It has been proposed that histone H3 phosphorylation can cause the recruitment of histone acetyltransferase (HAT) activity. Indeed, both types of histone H3 modifications were reduced in *IKKα*$^{-/-}$ cells, indicating that IKKα-mediated phosphorylation of Ser10 is probably important for the subsequent acetylation of lysine (Lys) 14 in histone H3. Using ChIP assays and modified histone H3 antibodies, Gaynor and colleagues showed that cytokine stimulation of wild-type cells led to increased IKKα–promoter association and Ser10 phosphorylation and Lys14 acetylation of histone H3. CBP has HAT activity, and in *IKKβ*$^{-/-}$ cells, association of both CBP and acetylated histone H3 was reduced, indicating that CBP might provide the HAT activity that is responsible for Lys14 acetylation. The interaction of IKKα and CBP provides an efficient way to phosphorylate, and subsequently acetylate, histone H3, resulting in cytokine-induced activation of NF-κB-directed gene expression.

The authors concluded that their findings have identified IKKα as an essential player in NF-κB-regulated gene expression, thereby adding a new role to the several existing regulatory functions for IκB kinases in this process.

Arianne Heinrichs

References and links

ORIGINAL RESEARCH PAPERS Yamamoto, Y. *et al*. Histone H3 phosphorylation by IKKα is critical for cytokine-induced activation of NF-κB-regulated genes. *Nature* **423**, 655–659 (2003) | Anest, V. *et al*. A nucleosomal function for IκB kinase α in NF-κB-dependent gene expression. *Nature* **423**, 659–663 (2003)

these abnormalities, and treatment with GRC antisense cDNA suppressed both the intracellular [Ca^{2+}] increase and the CK efflux.

By expressing GRC on the surface of CHO cells, which lack endogenous GRC, the authors also showed that Ca^{2+} influx through GRC was increased in the absence of stretch, that stretch enhanced the influx and that it caused cytoskeletal reorganization. And finally, from results obtained with cardiac-specific GRC transgenic mice, "it seems likely that elevated levels of sarcolemmal GRC result in greater Ca^{2+} influx in response to mechanical stress in cardiac chamber walls, causing further mobilization of GRC on the cell surface, thereby exacerbating Ca^{2+} overloading and the resultant cell damage".

So, the results obtained by Shigekawa and colleagues "…suggest that GRC is a key player in the pathogenesis of myocyte degeneration caused by dystrophin–glycoprotein complex disruption".

Natalie Wilson

References and links

ORIGINAL RESEARCH PAPER Iwata, Y. *et al.* A novel mechanism of myocyte degeneration involving the Ca^{2+}-permeable growth factor-regulated channel. *J. Cell Biol.* **161**, 957–967 (2003)

IN BRIEF

SIGNAL TRANSDUCTION

Dishevelled activates Ca^{2+} flux, PKC, and CamKII in vertebrate embryos.

Sheldahl, L. C. *et al. J. Cell Biol.* **161**, 769–777 (2003)

Wnt signalling through Frizzled (Fz) receptors can activate the planar cell polarity (PCP), β-catenin and Ca^{2+} pathways. Dishevelled (Dsh) functions in the β-catenin and PCP pathways, but this study now shows that Dsh also functions in the Ca^{2+} pathway — it activates Ca^{2+} flux, protein kinase C (PKC) and Ca^{2+}/calmodulin-dependent kinase II. Indeed, Dsh function is required for full activation of PKC by Fz7 in *Xenopus* eggs.

CENTROSOMES

Centrosome number is controlled by a centrosome-intrinsic block to reduplication.

Wong, C. & Stearns, T. *Nature Cell Biol.* **5**, 539–544 (2003)

Centrosomes duplicate only once during the cell cycle but it has been unknown whether this is because of a decline in positive factors or the result of a specific reduplication block. Here, Wong and Stearns used cell-fusion assays to show that a centrosome-intrinsic block, rather than any cytoplasmic factors, prevents reduplication of recently duplicated G2 centrosomes, and that this block is not controlled by the centrosome:nucleus ratio.

TELOMERES

Developmentally programmed gene elimination in *Euplotes crassus* facilitates a switch in the telomerase catalytic subunit.

Karamysheva, Z. *et al. Cell* **113**, 565–576 (2003)

Here, Karamysheva *et al.* show that three *TERT* genes encode the catalytic subunit of telomerase in *Euplotes crassus*. Their expression requires +1 ribosomal frameshifting. *TERT-1* and *TERT-3* expression correlates with telomere maintenance, whereas *TERT-2* is expressed during *de novo* telomere formation. *TERT-2* expression is controlled by programmed DNA degradation, so that it is eliminated during vegetative growth.

SIGNALLING

A hedgehog-responsive region in the *Drosophila* wing disc is defined by Debra-mediated ubiquitination and lysosomal degradation of Ci.

Dai, P. *et al. Dev. Cell* **4**, 917–928 (2003)

The Hh-responsive genes *decapentaplegic* and *patched* are expressed specifically in a stripe of anterior (A)-compartment cells 9–10 cells away from the A–posterior border. The transcription factor Cubitus interruptus (Ci), which activates Hh target genes, is present at high levels in this stripe, too. Dai *et al.* have now identified Debra (Dbr) — for determiner of breaking down of Ci activator — which binds to Ci and mediates Ci polyubiquitylation. This results in Ci lysosomal degradation at the border of the Hh-responsive region.