Histopathology research

Our most significant contributions to improving diagnoses at an international level.

Chordoma research wins a national prize

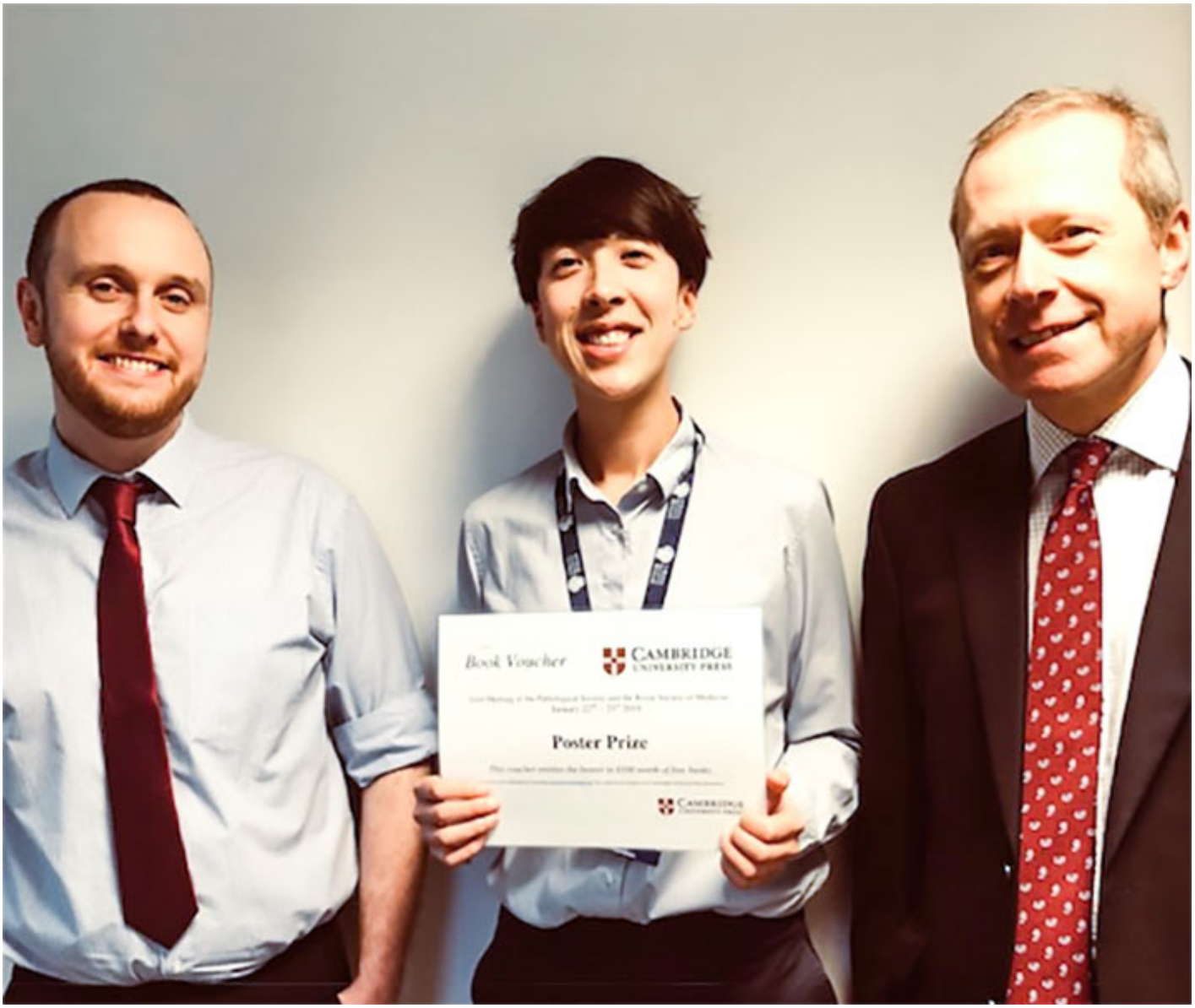
A letter to Professor Adrienne Flannagan from Chordoma UK.

Chordoma UK
Chordoma action now.
Together we can.

Dear Adrienne

Thank you for your ongoing support of Chordoma UK and we hope you are making a good start to the year.

We are very proud to announce that Chordoma research undertaken at RNOH and UCL, won a prize at the Pathological Society of Great Britain and Ireland Winter Meeting, 2019. Our research on chordoma undertaken as part of Dr Inga’s Medical Doctorate won the poster prize.



PIctured are some of the team who undertook the research - from left to right - Dr Daniel Lindsay, Consultant Pathologist - RNOH, Dr Inga Usher, a trainee doctor undertaking research on chordoma and how they might develop, and Dr Paul O'Donnell, Consultant Radiologist at RNOH.

Dr Inga is funded by Chordoma UK.

Visit the Chordoma UK website for more information

Chordoma research, recent publications

We identified that brachyury is the diagnostic hallmark of chordoma. Before this, it was not uncommon to misdiagnose this tumour and confuse it with other tumour types. This biomarker is now used universally for making the diagnosis.

We have recently written the guidelines of how to diagnose chordoma: WHO classification

EGFR inhibitors Identified as a Potential Treatment for Chordoma in a Focused Compound Screen.

Scheipl S, Barnard M, Cottone L, Jorgensen M, Drewry DH, Zuercher WJ, Turlais F, Ye H, Leite AP, Smith JA, Leithner A, Möller P, Brüderlein S, Guppy N, Amary F, Tirabosco R, Strauss SJ, Pillay N, Flanagan

AM.

J Pathol. 2016 Apr 22. doi: 10.1002/path.4729. [Epub ahead of print]

A common single-nucleotide variant in T is strongly associated with chordoma
Pillay N, Plagnol V, Tarpey PS, Lobo SB, Presneau N, Szuhai K, Halai D, Berisha F, Cannon SR, Mead S, Kasperaviciute D, Palmen J, Talmud PJ, Kindblom LG, Amary MF, Tirabosco R, Flanagan AM.
Nat Genet. 2012 Nov;44(11):1185-7. doi: 10.1038/ng.2419. Epub 2012 Oct 14.

An integrated functional genomics approach identifies the regulatory network directed by brachyury (T) in chordoma
Nelson AC, Pillay N, Henderson S, Presneau N, Tirabosco R, Halai D, Berisha F, Flicek P, Stemple DL, Stern CD, Wardle FC, Flanagan AM.
J Pathol. 2012 Nov;228(3):274-85. doi: 10.1002/path.4082. Epub 2012 Sep 26.

P63 does not regulate brachyury expression in human chordomas and osteosarcomas
Pillay N, Amary FM, Berisha F, Tirabosco R, Flanagan AM.
Histopathology. 2011 Nov;59(5):1025-7. doi: 10.1111/j.1365-2559.2011.03973.x. Epub 2011 Oct 18.

The role of epidermal growth factor receptor in chordoma pathogenesis: a potential therapeutic target
?Shalaby A, Presneau N, Ye H, Halai D, Berisha F, Idowu B, Leithner A, Liegl B, Briggs TR, Bacsi K, Kindblom LG, Athanasou N, Amary MF, Hogendoorn PC, Tirabosco R, Flanagan AM.
J Pathol. 2011 Feb;223(3):336-46. doi: 10.1002/path.2818. Epub 2010 Dec 10.

Role of the transcription factor T (brachyury) in the pathogenesis of sporadic chordoma: a genetic and functional-based study
Presneau N, Shalaby A, Ye H, Pillay N, Halai D, Idowu B, Tirabosco R, Whitwell D, Jacques TS, Kindblom LG, Brüderlein S, Möller P, Leithner A, Liegl B, Amary FM, Athanasou NN, Hogendoorn PC, Mertens F, Szuhai K, Flanagan AM.

Analysis of the fibroblastic growth factor receptor-RAS/RAF/MEK/ERK-ETS2/brachyury signalling pathway in chordomas
Shalaby AA, Presneau N, Idowu BD, Thompson L, Briggs TR, Tirabosco R, Diss TC, Flanagan AM.
Mod Pathol. 2009 Aug;22(8):996-1005. doi: 10.1038/modpathol.2009.63. Epub 2009 May 1.

Chondrosarcoma research, recent publications:

Frequent mutation of the major cartilage collagen gene COL2A1 in chondrosarcoma.
Tarpey PS, Behjati S, Cooke SL, Van Loo P, Wedge DC, Pillay N, Marshall J, O'Meara S, Davies H, Nik-Zainal S, Beare D, Butler A, Gamble J, Hardy C, Hinton J, Jia MM, Jayakumar A, Jones D, Latimer C, Maddison M, Martin S, McLaren S, Menzies A, Mudie L, Raine K, Teague JW, Tubio JM, Halai D, Tirabosco R, Amary F, Campbell PJ, Stratton MR, Flanagan AM, Futreal PA.
Nat Genet. 2013 Aug;45(8):923-6. doi: 10.1038/ng.2668. Epub 2013 Jun 16.

Isocitrate dehydrogenase 1 mutations (IDH1) and p16/CDKN2A copy number change in conventional chondrosarcomas.
Amary MF, Ye H, Forbes G, Damato S, Maggiani F, Pollock R, Tirabosco R, Flanagan AM. Virchows Arch. 2015 Feb;466(2):217-22. doi: 10.1007/s00428-014-1685-4. Epub 2014 Nov 29.

Ollier disease and Maffucci syndrome are caused by somatic mosaic mutations of IDH1 and IDH2?
Amary MF, Damato S, Halai D, Eskandarpour M, Berisha F, Bonar F, McCarthy S, Fantin VR, Straley KS, Lobo S, Aston W, Green CL, Gale RE, Tirabosco R, Futreal A, Campbell P, Presneau N, Flanagan AM.
Nat Genet. 2011 Nov 6;43(12):1262-5. doi: 10.1038/ng.994.

IDH1 and IDH2 mutations are frequent events in central chondrosarcoma and central and periosteal chondromas but not in other mesenchymal tumours
Amary MF, Bacsi K, Maggiani F, Damato S, Halai D, Berisha F, Pollock R, O'Donnell P, Grigoriadis A, Diss T, Eskandarpour M, Presneau N, Hogendoorn PC, Futreal A, Tirabosco R, Flanagan AM.
J Pathol. 2011 Jul;224(3):334-43. doi: 10.1002/path.2913. Epub 2011 May 19.

IDH1 mutations are not found in cartilaginous tumours other than central and periosteal chondrosarcomas and enchondromas
?Damato S, Alorjani M, Bonar F, McCarthy SW, Cannon SR, O'Donnell P, Tirabosco R, Amary MF, Flanagan AM.
Histopathology. 2012 Jan;60(2):363-5. doi: 10.1111/j.1365-2559.2011.04010.x. Epub 2011 Nov 10.

Other bone and soft tissue research:

Select item 26844533[ ]

The H3F3 K36M mutant antibody is a sensitive and specific marker for the diagnosis of chondroblastoma.
Amary MF, Berisha F, Mozela R, Gibbons R, Guttridge A, O'Donnell P, Baumhoer D, Tirabosco R, Flanagan AM.
Histopathology. 2016 Feb 4. doi: 10.1111/his.12945. [Epub ahead of print]

GNAS mutations are not detected in parosteal and low-grade central osteosarcomas.
Salinas-Souza C, De Andrea C, Bihl M, Kovac M, Pillay N, Forshew T, Gutteridge A, Ye H, Amary MF, Tirabosco R, Toledo SR, Baumhoer D, Flanagan AM.
Mod Pathol. 2015 Oct;28(10):1336-42. doi: 10.1038/modpathol.2015.91. Epub 2015 Aug 7.

Next-generation sequencing is highly sensitive for the detection of beta-catenin mutations in desmoid-type fibromatoses.
Aitken SJ, Presneau N, Kalimuthu S, Dileo P, Berisha F, Tirabosco R, Amary MF, Flanagan AM.
Virchows Arch. 2015 Aug;467(2):203-10. doi: 10.1007/s00428-015-1765-0. Epub 2015 Apr 3.

An NRAS mutation in a case of Erdheim Chester disease.
Aitken SJ, Presneau N, Tirabosco R, Amary MF, O'Donnell P, Flanagan AM.
Histopathology. 2014 Apr 23. doi: 10.1111/his.12443. [Epub ahead of print]

Recurrent PTPRB and PLCG1 mutations in angiosarcoma.
Behjati S, Tarpey PS, Sheldon H, Martincorena I, Van Loo P, Gundem G, Wedge DC, Ramakrishna M, Cooke SL, Pillay N, Vollan HK, Papaemmanuil E, Koss H, Bunney TD, Hardy C, Joseph OR, Martin S, Mudie L, Butler A, Teague JW, Patil M, Steers G, Cao Y, Gumbs C, Ingram D, Lazar AJ, Little L, Mahadeshwar H, Protopopov A, Al Sannaa GA, Seth S, Song X, Tang J, Zhang J, Ravi V, Torres KE, Khatri B, Halai D, Roxanis I, Baumhoer D, Tirabosco R, Amary MF, Boshoff C, McDermott U, Katan M, Stratton MR, Futreal PA, Flanagan AM, Harris A, Campbell PJ.
Nat Genet. 2014 Apr;46(4):376-9. doi: 10.1038/ng.2921. Epub 2014 Mar 16.

Distinct H3F3A and H3F3B driver mutations define chondroblastoma and giant cell tumor of bone.
Behjati S, Tarpey PS, Presneau N, Scheipl S, Pillay N, Van Loo P, Wedge DC, Cooke SL, Gundem G, Davies H, Nik-Zainal S, Martin S, McLaren S, Goody V, Robinson B, Butler A, Teague JW, Halai D, Khatri B, Myklebost O, Baumhoer D, Jundt G, Hamoudi R, Tirabosco R, Amary MF, Futreal PA, Stratton MR, Campbell PJ, Flanagan AM.
Nat Genet. 2013 Dec;45(12):1479-82. doi: 10.1038/ng.2814. Epub 2013 Oct 27. Erratum in: Nat Genet. 2014 Mar;46(3):316. Goodie, Victoria [corrected to Goody, Victoria].

Locally aggressive fibrous dysplasia.
Kashima TG, Gamage NM, Ye H, Amary MF, Flanagan AM, Ostlere SJ, Athanasou NA.
Virchows Arch. 2013 Jul;463(1):79-84. doi: 10.1007/s00428-013-1437-x. Epub 2013 Jun 13.

Detection of USP6 gene rearrangement in nodular fasciitis: an important diagnostic tool.
Amary MF, Ye H, Berisha F, Tirabosco R, Presneau N, Flanagan AM.
Virchows Arch. 2013 Jul;463(1):97-8. doi: 10.1007/s00428-013-1418-0. Epub 2013 Jun 9.

Genome-wide association study identifies two susceptibility loci for osteosarcoma.
Savage SA, Mirabello L, Wang Z, Gastier-Foster JM, Gorlick R, Khanna C, Flanagan AM, Tirabosco R, Andrulis IL, Wunder JS, Gokgoz N, Patiño-Garcia A, Sierrasesúmaga L, Lecanda F, Kurucu N, Ilhan IE, Sari N, Serra M, Hattinger C, Picci P, Spector LG, Barkauskas DA, Marina N, de Toledo SR, Petrilli AS, Amary MF, Halai D, Thomas DM, Douglass C, Meltzer PS, Jacobs K, Chung CC, Berndt SI, Purdue MP, Caporaso NE, Tucker M, Rothman N, Landi MT, Silverman DT, Kraft P, Hunter DJ, Malats N, Kogevinas M, Wacholder S, Troisi R, Helman L, Fraumeni JF Jr, Yeager M, Hoover RN, Chanock SJ.
Nat Genet. 2013 Jul;45(7):799-803. doi: 10.1038/ng.2645. Epub 2013 Jun 2.

Assessment of MUC4 expression in primary bone tumours.
Tirabosco R, Berisha F, Ye H, Halai D, Amary MF, Flanagan AM.
Histopathology. 2013 Jul;63(1):142-3. doi: 10.1111/his.12134. Epub 2013 May 13.

Pseudomyogenic (epithelioid sarcoma-like) hemangioendothelioma: characterization of five cases
Amary MF, O'Donnell P, Berisha F, Tirabosco R, Briggs T, Pollock R, Flanagan AM.
Skeletal Radiol. 2013 Feb 5. [Epub ahead of print]

MRI characteristics of lipoma and atypical lipomatous tumor/well-differentiated liposarcoma: retrospective comparison with histology and MDM2 gene amplification
Brisson M, Kashima T, Delaney D, Tirabosco R, Clarke A, Cro S, Flanagan AM, O'Donnell P.
Skeletal Radiol. 2012 Sep 18. [Epub ahead of print]

Sensitivity of MDM2 amplification and unexpected multiple faint alphoid 12 (alpha 12 satellite sequences) signals in atypical lipomatous tumor?
Kashima T, Halai D, Ye H, Hing SN, Delaney D, Pollock R, O'Donnell P, Tirabosco R, Flanagan AM.
Mod Pathol. 2012 Oct;25(10):1384-96. doi: 10.1038/modpathol.2012.90. Epub 2012 Jun 15.

Assessment of integrase interactor 1 (INI-1) expression in primary tumours of bone
Tirabosco R, Jacques T, Berisha F, Flanagan AM
Histopathology. 2012 Dec;61(6):1245-7. doi: 10.1111/j.1365-2559.2012.04346.x. Epub 2012 Sep 7. No abstract available.

Frequency of Mouse Double Minute 2 (MDM2) and Mouse Double Minute 4 (MDM4) amplification in parosteal and conventional osteosarcoma subtypes

Duhamel LA, Ye H, Halai D, Idowu BD, Presneau N, Tirabosco R, Flanagan AM. Histopathology. 2012 Jan;60(2):357-9. doi: 10.1111/j.1365-2559.2011.04023.x. Epub 2011 Nov 10. No abstract available.