

15. *Questioning the Nonsense: What mechanism(s) connect pre-mRNA splicing with Nonsense Mediated mRNA Decay in fission yeast?*
Precious O. Owuamalam and Saverio Brogna
School of Biosciences, College of Life and Environmental Sciences, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom

16. Protein Arginine Methyltransferase 5 interacts with LMO2 in Human T-cell Acute Lymphoblastic Leukaemia
Fatma Saleman, Sarah Binhassan, Shorog Al Omair, Doug Ward, Sylvia Miller, Vesna Stanulovic and Maarten Hoogenkamp

17. *Investigating the spatiotemporal patterning of zygotic genome activation in the yolk syncytial layer of the zebrafish embryo* **H.K. Qureshi[1], K. T. Wozniak**, F. Mueller **Co-first authors**, both presenting
[1]Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, Birmingham B15 2TT

18. *Replication associated developmental defects are caused by hypomorphic mutations in Treslin/TICRR and MTBP*
Satpal Jhujh[1], Anika Marko[2], Paulina Prorok[3], Clara Collart[4], Philip J. Byrd1, Gavin Scott McNee1, Stephen RF Twigg5, Beth Woodward1, Anil N Ganesh1, John J Reynolds1, Christopher G Mathew6, Michael A Simpson6, Raimundo Freire7, A Malcolm R Taylor1, Noa Ruhrman Shahar8, Helen V Firth9, Sander Pajusalu10, Philip Zegerman4, Christina Cardoso3, Andrew O Wilkie5, Dominik Boos2, Grant S Stewart1*.
Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK. 2. Wellcome Trust/Cancer Research UK Gurdon Institute, The Henry Wellcome Building of Cancer and Developmental Biology, University of Cambridge, Cambridge, UK. 3. Clinical Genetics Group, Weatherall Institute of Molecular Medicine, University of Oxford, John Radcliffe Hospital, Headington, Oxford, UK 4. Cell Biology and Epigenetics, Department of Biology, Technische Universität Darmstadt, Darmstadt, Germany. 5. Centre for Medical Biotechnology, Molecular Genetics II, University Duisburg-Essen, Essen, Germany. 7. Department of Medical and Molecular Genetics, Faculty of Life Science and Medicine, King's College London, Guy's Hospital, London, UK. 8. Universidad de La Laguna, La Laguna, Santa Cruz de Tenerife, Spain 9. Raphael Recanati Genetics Institute, Rabin Medical Center, Beilinson Hospital, Petah Tikva, Israel 10. Cambridge University Hospitals, Addenbrooke's Hospital, Cambridge, UK 11. Department of Clinical Genetics, United Laboratories, Tartu University Hospital, Tartu, Estonia

19. *RRM3-mediated multimerization is required for ELAV function and splicing fidelity of its putative target mRNAs*
Thomas, C. Dix[1], Irmgard, U. Haussmann[2], Ulrike Brauer[1*], Min Li[1*], and Matthias Soller[1]
School of Biosciences, College of Life and Environmental Sciences, University of Bimringham
2*. Former lab member, School of Biosciences, College of Life and Environmental Sciences, University of Birmingham
Department of Life Science, Faculty of Health, Education and Life Sciences, Birmingham City University

20. *Investigation of small ubiquitin-related modifier E1 phosphorylation in DNA damage repair and mitosis.*
Alexander Lanz[1], Alexandra K Walker[1], Mohammed Jamshad[1], Alexander J Garvin[1], Joanna R. Morris[1]
Birmingham Centre for Genome Biology and Institute of Cancer and Genomic Sciences, College of al and Dental Schools, University of Birmingham, B15 2TT, UK

21. *The impact of C/EBPa c-terminal mutation on the development of haematological disorders*
Yara Alyahyawi, Ruba Al Maghrabi, Paloma Garcia

22. *Targeting RNase H2-deficient malignancies*
Angelo Agathanggelou[1†], Sael Alatawi[1], Ceri Oldreive[1], Nicholas Davies[1], Anne-Marie Hewitt[1], David Parry[2], Martin Reijns[2], Diana Rioz Szwed[2], Andrew Jackson[2], Tatjana Stankovic[1].
1-ICGS, University of Birmingham; 2- MRC Institute of Genetics and Molecular Medicine
The University of Edinburgh

23. *Understanding the Mechanisms by which the RNA Helicase UPF1 Reduces Cellular Stress and Degeneration*
Matthew Wright and Saverio Brogna

24. *New insights into molecular mechanisms of T cell differentiation, memory and homeostasis.*
Peter Cockerill[1], Sarah Bevington1, Peter Keane[1] and David Withers[2]
[1] Institute of Cancer and Genomic Sciences
[2] Institute of Immunology and Immunotherapy

25. *Investigating the Role of PRMT5 in the DNA Damage Response of Breast Cancer Stem Cells*
Matthew Gillespie, Debashish Sahay, Kelly Chiang, Paloma Garcia, Clare Davies

26. *Runx1 priming controls synovial fibroblast pathogenicity in inflammatory arthritis*
Mahony, CB, Kemble, S, Marsh, L, Turner, J and Croft, AP.

27. The effect of Danazol as a treatment for Myelodysplastic Syndromes (MDS/AML)
    Ola Alshahrani