| PublisherInfo | | |
|---|---|---|
| PublisherName | : | BioMed Central |
| PublisherLocation | : | London |
| PublisherImprintName | : | BioMed Central |

# Shocking phosphorylation of histones

| ArticleInfo | | |
|---|---|---|
| ArticleID | : | 3946 |
| ArticleDOI | : | 10.1186/gb-spotlight-20010104-01 |
| ArticleCitationID | : | spotlight-20010104-01 |
| ArticleSequenceNumber | : | 17 |
| ArticleCategory | : | Research news |
| ArticleFirstPage | : | 1 |
| ArticleLastPage | : | 2 |
| ArticleHistory | : | RegistrationDate : 2001–01–04<br>OnlineDate : 2001–01–04 |
| ArticleCopyright | : | BioMed Central Ltd2001 |
| ArticleGrants | : | |
| ArticleContext | : | 130592211 |

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Histone modifications are required to gain access to DNA sequences within the tightly compacted genome and enable gene transcription. It has been proposed that acetylation of the amino-terminal tails of the core histones within the nucleosome particle is critical for activating transcription. In the December Genes and Development, Nowak and Corces suggest that histone phosphorylation may play a greater role than acetylation in gene induction (*Genes Dev* 2000, **14:**3003-3013). They studied the heat shock response in *Drosophila melanogaster* and the role of histone modification using immunocytochemical analysis of polytene chromosomes. Heat shock causes a general repression of gene expression and a rapid induction of specific heat shock genes. Acetylation of core histones H3 and H4 did not change during the heat shock response. In contrast, antibodiesrecognizing phosphorylated histone H3 tails revealed dramatic changes in phosphorylation associated with the transcriptional response to heat shock.

# References

1. The language of covalent histone modifications.

2. *Genes and Development*, [http://www.genesdev.org]

3. Mitosis-specific phosphorylation of histone H3 initiates primarily within pericentromeric heterochromatin during G2 and spreads in an ordered fashion coincident with mitotic chromosome condensation.