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Universiteit Leiden



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Title: Chromatin remodelers in the DNA double strand break response

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PROPOSITIONS

1. The chromatin remodeler CHD4 is recruited to sites of DNA damage and affects RNF8/RNF168 dependent ubiquitylation (this thesis).
2. SMARCA5/SNF2H interacts with RNF168 in response to ionizing radiation and affects ubiquitylation by RNF168 at double strand breaks (this thesis).
3. CHD2 accumulates rapidly and transiently at sites of DNA damage in a mechanism dependent on poly(ADP-ribosyl)ation (this thesis).
4. RAD51C deficiency impairs sister chromatid cohesion which might lead to aneuploidy and trigger the onset of tumorigenesis (this thesis).
5. Modification of chromatin following DNA damage is an important component of DNA damage response maturation. (Lukas et al. Nat Cell Biol. 2011 Oct 3;13(10):1161-9) .
6. Several chromatin remodelers can regulate specific steps of the double strand break response by interacting with key players of this process. (Gooodaarzi et al Nat Struct Mol Biol. 2011 Jun 5;18(7):831-9, Luijsterburg et al. EMBO J. 2012 Apr 24).
7. Poly(ADP-ribosyl)ation is an important regulator of the double strand break response by directing proteins to sites of double strand breaks (Haince et al. J Biol Chem. 2008 Jan 11;283(2):1197-208).
8. K63 ubiquitylation of H2A-type histones by the ubiquitin ligases RNF8 and RNF168 is a central histone modification aiding to the spatio-temporal development of the double strand break response (Mailand et al. Cell. 2007 Nov 30;131(5):887-900; Doil et al. Cell. 2009 Feb 6;136(3):435-46; Kolas et al Science. 2007 Dec 7;318(5856):1637-40; Huen et al. Cell. 2007 Nov 30;131(5):901-14; Stewart et al. Cell. 2009 Feb 6;136(3):420-34).
9. "The secret of getting ahead is getting started. The secret of getting started is breaking your complex overwhelming tasks into small manageable tasks and then starting on the first one." – Mark Twain.
10. "The true science of martial arts means practicing them in such a way that they will be useful at any time, and to teach them in such a way that they will be useful in all things." – Miyamoto Musashi
11. People protesting against the development of genetically modified crops for mass consumption most often have the luxury to make a conscious choice to buy sustainable and 'organic' produce.
12. Most people taking vitamin supplements don't really need them.