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Muscle checkpoint

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Cell-cycle checkpoints ensure that damaged DNA is repaired prior to cell division. In an Advanced Online Publication in *Nature Genetics*, Puri *et al.* describe characterization of a differentiation checkpoint that operates in muscle cells in response to DNA-damaging agents (*Nature Genetics*, 4 November 2002; DOI:10.1038/ng1023). Treatment of the C2C12 myoblast cell line with different genotoxic drugs (cisplatin, etoposide, or methyl methane sulphate, MMS) blocked the progression of myogenic differentiation and induced cell-cycle arrest. Cisplatin and MMS prevented the transcriptional activity of the myogenic factor MyoD. This inhibition involves the c-Abl tyrosine kinase, but not the p53 or c-Jun proteins that have also been implicated in the DNA-damage response. Puri *et al.* show that MyoD is a direct target of the c-Abl kinase and that phosphorylation of MyoD is critical for inhibition by genotoxic drugs.

References

1. The DNA damage response: putting checkpoints in perspective.
2. *Nature Genetics*, [<http://www.nature.com/ng>]