36. Ha HC, Snyder SH. Poly(ADP-ribose) polymerase is a mediator of necrotic cell death by ATP depletion. *Proc Natl Acad Sci U S A*. 1999;96:13978-13982.
37. Zong WX, Ditsworth D, Bauer DE, Wang ZQ, Thompson CB. Alkylating DNA damage stimulates a regulated form of necrotic cell death. *Genes Dev*. 2004;18:1272-1282.
38. Park S, Yoon SP, Kim J. Cisplatin induces primary necrosis through poly(ADP-ribose) polymerase 1 activation in kidney proximal tubular cells. *Anat Cell Biol*. 2015;48:66-74.
39. Bentle MS, Reinicke KE, Bey EA, Spitz DR, Boothman DA. Calcium-dependent modulation of poly(ADP-ribose) polymerase-1 alters cellular metabolism and DNA repair. *J Biol Chem*. 2006;281:33684-33696.
40. Dantzer F, Ame JC, Schreiber V, Nakamura J, Menissier-de Murcia J, de Murcia G. Poly(ADP-ribose) polymerase-1 activation during DNA damage and repair. *Methods Enzymol*. 2006;409:493-510.
41. Gagne JP, Rouleau M, Poirier GG. Structural biology. PARP-1 activation–bringing the pieces together. *Science*. 2012;336:678-679.
42. Ray Chaudhuri A, Nussenzweig A. The multifaceted roles of PARP1 in DNA repair and chromatin remodelling. *Nat Rev Mol Cell Biol*. 2017;18:610-621.
43. Pascal JM. The comings and goings of PARP-1 in response to DNA damage. *DNA Repair (Amst)*. 2018;71:177-182.
44. Mastrocola AS, Kim SH, Trinh AT, Rodenkirch LA, Tibbetts RS. The RNA-binding protein fused in sarcoma (FUS) functions downstream of poly(ADP-ribose) polymerase (PARP) in response to DNA damage. *J Biol Chem*. 2013;288:24731-24741.
45. D'Amours D, Desnoyers S, D'Silva I, Poirier GG. Poly(ADP-ribosyl)ation reactions in the regulation of nuclear functions. *Biochem J*. 1999;342(Pt 2):249-268.
46. Burkle A. Poly(ADP-ribose). The most elaborate metabolite of NAD+. *FEBS J*. 2005;272:4576-4589.
47. Yelamos J, Farres J, Llacuna L, Ampurdanes C, Martin-Caballero J. PARP-1 and PARP-2: New players in tumour development. *Am J Cancer Res*. 2011;1:328-346.
48. Ying W, Garnier P, Swanson RA. NAD+ repletion prevents PARP-1-induced glycolytic blockade and cell death in cultured mouse astrocytes. *Biochem Biophys Res Commun*. 2003;308:809-813.
49. Yang PM, Chen HC, Tsai JS, Lin LY. Cadmium induces Ca2+-dependent necrotic cell death through calpain-triggered mitochondrial depolarization and reactive oxygen species-mediated inhibition of nuclear factor-kappaB activity. *Chem Res Toxicol*. 2007;20:406-415.
50. Francis RJ, Kotecha S, Hallett MB. Ca2+ activation of cytosolic calpain induces the transition from apoptosis to necrosis in neutrophils with externalized phosphatidylserine. *J Leukoc Biol*. 2012;93:95-100.
51. Douglas DL, Baines CP. PARP1-mediated necrosis is dependent on parallel JNK and Ca(2)(+)/calpain pathways. *J Cell Sci*. 2014;127:4134-4145.
52. Zhang F, Xie R, Munoz FM, Lau SS, Monks TJ. PARP-1 hyperactivation and reciprocal elevations in intracellular Ca2+ during ROS-induced nonapoptotic cell death. *Toxicol Sci*. 2014;140:118-134.
53. Li GY, Fan B, Zheng YC. Calcium overload is a critical step in programmed necrosis of ARPE-19 cells induced by high-concentration H(2)O(2). *Biomed Environ Sci*. 2010;23:371-377.
54. Strom CE, Helleday T. Strategies for the use of poly(adenosine diphosphate ribose) polymerase (PARP) inhibitors in cancer therapy. *Biomolecules*. 2012;2:635-649.
55. Kennedy CL, Smith DJ, Lyras D, Chakravorty A, Rood JI. Programmed cellular necrosis mediated by the pore-forming alpha-toxin from Clostridium septicum. *PLoS Pathog*. 2009;5:e1000516.
56. Nyberg KA, Michelson RJ, Putnam CW, Weinert TA. Toward maintaining the genome: DNA damage and replication checkpoints. *Annu Rev Genet*. 2002;36:617-656.
57. Zou L, Elledge SJ. Sensing DNA damage through ATRIP recognition of RPA-ssDNA complexes. *Science*. 2003;300:1542-1548.
58. Cimprich KA, Cortez D. ATR: an essential regulator of genome integrity. *Nat Rev Mol Cell Biol*. 2008;9:616-627.
59. Saldivar JC, Hamperl S, Bocek MJ, et al. An intrinsic S/G2 checkpoint enforced by ATR. *Science*. 2018;361:806-810.
60. Sancar A, Lindsey-Boltz LA, Unsal-Kacmaz K, Linn S. Molecular mechanisms of mammalian DNA repair and the DNA damage checkpoints. *Annu Rev Biochem*. 2004;73:39-85.
61. Smith J, Tho LM, Xu N, Gillespie DA. The ATM-Chk2 and ATR-Chk1 pathways in DNA damage signaling and cancer. *Adv Cancer Res*. 2010;108:73-112.
62. Zeman MK, Cimprich KA. Causes and consequences of replication stress. *Nat Cell Biol*. 2013;16:2-9.
63. Tibbetts RS, Brumbaugh KM, Williams JM, et al. A role for ATR in the DNA damage-induced phosphorylation of p53. *Genes Dev*. 1999;13:152-157.
64. Liu Q, Guntuku S, Cui XS, et al. Chk1 is an essential kinase that is regulated by Atr and required for the G(2)/M DNA damage checkpoint. *Genes Dev*. 2000;14:1448-1459.
65. Toledo LI, Murga M, Fernandez-Capetillo O. Targeting ATR and Chk1 kinases for cancer treatment: a new model for new (and old) drugs. *Mol Oncol*. 2011;5:368-373.
66. Kim ST, Lim DS, Canman CE, Kastan MB. Substrate specificities and identification of putative substrates of ATM kinase family members. *J Biol Chem*. 1999;274:37538-37543.
67. Traven A, Heierhorst J. SQ/TQ cluster domains: concentrated ATM/ATR kinase phosphorylation site regions in DNA-damage-response proteins. *BioEssays*. 2005;27:397-407.
68. O'Neill T, Dwyer AJ, Ziv Y, et al. Utilization of oriented peptide libraries to identify substrate motifs selected by ATM. *J Biol Chem*. 2000;275:22719-22727.
69. Hilton BA, Li Z, Musich PR, et al. ATR plays a direct antiapoptotic role at mitochondria, which is regulated by prolyl isomerase Pin1. *Mol Cell*. 2015;60:35-46.
70. Li Z, Musich PR, Cartwright BM, Wang H, Zou Y. UV-induced nuclear import of XPA is mediated by importin-alpha4 in an ATR-dependent manner. *PLoS One*. 2013;8:e68297.
71. Fischer JM, Popp O, Gebhard D, et al. Poly(ADP-ribose)-mediated interplay of XPA and PARP1 leads to reciprocal regulation of protein function. *FEBS J*. 2014;281:3625-3641.
72. Kedar PS, Stefanick DF, Horton JK, Wilson SH. Interaction between PARP-1 and ATR in mouse fibroblasts is blocked by PARP inhibition. *DNA Repair (Amst)*. 2008;7:1787-1798.
73. McConkey DJ, Orrenius S. The role of calcium in the regulation of apoptosis. *Biochem Biophys Res Commun*. 1997;239:357-366.
74. Gwag BJ, Canzoniero LM, Sensi SL, et al. Calcium ionophores can induce either apoptosis or necrosis in cultured cortical neurons. *Neuroscience*. 1999;90:1339-1348.