

# Molecular Cell

## Essay

**RNA Polymerase II:  
A "Nobel" Enzyme Demystified**

J.Q. Svejstrup, R.C. Conaway,  
and J.W. Conaway

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## Review

**New Roles for  $\beta$ -Arrestins in  
Cell Signaling: Not Just for  
Seven-Transmembrane Receptors**

R.J. Lefkowitz, K. Rajagopal, and E.J. Whalen

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## Research Articles

**Recognition of a Functional Peroxisome  
Type 1 Target by the Dynamic Import Receptor Pex5p**

W.A. Stanley, F.V. Filipp, P. Kursula,  
N. Schüller, R. Erdmann, W. Schliebs,  
M. Sattler, and M. Wilmanns

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**Histidine Phosphorylation of the Potassium Channel  
KC<sub>A</sub>3.1 by Nucleoside Diphosphate Kinase B Is  
Required for Activation of KC<sub>A</sub>3.1 and CD4 T Cells**

S. Srivastava, Z. Li, K. Ko, P. Choudhury,  
M. Albaqumi, A.K. Johnson, Y. Yan,  
J.M. Backer, D. Unutmaz, W.A. Coetzee,  
and E.Y. Skolnik

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**The X-Ray Structure of a BAK Homodimer  
Reveals an Inhibitory Zinc Binding Site**

T. Moldoveanu, Q. Liu, A. Tocilj, M. Watson,  
G. Shore, and K. Gehring

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**Destabilization of Binding to Cofactors  
and SCF<sup>Met30</sup> Is the Rate-Limiting Regulatory Step  
in Degradation of Polyubiquitinated Met4**

S. Chandrasekaran, A.E. Deffenbaugh,  
D.A. Ford, E. Bailly, N. Mathias,  
and D. Skowyra

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**The Polycomb Protein Ring1B Generates  
Self Atypical Mixed Ubiquitin Chains Required  
for Its In Vitro Histone H2A Ligase Activity**

R. Ben-Saadon, D. Zaaroor, T. Ziv,  
and A. Ciechanover

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**Identification of an mRNA-Decapping Regulator  
Implicated in X-Linked Mental Retardation**

X. Jiao, Z. Wang, and M. Kiledjian

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**Distinct Pathways for snoRNA and mRNA Termination**

M. Kim, L. Vasiljeva, O.J. Rando,  
A. Zhelkovsky, C. Moore, and S. Buratowski

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**Genome-Wide Distribution of Yeast RNA  
Polymerase II and Its Control by Sen1 Helicase**

E.J. Steinmetz, C.L. Warren, J.N. Kuehner,  
B. Panbehri, A.Z. Ansari, and D.A. Brow

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**The Transition between Transcriptional  
Initiation and Elongation in *E. coli*  
Is Highly Variable and Often Rate Limiting**

N.B. Reppas, J.T. Wade, G.M. Church,  
and K. Struhl

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(continued)

**Determinants for Dephosphorylation of the RNA Polymerase II C-Terminal Domain by Scp1**

Y. Zhang, Y. Kim, N. Genoud, J. Gao,  
J.W. Kelly, S.L. Pfaff, G.N. Gill,  
J.E. Dixon, and J.P. Noel

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**SNIP1 Is a Candidate Modifier  
of the Transcriptional Activity of c-Myc  
on E Box-Dependent Target Genes**

M. Fujii, L.A. Lyakh, C.P. Bracken,  
J. Fukuoka, M. Hayakawa, T. Tsukiyama,  
S.J. Soll, M. Harris, S. Rocha, K.C. Roche,  
S.-i. Tominaga, J. Jen, N.D. Perkins,  
R.J. Lechleider, and A.B. Roberts

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**Yng1 PHD Finger Binding to H3 Trimethylated at K4  
Promotes NuA3 HAT Activity at K14 of H3 and  
Transcription at a Subset of Targeted ORFs**

S.D. Taverna, S. Ilin, R.S. Rogers, J.C. Tanny,  
H. Lavender, H. Li, L. Baker, J. Boyle,  
L.P. Blair, B.T. Chait, D.J. Patel,  
J.D. Aitchison, A.J. Tackett, and C.D. Allis

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## Technique

**Receptor-Selective Coactivators  
as Tools to Define the Biology of  
Specific Receptor-Coactivator Pairs**

S. Gaillard, L.L. Grasfeder, C.L. Haeffele,  
E.K. Lobenhofer, T.-M. Chu, R. Wolfinger,  
D. Kazmin, T.R. Koves, D.M. Muoio,  
C.-y. Chang, and D.P. McDonnell

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## Erratum

**The Mechanisms of PML-Nuclear Body Formation**

T.H. Shen, H.-K. Lin, P.P. Scaglioni,  
T.M. Yung, and P.P. Pandolfi

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## Announcements Positions Available

Sen1 functions in termination of transcription by RNA polymerase II (Pol II), but the spectrum of genes that requires this factor is unknown. In this issue of *Molecular Cell*, Steinmetz et al. (pp. 735–746) map sites of Sen1-dependent termination by comparing Pol II occupancy across the entire yeast genome in wild-type and *sen1* mutant strains. The trace on the cover shows wild-type (blue) and *sen1* mutant (green) Pol II occupancy for a 50 kb segment of chromosome 12. The analysis reveals Sen1-dependent termination on many noncoding RNA genes and some short protein-coding genes. In addition, Sen1-dependent attenuation (upstream termination) was found to regulate several protein-coding genes. Unexpectedly, Sen1 appears to influence the efficiency of silencing at some loci. (Artwork by H. Adam Steinberg; molecular graphics rendered with PyMol: <http://www.pymol.org>.)