**Chapter 9 Transcriptional Regulation and Epigenetics**

**9.1 Gene Regulation in *E. coli***Gilbert, W. and B. Muller-Hill. 1966. Isolation of the *lac* repressor. *Proc. Natl. Acad. Sci. USA* 56: 1891–1899. [P]

Jacob, F. 2011. The birth of the operon. *Science* 332:767. [R]

Jacob, F. and J. Monod. 1961. Genetic and regulatory mechanisms in the synthesis of proteins. *J. Mol. Biol*. 3: 318–356. [P]

Lawson, C. L., D. Swigon, K. S. Murakami, S. A. Darst, H. M. Berman and R. H. Ebright. 2004. Catabolite activator protein: DNA binding and transcription activation. *Curr. Opin. Struc. Biol*. 14: 10–20. [R]

Ptashne, M. and A. Gann. 2002. Genes and Signals. Cold Spring Harbor, N.Y.: Cold Spring Harbor Laboratory Press.

Rabinowitz, J. D. and T. J. Silhavy. 2013. Systems biology: Metabolite turns master regulator. *Nature* 500: 283–284. [R]

Wilson, C. J., H. Zhan, L. Swint-Kruse and K. S. Matthews. 2007. The lactose repressor system: paradigms for regulation, allosteric behavior and protein folding. *Cell. Mol. Life. Sci.* 64: 3–16. [R]

**9.2 Transcription Factors in Eukaryotes**

Buecker, C. and J. Wysocka. 2012. Enhancers as information integration hubs in development: lessons from genomics. *Trends Genet.* 28: 276–284. [R]

De Laat, W. and D. Duboule. 2013. Topology of mammalian developmental enhancers and their regulatory landscapes. *Nature* 502: 499–506. [R]

Espinoza, C. A. and B. Ren. 2011. Mapping higher order structure of chromatin domains. *Nature Genet.* 43: 615–616. [R]

Fuda, N. J., M. B. Ardehali and J. T. Lis. 2009. Defining mechanisms that regulate RNA polymerase II transcription *in vivo*. *Nature* 461: 186–192. [R]

Gilgoris, T. and J. Lowe. 2016. Structural insights into ring formation of cohesin and related Smc complexes. *Trends Cell Biol.*26: 680-693. [R]

Hahn, S. and S. Buratowski. 2016. Snapshots of transcription initiation. *Nature* 533: 331-332. [R]

Kadonaga, J. T. 2004. Regulation of RNA polymerase II transcription by sequence-specific DNA binding factors. *Cell* 116: 247–257. [R]

Lonard, D. M. and B. W. O’Malley. 2005. Expanding functional diversity of the coactivators. *Trends Biochem. Sci*. 30: 126–132. [R]

Maksimenko, O. and P. Georgiev. 2014. Mechanisms and proteins involved in long-distance interactions. *Front. Genet.* 5:28 [R]

Ong, C.-T. and V. G. Corces. 2014. CTCF: an architectural protein bridging genome topology and function. *Nature Rev. Genet.* 15: 234–246. [R]

Price, D. H. 2010. Regulation of RNA polymerase II elongation by c-Myc. *Cell* 141: 399–400. [R]

Shlyueva, D., G. Stampfel and A. Stark. 2014. Transcriptional enhancers: from properties to genome-wide predictions. *Nature Rev. Genet.* 15: 272–286. [R]

**9.3 Chromatin and Epigenetics**
Badeaux, A. I. and Y. Shi. 2013. Emerging roles for chromatin as a signal integration and storage platform. *Nature Rev. Mol. Cell Biol.* 14:211–224. [R]

Becker, J. S., D. Nicetto and K. S. Zaret. 2016. H3K9me3-dependent heterochromatin: barrier to cell fate changes. *Trends Genet.* 32: 29-41. [R]

Brownell, J. E., J. Zhou, T. Ranalli, R. Kobayashi, D. G. Edmondson, S. Y. Roth and C. D. Allis. 1996. *Tetrahymena* histone acetyltransferase A: A homolog to yeast Gcn5p linking histone acetylation to gene activation. *Cell* 84: 843–851. [P]

Calo, E. and J. Wysocka. 2013. Modification of enhancer chromatin: what, how, and why? *Mol. Cell* 49: 825–837. [R]

Clapier, C. R., J. Iwasa, B. R. Cairns and C. L. Peterson. 2017. Mechanisms of action and regulation of ATP-dependent chromatin-remodeling complexes. *Nature Rev. Mol. Cell Biol.* 18: 407-422. [R]

Dixon, J. R., D. U. Gorkin and B. Ren. 2016. Chromatin domains: the unit of chromosome organization. *Mol. Cell* 62: 668-680. [R]

D’Urso, A. and J. H. Brickner. 2014. Mechanisms of epigenetic memory. *Trends Genet.* 30: 230–236. [R]

Engreitz, J. M., N. Ollikainen and M. Guttman. 2016. Long non-coding RNAs: spatial amplifiers that control nuclear structure and gene expression. *Nature Rev. Mol. Cell Biol.* 17: 756-770. [R]

Fatica, A. and I. Bozzoni. 2014. Long non-coding RNAs: new players in cell differentiation and development. *Nature Rev. Genet.* 15: 7–21. [R]

Guttman, M, J. and 16 others. 2011. lincRNAs act in the circuitry controlling pluripotency and differentiation. *Nature* 477: 295–300. [P]

Ho, L. and G. R. Crabtree. 2010. Chromatin remodeling during development. *Nature* 463: 474–484. [R]

Holoch, D. and D. Moazed. 2015. RNA-mediated epigenetic regulation of gene expression. *Nature Rev. Genet.* 16: 71–84. [R]

Iyer, M. K. and 18 others. 2015. The landscape of long noncoding RNAs in the human transcriptome. *Nature Genet.* 47: 199–208. [P]

Jones, P. A. 2012. Functions of DNA methylation: islands, start sites, gene bodies and beyond. *Nature Rev. Genet.* 13: 484–492. [R]

Kugel, J. F. and J. A. Goodrich. 2011. Non-coding RNAs: key regulators of mammalian transcription. *Trends Biochem. Sci.* 37: 144–151. [R]

Mira-Bontenbal, H. and J. Gribnau. 2016. New *Xist-*interacting proteins in X-chromosome inactivation. *Curr. Biol.* 26: R338-R342. [R]

Piccolo, F. M. and A. G. Fisher. 2014. Getting rid of DNA methylation. *Trends Cell Biol.* 24: 136–143. [R]

Rinn, J. L. and H. Y. Chang. 2012. Genome regulation by long noncoding RNAs. *Ann. Rev. Biochem.* 81: 145–166. [R]

Saha, A., J. Wittmeyer and B. R. Cairns. 2006. Chromatin remodeling: the industrial revolution of DNA around histones. *Nature Rev. Mol. Cell Biol.* 7: 437–447. [R]

Schwartz, Y. B. and V. Pirrotta. 2013. A new world of Polycombs: unexpected partnerships and emerging functions. *Nature Rev. Genet.* 14: 853–864. [R]

Taunton, J., C. A. Hassig and S. L. Schreiber. 1996. A mammalian histone deacetylase related to the yeast transcriptional regulator Rpd3p. *Science* 272: 408–411. [P]

Wang, K. C. and H. Y. Chang. 2011. Molecular mechanisms of long noncoding RNAs. *Mol. Cell* 43: 904–914. [R]

Wu, H. and Y. Zhang. 2014. Reversing DNA methylation: mechanisms, genomics, and biological functions. *Cell* 156: 45–68. [R]

Yang, L., J. E. Froberg and J. T. Lee. 2014. Long noncoding RNAs: fresh perspectives into the RNA world. *Trends Biochem. Sci.* 39: 35–43. [R]