DNA damage as the driving force for cytoplasmic responses

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DNA damage is a well-established chemical cascade leading to recognition and repairing of DNA lesions. The last few years the same DNA damage mechanisms are also shown to affect a variety of cellular responses, including splicing, protein translation, trafficking and secretion as well as a series of defense strategies and immune reactions. However, genome instability also determines to a great extent the biophysical properties of the nucleus. The mechanism connecting DNA damage with the nucleus physical properties and most importantly the downstream effects on the physiology of the cell remain to be determined.