Pekala PH, Lane MD, Watkins PA, Moss J. 1981. On the mechanism of preadipocyte differentiation. Masking of poly(ADP-ribose) synthetase activity during differentiation of 3T3-L1 preadipocytes. *J Biol Chem* **256:** 4871–4876.

Pellegrino S, Altmeyer M. 2016. Interplay between ubiquitin, SUMO, and poly(ADP-ribose) in the cellular response to genotoxic stress. *Front Genet* **7:** 63.

Petesch SJ, Lis JT. 2008. Rapid, transcription-independent loss of nucleosomes over a large chromatin domain at Hsp70 loci. *Cell* **134:** 74–84.

Pleschke JM, Kleczkowska HE, Strohm M, Althaus FR. 2000. Poly(ADP-ribose) binds to specific domains in DNA damage checkpoint proteins. *J Biol Chem* **275:** 40974–40980.

Qiu J, Sheedlo MJ, Yu K, Tan Y, Nakayasu ES, Das C, Liu X, Luo ZQ. 2016. Ubiquitination independent of E1 and E2 enzymes by bacterial effectors. *Nature* **533:** 120–124.

Rack JG, Perina D, Ahel I. 2016. Macrodomains: structure, function, evolution, and catalytic activities. *Annu Rev Biochem* **85:** 431–454.

Raffaelli N, Sorci L, Amici A, Emanuelli M, Mazzola F, Magni G. 2002. Identification of a novel human nicotinamide mononucleotide adenylyltransferase. *Biochem Biophys Res Commun* **297:** 835–840.

Rajamohan SB, Pillai VB, Gupta M, Sundaresan NR, Birukov KG, Samant S, Hottiger MO, Gupta MP. 2009. SIRT1 promotes cell survival under stress by deacetylation-dependent deactivation of poly(ADP-ribose) polymerase 1. *Mol Cell Biol* **29:** 4116–4129.

Revollo JR, Grimm AA, Imai S. 2004. The NAD biosynthesis pathway mediated by nicotinamide phosphoribosyltransferase regulates Sir2 activity in mammalian cells. *J Biol Chem* **279:** 50754–50763.

Riccio AA, Cingolani G, Pascal JM. 2016. PARP-2 domain requirements for DNA damage-dependent activation and localization to sites of DNA damage. *Nucleic Acids Res* **44:** 1691–1702.

Rongvaux A, Andris F, Van Gool F, Leo O. 2003. Reconstructing eukaryotic NAD metabolism. *Bioessays* **25:** 683–690.

Rosenthal F, Feijs KL, Frugier E, Bonalli M, Forst AH, Imhof R, Winkler HC, Fischer D, Caflisch A, Hassa PO, et al. 2013. Macrodomain-containing proteins are new mono-ADP-ribosylhydrolases. *Nat Struct Mol Biol* **20:** 502–507.

Rosenthal F, Nanni P, Barkow-Oesterreicher S, Hottiger MO. 2015. Optimization of LTQ-Orbitrap mass spectrometer parameters for the identification of ADP-ribosylation sites. *J Proteome Res* **14:** 4072–4079.

Rouleau M, McDonald D, Gagne P, Ouellet ME, Droit A, Hunter JM, Dutertre S, Prigent C, Hendzel MJ, Poirier GG. 2007. PARP-3 associates with polycomb group bodies and with components of the DNA damage repair machinery. *J Cell Biochem* **100:** 385–401.

Rouleau M, Saxena V, Rodrigue A, Paquet ER, Gagnon A, Hendzel MJ, Masson JY, Ekker M, Poirier GG. 2011. A key role for poly(ADP-ribose) polymerase 3 in ectodermal specification and neural crest development. *PLoS One* **6:** e15834.

Rulten SL, Fisher AE, Robert I, Zuma MC, Rouleau M, Ju L, Poirier G, Reina-San-Martin B, Caldecott KW. 2011. PARP-3 and APLF function together to accelerate nonhomologous end-joining. *Mol Cell* **41:** 33–45.

Ryu KW, Kim DS, Kraus WL. 2015. New facets in the regulation of gene expression by ADP-ribosylation and poly(ADP-ribose) polymerases. *Chem Rev* **115:** 2453–2481.

Sala A, La Rocca G, Burgio G, Kotova E, Di Gesu D, Collesano M, Ingrassia AM, Tulin AV, Corona DF. 2008. The nucleosome-remodeling ATPase ISWI is regulated by poly-ADP-ribosylation. *PLoS Biol* **6:** e252.

Salomon D, Orth K. 2013. What pathogens have taught us about posttranslational modifications. *Cell Host Microbe* **14:** 269–279.

Schiewer MJ, Goodwin JF, Han S, Brenner JC, Augello MA, Dean JL, Liu F, Planck JL, Ravindranathan P, Chinnaiyan AM, et al. 2012. Dual roles of PARP-1 promote cancer growth and progression. *Cancer Discov* **2:** 1134–1149.

Seo GJ, Kincaid RP, Phanaksri T, Burke JM, Pare JM, Cox JE, Hsiang TY, Krug RM, Sullivan CS. 2013. Reciprocal inhibition between intracellular antiviral signaling and the RNAi machinery in mammalian cells. *Cell Host Microbe* **14:** 435–445.

Sharifi R, Morra R, Appel CD, Tallis M, Chioza B, Jankevicius G, Simpson MA, Matic I, Ozkan E, Golia B, et al. 2013. Deficiency of terminal ADP-ribose protein glycohydrolase TARG1/C6orf130 in neurodegenerative disease. *EMBO J* **32:** 1225–1237.

Slade D, Dunstan MS, Barkauskaite E, Weston R, Lafite P, Dixon N, Ahel M, Leys D, Ahel I. 2011. The structure and catalytic mechanism of a poly(ADP-ribose) glycohydrolase. *Nature* **477:** 616–620.

Specht KM, Shokat KM. 2002. The emerging power of chemical genetics. *Curr Opin Cell Biol* **14:** 155–159.

Steffen JD, Brody JR, Armen RS, Pascal JM. 2013. Structural implications for selective targeting of PARPs. *Front Oncol* **3:** 301.

Steffen JD, Tholey RM, Langelier MF, Planck JL, Schiewer MJ, Lal S, Bildzukewicz NA, Yeo CJ, Knudsen KE, Brody JR, et al. 2014. Targeting PARP-1 allosteric regulation offers therapeutic potential against cancer. *Cancer Res* **74:** 31–37.

Steffen JD, McCauley MM, Pascal JM. 2016. Fluorescent sensors of PARP-1 structural dynamics and allosteric regulation in response to DNA damage. *Nucleic Acids Res* **44:** 9771–9783.

Teloni F, Altmeyer M. 2016. Readers of poly(ADP-ribose): designed to be fit for purpose. *Nucleic Acids Res* **44:** 993–1006.

Thomas HD, Calabrese CR, Batey MA, Canan S, Hostomsky Z, Kyle S, Maegley KA, Newell DR, Skalitzky D, Wang LZ, et al. 2007. Preclinical selection of a novel poly(ADP-ribose) polymerase inhibitor for clinical trial. *Mol Cancer Ther* **6:** 945–956.

Thorsell AG, Ekblad T, Karlberg T, Low M, Pinto AF, Tresaugues L, Moche M, Cohen MS, Schuler H. 2016. Structural basis for potency and promiscuity in poly(ADP-ribose) polymerase (PARP) and tankyrase inhibitors. *J Med Chem* doi: 10.1021/acs.jmedchem.6b00990.

Timinszky G, Till S, Hassa PO, Hothorn M, Kustatscher G, Nijmeijer B, Colombelli J, Altmeyer M, Stelzer EH, Scheffzek K, et al. 2009. A macrodomain-containing histone rearranges chromatin upon sensing PARP1 activation. *Nat Struct Mol Biol* **16:** 923–929.

Todorova T, Bock FJ, Chang P. 2014. PARP13 regulates cellular mRNA post-transcriptionally and functions as a pro-apoptotic factor by destabilizing TRAILR4 transcript. *Nat Commun* **5:** 5362.

Tong L, Denu JM. 2010. Function and metabolism of sirtuin metabolite O-acetyl-ADP-ribose. *Biochim Biophys Acta* **1804:** 1617–1625.

Tulin A, Spradling A. 2003. Chromatin loosening by poly(ADP)-ribose polymerase (PARP) at *Drosophila* puff loci. *Science* **299:** 560–562.

Tulin A, Naumova NM, Menon AK, Spradling AC. 2006. *Drosophila* poly(ADP-ribose) glycohydrolase mediates chromatin structure and SIR2-dependent silencing. *Genetics* **172:** 363–371.

van der Heden van Noort GJ, van der Horst MG, Overkleeft HS, van der Marel GA, Filippov DV. 2010. Synthesis of mono-