

FULL RESEARCH PUBLICATIONS LIST:

2016

[Qiu Z](#), [Wilson RS](#), [Liu Y](#), [R Dun A](#), [Saleeb RS](#), [Liu D](#), [Rickman C](#), [Frame M](#), [Duncan RR](#), [Lu W](#) (2016) Translation Microscopy (TRAM) for super-resolution imaging. *Scientific Reports* **6**

Patel H, Stavrou I, Shrestha RL, Draviam V, Frame MC, Brunton VG (2016) Kindlin-1 regulates microtubule function to ensure normal mitosis. *J Mol Cell Biol* – in press.

Serrels A, Frame MC (2016) FAK goes nuclear to control anti-tumor immunity – a new target in cancer immuno-therapy. *Oncolimmunology* – in press.

2015

Kanellos G, Zhou J, Patel H, Ridgway RA, Huels D, Gurniak CB, Sandilands E, Carragher NO, Sansom OJ, Witke W, Brunton VG and Frame MC (2015) ADF and Cofilin1 control actin stress fibers, nuclear integrity and cell survival. *Cell Reports* **13**:1949-64.

Serrels A, Lund T, Serrels B, Byron A, McPherson RC, von Kriegsheim A, Gómez-Cuadrado L, Canel M, Muir M, Ring JE, Maniati E, Sims AH, Pachter JA, Brunton VG, Gilbert N, Anderton SM, Nibbs RJB, Frame MC (2015) Nuclear FAK controls chemokine transcription, Tregs and evasion of anti-tumor immunity. *Cell* **163**:160-73.

Villari G, Jayo A, Zanet J, Fitch B, Serrels B, Frame M, Stramer BM, Goult BT, Parsons M. (2015) A direct interaction between fascin and microtubules contributes to adhesion dynamics and cell migration. *J Cell Sci* **128**:4601-14.

Sandilands E, Schoenherr C, Frame MC (2015) p70S6K is regulated by focal adhesion kinase and is required for Src-selective autophagy. *Cell Signal* **27**: 1816-23.

Lee M, Downes A, Chau Y-Y, Serrels B, Hastie N, Elfick A, Brunton V, Frame M, Serrels A (2015) In vivo imaging of the tumor and its associated microenvironment using combined CARS / 2-photon microscopy. *IntraVital* **4**: e1055430

Frame MC, Serrels A (2015) FAK to the rescue: activated stroma promotes a "safe haven" for BRAF-mutant melanoma cells by inducing FAK signaling. *Cancer Cell* **27**: 429-31

Girotti MR, Lopes F, Preece N, Niculescu-Duvaz D, Zambon A, Davies L, Whittaker S, Saturno G, Viros A, Pedersen M, Suijkerbuijk BM, Menard D, McLeary R, Johnson L, Fish L, Ejima S, Sanchez-Laorden B, Hohloch J, Carragher N, Macleod K, Ashton G, Marusiak AA, Fusi A, Brognard J, Frame M, Lorigan P, Marais R, Springer C (2015) Paradox-breaking RAF inhibitors that also target SRC are effective in drug-resistant BRAF mutant melanoma. *Cancer Cell* **27**: 85-96

2014

Schoenherr C, Serrels B, Proby C, Cunningham DL, Findlay JE, Baillie GS, Heath JK, Frame MC (2015) Eps8 controls Src- and FAK-dependent phenotypes in squamous carcinoma cells. *J Cell Sci* **127**: 5303-16

Sauter KA, Pridans C, Sehgal A, Bain CC, Scott C, Moffat L, Rojo R, Stutchfield BM, Davies CL, Donaldson DS, Renault K, McColl BW, Mowat AM, Serrels A, Frame MC, Mabbott NA, Hume DA

(2014) The MacBlue binary transgene (csf1r-gal4VP16/UAS-ECFP) provides a novel marker for visualisation of subsets of monocytes, macrophages and dendritic cells and responsiveness to CSF1 administration. *PLoS One* **9**: e105429

Cordero JB, Ridgway RA, Valeri N, Nixon C, Frame MC, Muller WJ, Vidal M, Sansom OJ (2014) c-Src drives intestinal regeneration and transformation. *EMBO J* **33**:1474-91

Macagno JP, Diaz Vera J, Yu Y, MacPherson I, Sandilands E, Palmer R, Norman JC, Frame M, Vidal M (2014) FAK acts as a suppressor of RTK-MAP kinase signalling in Drosophila melanogaster epithelia and human cancer cells. *PLoS Genet* **10**: e1004262

2013

Frame MC (2013) V-SRC informs integrin signalling. *Nat Rev Mol Cell Biol* **14**: 548

Patel H, Zich J, Serrels B, Hardwick K, Frame MC*, Brunton VG* (joint corresponding) (2013) Kindlin-1 co-ordinates integrin linked cell adhesion with cell division. *Nature Communications*, **4**: 2056

Nobis M, McGhee EJ, Morton JP, Schwarz JP, Karim SA, Quinn J, Edward M, Campbell AD, McGarry LC, Evans TR, Brunton VG, Frame MC, Carragher NO, Wang Y, Sansom OJ, Timpson P, Anderson KI (2013) Intravital FLIM-FRET imaging reveals dasatinib-induced spatial control of src in pancreatic cancer. *Cancer Res* **73**: 4674-86

Tang H, Li A, Bi J, Veltman DM, Zech T, Spence HJ, Yu X, Timpson P, Insall RH, Frame MC, Machesky LM (2013) Loss of Scar/WAVE Complex Promotes N-WASP- and FAK-Dependent Invasion. *Current Biology* **23**: 107-117

Canel M, Serrels A, Frame MC, Brunton VG (2013) E-cadherin-integrin crosstalk is vital in cancer invasion and metastasis. *J Cell Sci* **126**: 393-401

2012

Sandilands E, Serrels B, Wilkinson S, Frame MC (2012) Src-dependent autophagic degradation of Ret in FAK-signalling-defective cancer cells. *EMBO Rep* **13**: 733-740

Serrels A, McLeod K, Canel M, Kinnaird A, Graham K, Frame MC, Brunton VG (2012) The role of focal adhesion kinase catalytic activity on the proliferation and migration of squamous cell carcinoma cells. *Int J Cancer* **131**: 287-297

Welman A, Sproul D, Mullen P, Muir M, Kinnaird AR, Harrison DJ, Faratian D, Brunton VG, Frame MC (2012) Diversity of matriptase expression level and function in breast cancer. *PLoS One* **7**: e34182

Carragher NO, Brunton VG, Frame MC (2012) Combining imaging and pathway profiling: an alternative approach to cancer drug discovery. *Drug Discov Today* **17**: 203-214

Lahlou H, Sanguin-Gendreau V, Frame MC, Muller WJ (2012) Focal adhesion kinase contributes to proliferative potential of ErbB2 mammary tumour cells but is dispensable for ErbB2 mammary tumour induction in vivo. *Breast Cancer Res* **14**: R36

Baumann P, Thiele W, Cremers N, Muppala S, Krachulec J, Diefenbacher M, Kassel O, Mudduluru G, Allgayer H, Frame M, Sleeman JP (2012) CD24 interacts with and promotes the activity of c-src

within lipid rafts in breast cancer cells, thereby increasing integrin-dependent adhesion. *Cell Mol Life Sci* **69**: 435-448

Serrels B, Frame MC (2012) FAK and talin: who is taking whom to the integrin engagement party? *J Cell Biol* **196**: 185-187

Sandilands E, Serrels B, McEwan DG, Morton JP, Macagno JP, McLeod K, Stevens C, Brunton VG, Langdon WY, Vidal M, Sansom OJ, Dikic I, Wilkinson S, Frame MC (2012) Autophagic targeting of Src promotes cancer cell survival following reduced FAK signalling. *Nat Cell Biol* **14**: 51-60

2011

Graham K, Moran-Jones K, Sansom OJ, Brunton VG, Frame MC (2011) FAK deletion promotes p53-mediated induction of p21, DNA-damage responses and radio-resistance in advanced squamous cancer cells. *PLoS One* **6**: e27806

Serrels B, Sandilands E, Frame MC (2011) Signaling of the direction-sensing FAK/RACK1/PDE4D5 complex to the small GTPase Rap1. *Small GTPases* **2**: 54-61

Storr SJ, Carragher NO, Frame MC, Parr T, Martin SG (2011) The calpain system and cancer. *Nat Rev Cancer* **11**: 364-374

Serrels A, Canel M, Brunton VG, Frame MC (2011) Src/FAK-mediated regulation of E-cadherin as a mechanism for controlling collective cell movement: insights from in vivo imaging. *Cell Adh Migr* **5**: 360-365

Warfel NA, Niederst M, Stevens MW, Brennan PM, Frame MC, Newton AC (2011) Mislocalization of the E3 ligase, beta-transducin repeat-containing protein 1 (beta-TrCP1), in glioblastoma uncouples negative feedback between the pleckstrin homology domain leucine-rich repeat protein phosphatase 1 (PHLPP1) and Akt. *J Biol Chem* **286**: 19777-19788

Timpson P, McGhee EJ, Morton JP, von Kriegsheim A, Schwarz JP, Karim SA, Doyle B, Quinn JA, Carragher NO, Edward M, Olson MF, Frame MC, Brunton VG, Sansom OJ, Anderson KI (2011) Spatial regulation of RhoA activity during pancreatic cancer cell invasion driven by mutant p53. *Cancer Res* **71**: 747-757

2010

Frame MC, Patel H, Serrels B, Lietha D, Eck MJ (2010) The FERM domain: organizing the structure and function of FAK. *Nat Rev Mol Cell Biol* **11**: 802-814

Morton JP, Timpson P, Karim SA, Ridgway RA, Athineos D, Doyle B, Jamieson NB, Oien KA, Lowy AM, Brunton VG, Frame MC, Evans TR, Sansom OJ (2010) Mutant p53 drives metastasis and overcomes growth arrest/senescence in pancreatic cancer. *Proc Natl Acad Sci U S A* **107**: 246-251

Tanji M, Ishizaki T, Ebrahimi S, Tsuboguchi Y, Sukezane T, Akagi T, Frame MC, Hashimoto N, Miyamoto S, Narumiya S (2010) mDia1 targets v-Src to the cell periphery and facilitates cell transformation, tumorigenesis, and invasion. *Mol Cell Biol* **30**: 4604-4615

Morton JP, Jamieson NB, Karim SA, Athineos D, Ridgway RA, Nixon C, McKay CJ, Carter R, Brunton VG, Frame MC, Ashworth A, Oien KA, Evans TR, Sansom OJ (2010) LKB1 haploinsufficiency cooperates with Ras to promote pancreatic cancer through suppression of p21-dependent growth arrest. *Gastroenterology* **139**: 586-597, 597 e581-586

Serrels B, Sandilands E, Serrels A, Baillie G, Houslay MD, Brunton VG, Canel M, Machesky LM, Anderson KI, Frame MC (2010) A complex between FAK, RACK1, and PDE4D5 controls spreading initiation and cancer cell polarity. *Curr Biol* **20**: 1086-1092

Canel M, Serrels A, Anderson KI, Frame MC, Brunton VG (2010) Use of photoactivation and photobleaching to monitor the dynamic regulation of E-cadherin at the plasma membrane. *Cell Adh Migr* **4**: 491-501

Damiano L, Di Stefano P, Camacho Leal MP, Barba M, Mainiero F, Cabodi S, Tordella L, Sapino A, Castellano I, Canel M, Frame M, Turco E, Defilippi P (2010) p140Cap dual regulation of E-cadherin/EGFR cross-talk and Ras signalling in tumour cell scatter and proliferation. *Oncogene* **29**: 3677-3690

Morton JP, Karim SA, Graham K, Timpson P, Jamieson N, Athineos D, Doyle B, McKay C, Heung MY, Oien KA, Frame MC, Evans TR, Sansom OJ, Brunton VG (2010) Dasatinib inhibits the development of metastases in a mouse model of pancreatic ductal adenocarcinoma. *Gastroenterology* **139**: 292-303

Welman A, Serrels A, Brunton VG, Ditzel M, Frame MC (2010) Two-color photoactivatable probe for selective tracking of proteins and cells. *J Biol Chem* **285**: 11607-11616

Canel M, Serrels A, Miller D, Timpson P, Serrels B, Frame MC, Brunton VG (2010) Quantitative in vivo imaging of the effects of inhibiting integrin signaling via Src and FAK on cancer cell movement: effects on E-cadherin dynamics. *Cancer Res* **70**: 9413-9422

Ashton GH, Morton JP, Myant K, Phesse TJ, Ridgway RA, Marsh V, Wilkins JA, Athineos D, Muncan V, Kemp R, Neufeld K, Clevers H, Brunton V, Winton DJ, Wang X, Sears RC, Clarke AR, Frame MC, Sansom OJ (2010) Focal adhesion kinase is required for intestinal regeneration and tumorigenesis downstream of Wnt/c-Myc signaling. *Dev Cell* **19**: 259-269

Hannigan A, Smith P, Kalna G, Lo Nigro C, Orange C, O'Brien DI, Shah R, Syed N, Spender LC, Herrera B, Thurlow JK, Lattanzio L, Monteverde M, Maurer ME, Buffa FM, Mann J, Chu DC, West CM, Patridge M, Oien KA, Cooper JA, Frame MC, Harris AL, Hiller L, Nicholson LJ, Gasco M, Crook T, Inman GJ (2010) Epigenetic downregulation of human disabled homolog 2 switches TGF-beta from a tumor suppressor to a tumor promoter. *J Clin Invest* **120**: 2842-2857

2009

Seong J, Lu S, Ouyang M, Huang H, Zhang J, Frame MC, Wang Y (2009) Visualization of Src activity at different compartments of the plasma membrane by FRET imaging. *Chem Biol* **16**: 48-57

Timpson P, Serrels A, Canel M, Frame MC, Brunton VG, Anderson KI (2009) Quantitative real-time imaging of molecular dynamics during cancer cell invasion and metastasis in vivo. *Cell Adh Migr* **3**: 351-354

Mounier J, Popoff MR, Enninga J, Frame MC, Sansonetti PJ, Van Nhieu GT (2009) The IpaC carboxyterminal effector domain mediates Src-dependent actin polymerization during Shigella invasion of epithelial cells. *PLoS Pathog* **5**: e1000271

Serrels A, Timpson P, Canel M, Schwarz JP, Carragher NO, Frame MC, Brunton VG, Anderson KI (2009) Real-time study of E-cadherin and membrane dynamics in living animals: implications for disease modeling and drug development. *Cancer Res* **69**: 2714-2719

Serrels B, Serrels A, Mason SM, Baldeschi C, Ashton GH, Canel M, Mackintosh LJ, Doyle B,

Green TP, Frame MC, Sansom OJ, Brunton VG (2009) A novel Src kinase inhibitor reduces tumour formation in a skin carcinogenesis model. *Carcinogenesis* **30**: 249-257

2008

Frame M, Norman J (2008) A tal(in) of cell spreading. *Nat Cell Biol* **10**: 1017-1019

Frame MC, Inman GJ (2008) NCAM is at the heart of reciprocal regulation of E-cadherin- and integrin-mediated adhesions via signaling modulation. *Dev Cell* **15**: 494-496

Vitale S, Avizienyte E, Brunton VG, Frame MC (2008) Focal adhesion kinase is not required for Src-induced formation of invadopodia in KM12C colon cancer cells and can interfere with their assembly. *Eur J Cell Biol* **87**: 569-579

Patel H, Konig I, Tsujioka M, Frame MC, Anderson KI, Brunton VG (2008) The multi-FERM-domain-containing protein FrmA is required for turnover of paxillin-adhesion sites during cell migration of Dictyostelium. *J Cell Sci* **121**: 1159-1164

Sandilands E, Frame MC (2008) Endosomal trafficking of Src tyrosine kinase. *Trends Cell Biol* **18**: 322-329

Brunton VG, Frame MC (2008) Src and focal adhesion kinase as therapeutic targets in cancer. *Curr Opin Pharmacol* **8**: 427-432

Canel M, Secades P, Garzon-Arango M, Allonca E, Suarez C, Serrels A, Frame M, Brunton V, Chiara MD (2008) Involvement of focal adhesion kinase in cellular invasion of head and neck squamous cell carcinomas via regulation of MMP-2 expression. *Br J Cancer* **98**: 1274-1284

2007

Lahlou H, Sanguin-Gendreau V, Zuo D, Cardiff RD, McLean GW, Frame MC, Muller WJ (2007) Mammary epithelial-specific disruption of the focal adhesion kinase blocks mammary tumor progression. *Proc Natl Acad Sci U S A* **104**: 20302-20307

Macpherson IR, Hooper S, Serrels A, McGarry L, Ozanne BW, Harrington K, Frame MC, Sahai E, Brunton VG (2007) p120-catenin is required for the collective invasion of squamous cell carcinoma cells via a phosphorylation-independent mechanism. *Oncogene* **26**: 5214-5228

Sandilands E, Akbarzadeh S, Vecchione A, McEwan DG, Frame MC, Heath JK (2007) Src kinase modulates the activation, transport and signalling dynamics of fibroblast growth factor receptors. *EMBO Rep* **8**: 1162-1169

Santos-Silva A, Fairless R, Frame MC, Montague P, Smith GM, Toft A, Riddell JS, Barnett SC (2007) FGF/heparin differentially regulates Schwann cell and olfactory ensheathing cell interactions with astrocytes: a role in astrocytosis. *J Neurosci* **27**: 7154-7167

Serrels B, Serrels A, Brunton VG, Holt M, McLean GW, Gray CH, Jones GE, Frame MC (2007) Focal adhesion kinase controls actin assembly via a FERM-mediated interaction with the Arp2/3 complex. *Nat Cell Biol* **9**: 1046-1056

Avizienyte E, Keppler M, Sandilands E, Brunton VG, Winder SJ, Ng T, Frame MC (2007) An active Src kinase-beta-actin association is linked to actin dynamics at the periphery of colon cancer cells. *Exp Cell Res* **313**: 3175-3188

Sandilands E, Brunton VG, Frame MC (2007) The membrane targeting and spatial activation of Src, Yes and Fyn is influenced by palmitoylation and distinct RhoB/RhoD endosome requirements. *J Cell Sci* **120**: 2555-2564

McEwan DG, Brunton VG, Baillie GS, Leslie NR, Houslay MD, Frame MC (2007) Chemoresistant KM12C colon cancer cells are addicted to low cyclic AMP levels in a phosphodiesterase 4-regulated compartment via effects on phosphoinositide 3-kinase. *Cancer Res* **67**: 5248-5257

Frame MD, Rivers RJ, Altland O, Cameron S (2007) Mechanisms initiating integrin-stimulated flow recruitment in arteriolar networks. *J Appl Physiol* **102**: 2279-2287

Arcaro A, Aubert M, Espinosa del Hierro ME, Khanzada UK, Angelidou S, Tetley TD, Bittermann AG, Frame MC, Seckl MJ (2007) Critical role for lipid raft-associated Src kinases in activation of PI3K-Akt signalling. *Cell Signal* **19**: 1081-1092

2006

Serrels A, Macpherson IR, Evans TR, Lee FY, Clark EA, Sansom OJ, Ashton GH, Frame MC, Brunton VG (2006) Identification of potential biomarkers for measuring inhibition of Src kinase activity in colon cancer cells following treatment with dasatinib. *Mol Cancer Ther* **5**: 3014-3022

Ardern H, Sandilands E, Machesky LM, Timpson P, Frame MC, Brunton VG (2006) Src-dependent phosphorylation of Scar1 promotes its association with the Arp2/3 complex. *Cell Motil Cytoskeleton* **63**: 6-13

Carragher NO, Walker SM, Scott Carragher LA, Harris F, Sawyer TK, Brunton VG, Ozanne BW, Frame MC (2006) Calpain 2 and Src dependence distinguishes mesenchymal and amoeboid modes of tumour cell invasion: a link to integrin function. *Oncogene* **25**: 5726-5740

Spence HJ, McGarry L, Chew CS, Carragher NO, Scott-Carragher LA, Yuan Z, Croft DR, Olson MF, Frame M, Ozanne BW (2006) AP-1 differentially expressed proteins Krp1 and fibronectin cooperatively enhance Rho-ROCK-independent mesenchymal invasion by altering the function, localization, and activity of nondifferentially expressed proteins. *Mol Cell Biol* **26**: 1480-1495

2005

Fairless R, Frame MC, Barnett SC (2005) N-cadherin differentially determines Schwann cell and olfactory ensheathing cell adhesion and migration responses upon contact with astrocytes. *Mol Cell Neurosci* **28**: 253-263

Avizienyte E, Frame MC (2005) Src and FAK signalling controls adhesion fate and the epithelial-to-mesenchymal transition. *Curr Opin Cell Biol* **17**: 542-547

Avizienyte E, Brunton VG, Fincham VJ, Frame MC (2005) The SRC-induced mesenchymal state in late-stage colon cancer cells. *Cells Tissues Organs* **179**: 73-80

Pang JH, Kraemer A, Stehbens SJ, Frame MC, Yap AS (2005) Recruitment of phosphoinositide 3-kinase defines a positive contribution of tyrosine kinase signaling to E-cadherin function. *J Biol Chem* **280**: 3043-3050

McLean GW, Carragher NO, Avizienyte E, Evans J, Brunton VG, Frame MC (2005) The role of focal-adhesion kinase in cancer - a new therapeutic opportunity. *Nat Rev Cancer* **5**: 505-515

Brunton VG, Avizienyte E, Fincham VJ, Serrels B, Metcalf CA, 3rd, Sawyer TK, Frame MC (2005) Identification of Src-specific phosphorylation site on focal adhesion kinase: dissection of the role of

Src SH2 and catalytic functions and their consequences for tumor cell behavior. *Cancer Res* **65**: 1335-1342

2004

Frame MC (2004) Newest findings on the oldest oncogene; how activated src does it. *J Cell Sci* **117**: 989-998

Carragher NO, Frame MC (2004) Focal adhesion and actin dynamics: a place where kinases and proteases meet to promote invasion. *Trends Cell Biol* **14**: 241-249

Fleming YM, Frame MC, Houslay MD (2004) PDE4-regulated cAMP degradation controls the assembly of integrin-dependent actin adhesion structures and REF52 cell migration. *J Cell Sci* **117**: 2377-2388

Westhoff MA, Serrels B, Fincham VJ, Frame MC, Carragher NO (2004) SRC-mediated phosphorylation of focal adhesion kinase couples actin and adhesion dynamics to survival signaling. *Mol Cell Biol* **24**: 8113-8133

Carragher NO, Fonseca BD, Frame MC (2004) Calpain activity is generally elevated during transformation but has oncogene-specific biological functions. *Neoplasia* **6**: 53-73

Brunton VG, MacPherson IR, Frame MC (2004) Cell adhesion receptors, tyrosine kinases and actin modulators: a complex three-way circuitry. *Biochim Biophys Acta* **1692**: 121-144

Sandilands E, Cans C, Fincham VJ, Brunton VG, Mellor H, Prendergast GC, Norman JC, Superti-Furga G, Frame MC (2004) RhoB and actin polymerization coordinate Src activation with endosome-mediated delivery to the membrane. *Dev Cell* **7**: 855-869

Avizienyte E, Fincham VJ, Brunton VG, Frame MC (2004) Src SH3/2 domain-mediated peripheral accumulation of Src and phospho-myosin is linked to deregulation of E-cadherin and the epithelial-mesenchymal transition. *Mol Biol Cell* **15**: 2794-2803

Griffiths GJ, Koh MY, Brunton VG, Cawthorne C, Reeves NA, Greaves M, Tilby MJ, Pearson DG, Ottley CJ, Workman P, Frame MC, Dive C (2004) Expression of kinase-defective mutants of c-Src in human metastatic colon cancer cells decreases Bcl-xL and increases oxaliplatin- and Fas-induced apoptosis. *J Biol Chem* **279**: 46113-46121

McLean GW, Komiyama NH, Serrels B, Asano H, Reynolds L, Conti F, Hodivala-Dilke K, Metzger D, Chambon P, Grant SG, Frame MC (2004) Specific deletion of focal adhesion kinase suppresses tumor formation and blocks malignant progression. *Genes Dev* **18**: 2998-3003

2003

McLean GW, Avizienyte E, Frame MC (2003) Focal adhesion kinase as a potential target in oncology. *Expert Opin Pharmacother* **4**: 227-234

Carragher NO, Westhoff MA, Fincham VJ, Schaller MD, Frame MC (2003) A novel role for FAK as a protease-targeting adaptor protein: regulation by p42 ERK and Src. *Curr Biol* **13**: 1442-1450

Frame MJ, Tate R, Adams DR, Morgan KM, Houslay MD, Vandenebeele P, Pyne NJ (2003) Interaction of caspase-3 with the cyclic GMP binding cyclic GMP specific phosphodiesterase (PDE5a1). *Eur J Biochem* **270**: 962-970

2002

Frame MC (2002) Src in cancer: deregulation and consequences for cell behaviour. *Biochim Biophys Acta* **1602**: 114-130

Jones RJ, Avizienyte E, Wyke AW, Owens DW, Brunton VG, Frame MC (2002) Elevated c-Src is linked to altered cell-matrix adhesion rather than proliferation in KM12C human colorectal cancer cells. *Br J Cancer* **87**: 1128-1135

Frame MC, Brunton VG (2002) Advances in Rho-dependent actin regulation and oncogenic transformation. *Curr Opin Genet Dev* **12**: 36-43

Frame MC, Fincham VJ, Carragher NO, Wyke JA (2002) v-Src's hold over actin and cell adhesions. *Nat Rev Mol Cell Biol* **3**: 233-245

Carragher NO, Frame MC (2002) Calpain: a role in cell transformation and migration. *Int J Biochem Cell Biol* **34**: 1539-1543

Avizienyte E, Wyke AW, Jones RJ, McLean GW, Westhoff MA, Brunton VG, Frame MC (2002) Src-induced de-regulation of E-cadherin in colon cancer cells requires integrin signalling. *Nat Cell Biol* **4**: 632-638

Carragher NO, Westhoff MA, Riley D, Potter DA, Dutt P, Elce JS, Greer PA, Frame MC (2002) v-Src-induced modulation of the calpain-calpastatin proteolytic system regulates transformation. *Mol Cell Biol* **22**: 257-269

2001

Carragher NO, Fincham VJ, Riley D, Frame MC (2001) Cleavage of focal adhesion kinase by different proteases during SRC-regulated transformation and apoptosis. Distinct roles for calpain and caspases. *J Biol Chem* **276**: 4270-4275

Brunton VG, Fincham VJ, McLean GW, Winder SJ, Paraskeva C, Marshall JF, Frame MC (2001) The protrusive phase and full development of integrin-dependent adhesions in colon epithelial cells require FAK- and ERK-mediated actin spike formation: deregulation in cancer cells. *Neoplasia* **3**: 215-226

Timpson P, Jones GE, Frame MC, Brunton VG (2001) Coordination of cell polarization and migration by the Rho family GTPases requires Src tyrosine kinase activity. *Curr Biol* **11**: 1836-1846

Riley D, Carragher NO, Frame MC, Wyke JA (2001) The mechanism of cell cycle regulation by v-Src. *Oncogene* **20**: 5941-5950

Wan KF, Sambi BS, Frame M, Tate R, Pyne NJ (2001) The inhibitory gamma subunit of the type 6 retinal cyclic guanosine monophosphate phosphodiesterase is a novel intermediate regulating p42/p44 mitogen-activated protein kinase signaling in human embryonic kidney 293 cells. *J Biol Chem* **276**: 37802-37808

McLean GW, Brown K, Arbuckle MI, Wyke AW, Pikkarainen T, Ruoslahti E, Frame MC (2001) Decreased focal adhesion kinase suppresses papilloma formation during experimental mouse skin carcinogenesis. *Cancer Res* **61**: 8385-8389

2000

Jones RJ, Brunton VG, Frame MC (2000) Adhesion-linked kinases in cancer; emphasis on src, focal adhesion kinase and PI 3-kinase. *Eur J Cancer* **36**: 1595-1606

McLean GW, Fincham VJ, Frame MC (2000) v-Src induces tyrosine phosphorylation of focal adhesion kinase independently of tyrosine 397 and formation of a complex with Src. *J Biol Chem* **275**: 23333-23339

Fincham VJ, James M, Frame MC, Winder SJ (2000) Active ERK/MAP kinase is targeted to newly forming cell-matrix adhesions by integrin engagement and v-Src. *Embo J* **19**: 2911-2923

Frame MJ, Mottram JC, Coombs GH (2000) Analysis of the roles of cysteine proteinases of Leishmania mexicana in the host-parasite interaction. *Parasitology* **121 (Pt 4)**: 367-377

Fincham VJ, Brunton VG, Frame MC (2000) The SH3 domain directs acto-myosin-dependent targeting of v-Src to focal adhesions via phosphatidylinositol 3-kinase. *Mol Cell Biol* **20**: 6518-6536

Owens DW, Brunton VG, Parkinson EK, Frame MC (2000) E-cadherin at the cell periphery is a determinant of keratinocyte differentiation in vitro. *Biochem Biophys Res Commun* **269**: 369-376

Johnson D, Agochiya M, Samejima K, Earnshaw W, Frame M, Wyke J (2000) Regulation of both apoptosis and cell survival by the v-Src oncprotein. *Cell Death Differ* **7**: 685-696

Owens DW, McLean GW, Wyke AW, Paraskeva C, Parkinson EK, Frame MC, Brunton VG (2000) The catalytic activity of the Src family kinases is required to disrupt cadherin-dependent cell-cell contacts. *Mol Biol Cell* **11**: 51-64

1999

Fincham VJ, Chudleigh A, Frame MC (1999) Regulation of p190 Rho-GAP by v-Src is linked to cytoskeletal disruption during transformation. *J Cell Sci* **112 (Pt 6)**: 947-956

Agochiya M, Brunton VG, Owens DW, Parkinson EK, Paraskeva C, Keith WN, Frame MC (1999) Increased dosage and amplification of the focal adhesion kinase gene in human cancer cells. *Oncogene* **18**: 5646-5653

1998

Fincham VJ, Frame MC (1998) The catalytic activity of Src is dispensable for translocation to focal adhesions but controls the turnover of these structures during cell motility. *Embo J* **17**: 81-92

Johnson D, Frame MC, Wyke JA (1998) Expression of the v-Src oncprotein in fibroblasts disrupts normal regulation of the CDK inhibitor p27 and inhibits quiescence. *Oncogene* **16**: 2017-2028

1997

Haefner B, Frame MC (1997) Distinctive regulation of v-Src-associated phosphatidylinositol 3-kinase during PC12 cell differentiation. *Biochem J* **328 (Pt 2)**: 649-655

Brunton VG, Ozanne BW, Paraskeva C, Frame MC (1997) A role for epidermal growth factor receptor, c-Src and focal adhesion kinase in an in vitro model for the progression of colon cancer. *Oncogene* **14**: 283-293

1996

Wyke AW, Lang A, Frame MC (1996) Uncoupling of the pathways which link MAP kinase to c-fos transcription and AP-1 in response to growth stimuli. *Cell Signal* **8**: 131-139

Crouch DH, Fincham VJ, Frame MC (1996) Targeted proteolysis of the focal adhesion kinase pp125 FAK during c-MYC-induced apoptosis is suppressed by integrin signalling. *Oncogene* **12**: 2689-2696

Fincham VJ, Unlu M, Brunton VG, Pitts JD, Wyke JA, Frame MC (1996) Translocation of Src kinase to the cell periphery is mediated by the actin cytoskeleton under the control of the Rho family of small G proteins. *J Cell Biol* **135**: 1551-1564

Loughran O, Malliri A, Owens D, Gallimore PH, Stanley MA, Ozanne B, Frame MC, Parkinson EK (1996) Association of CDKN2A/p16INK4A with human head and neck keratinocyte replicative senescence: relationship of dysfunction to immortality and neoplasia. *Oncogene* **13**: 561-568

O'Connell JC, McCallum JF, McPhee I, Wakefield J, Houslay ES, Wishart W, Bolger G, Frame M, Houslay MD (1996) The SH3 domain of Src tyrosyl protein kinase interacts with the N-terminal splice region of the PDE4A cAMP-specific phosphodiesterase RPDE-6 (RNPDE4A5). *Biochem J* **318 (Pt 1)**: 255-261

1995

Wyke AW, Frame MC, Gillespie DA, Chudleigh A, Wyke JA (1995) Mitogenesis by v-Src: fluctuations throughout G1 of classical immediate early AP-1 and mitogen-activated protein kinase responses that parallel the need for the oncprotein. *Cell Growth Differ* **6**: 1225-1234

Hong Y, Frame M, Coussens PM (1995) A 14-kDa immediate-early phosphoprotein is specifically expressed in cells infected with oncogenic Marek's disease virus strains and their attenuated derivatives. *Virology* **206**: 695-700

Fincham VJ, Wyke JA, Frame MC (1995) v-Src-induced degradation of focal adhesion kinase during morphological transformation of chicken embryo fibroblasts. *Oncogene* **10**: 2247-2252

Haefner B, Baxter R, Fincham VJ, Downes CP, Frame MC (1995) Cooperation of Src homology domains in the regulated binding of phosphatidylinositol 3-kinase. A role for the Src homology 2 domain. *J Biol Chem* **270**: 7937-7943

1994

Frame MC, Simpson K, Fincham VJ, Crouch DH (1994) Separation of v-Src-induced mitogenesis and morphological transformation by inhibition of AP-1. *Mol Biol Cell* **5**: 1177-1184

Catling AD, Fincham VJ, Frame MC, Haefner B, Wyke JA (1994) Mutations in v-Src SH3 and catalytic domains that jointly confer temperature-sensitive transformation with minimal temperature-dependent changes in cellular tyrosine phosphorylation. *J Virol* **68**: 4392-4399

Fincham V, Frame M, Haefner B, Unlu M, Wyke A, Wyke J (1994) Functions of the v-Src protein tyrosine kinase. *Cell Biol Int* **18**: 337-344

1993

Catling AD, Wyke JA, Frame MC (1993) Mitogenesis of quiescent chick fibroblasts by v-Src: dependence on events at the membrane leading to early changes in AP-1. *Oncogene* **8**: 1875-1886

1992

Cunningham C, Davison AJ, Dolan A, Frame MC, McGeoch DJ, Meredith DM, Moss HW, Orr AC (1992) The UL13 virion protein of herpes simplex virus type 1 is phosphorylated by a novel virus-

induced protein kinase. *J Gen Virol* **73** (Pt 2): 303-311

1991

Lang JC, Wilkie NM, Clark AM, Chudleigh A, Talbot S, Whitelaw B, Frame MC (1991) Regulatory domains within the P0 promoter of human c-myc. *Oncogene* **6**: 2067-2075

Frame MC, Wilkie NM, Darling AJ, Chudleigh A, Pintzas A, Lang JC, Gillespie DA (1991) Regulation of AP-1/DNA complex formation in vitro. *Oncogene* **6**: 205-209

1990

Spandidos DA, Frame M, Wilkie NM (1990) Expression of the normal H-ras1 gene can suppress the transformed and tumorigenic phenotypes induced by mutant ras genes. *Anticancer Res* **10**: 1543-1554

1988

Preston CM, Frame MC, Campbell ME (1988) A complex formed between cell components and an HSV structural polypeptide binds to a viral immediate early gene regulatory DNA sequence. *Cell* **52**: 425-434

Parris DS, Cross A, Haarr L, Orr A, Frame MC, Murphy M, McGeoch DJ, Marsden HS (1988) Identification of the gene encoding the 65-kilodalton DNA-binding protein of herpes simplex virus type 1. *J Virol* **62**: 818-825

McGeoch DJ, Dalrymple MA, Davison AJ, Dolan A, Frame MC, McNab D, Perry LJ, Scott JE, Taylor P (1988) The complete DNA sequence of the long unique region in the genome of herpes simplex virus type 1. *J Gen Virol* **69** (Pt 7): 1531-1574

1987

Frame MC, Purves FC, McGeoch DJ, Marsden HS, Leader DP (1987) Identification of the herpes simplex virus protein kinase as the product of viral gene US3. *J Gen Virol* **68** (Pt 10): 2699-2704

Marsden HS, Campbell ME, Haarr L, Frame MC, Parris DS, Murphy M, Hope RG, Muller MT, Preston CM (1987) The 65,000-Mr DNA-binding and virion trans-inducing proteins of herpes simplex virus type 1. *J Virol* **61**: 2428-2437

1986

Frame MC, McGeoch DJ, Rixon FJ, Orr AC, Marsden HS (1986) The 10K virion phosphoprotein encoded by gene US9 from herpes simplex virus type 1. *Virology* **150**: 321-332

McGeoch DJ, Dolan A, Frame MC (1986) DNA sequence of the region in the genome of herpes simplex virus type 1 containing the exonuclease gene and neighbouring genes. *Nucleic Acids Res* **14**: 3435-3448

Dutia BM, Frame MC, Subak-Sharpe JH, Clark WN, Marsden HS (1986) Specific inhibition of herpesvirus ribonucleotide reductase by synthetic peptides. *Nature* **321**: 439-441

Perry LJ, Rixon FJ, Everett RD, Frame MC, McGeoch DJ (1986) Characterization of the IE110 gene of herpes simplex virus type 1. *J Gen Virol* **67** (Pt 11): 2365-2380

Frame MC, Marsden HS, McGeoch DJ (1986) Novel herpes simplex virus type 1 glycoproteins identified by antiserum against a synthetic oligopeptide from the predicted product of gene US4. *J*

Gen Virol **67** (Pt 4): 745-751

McLean JS, Frame MC, Freshney RI, Vaughan PF, Mackie AE, Singer I (1986) Phenotypic modification of human glioma and non-small cell lung carcinoma by glucocorticoids and other agents. *Anticancer Res* **6**: 1101-1106

1985

Frame MC, Marsden HS, Dutia BM (1985) The ribonucleotide reductase induced by herpes simplex virus type 1 involves minimally a complex of two polypeptides (136K and 38K). *J Gen Viro* **66** (Pt 7): 1581-1587

Freshney RI, Frame MC, MacDonald CM, Hart E, Shaw R, Hassanzadah M, Freshney MG (1985) Markers of the malignant glial phenotype. *Prog Exp Tumor Res* **29**: 12-16

Frame MC, Freshney RI, Vaughan PF, Graham DI, Shaw R (1984) Interrelationship between differentiation and malignancy-associated properties in glioma. *Br J Cancer* **49**: 269-280