Recommended Reading List

- **General introduction**

  1. Alon, U. 2007. Network motifs: theory and experimental approaches. *Nat Rev Genet* 8: 450-61.
  2. Andersen, M. E., Dennison, J. E., Thomas, R. S., and Conolly, R. B. 2005. New directions in incidence-dose modeling. *Trends Biotechnol* 23:122-127.
  3. Tyson, J. J., Chen, K. C., and Novak, B. 2003. Sniffers, buzzers, toggles and blinkers: dynamics of regulatory and signaling pathways in the cell. *Curr Opin Cell Biol* 15:221-231.

- **Ultrasensitivity**

  1. Goldbeter, A., and Koshland, D. E., Jr. 1981. An amplified sensitivity arising from covalent modification in biological systems. *Proc Natl Acad Sci U S A* 78:6840-6844.
  2. Goldbeter, A., and Koshland, D. E., Jr. 1984. Ultrasensitivity in biochemical systems controlled by covalent modification. Interplay between zero-order and multistep effects. *J Biol Chem* 259:14441-14447.
  3. Huang, C. Y., and Ferrell, J. E., Jr. 1996. Ultrasensitivity in the mitogen-activated protein kinase cascade. *Proc Natl Acad Sci U S A* 93:10078-10083.

- **Response coefficient, Hill coefficient, and quantification of signal transduction**

  1. Kholodenko, B. N., Hoek, J. B., Westerhoff, H. V., and Brown, G. C. 1997. Quantification of information transfer via cellular signal transduction pathways. *FEBS Lett* 414:430-434.
  2. Legewie, S., Bluthgen, N., and Herzel, H. 2005. Quantitative analysis of ultrasensitive responses. *Febs J* 272:4071-4079.

- **Bistability and hysteresis**

  1. Strogatz, S. Nonlinear dynamics and chaos: with application to physics, biology, chemistry, and engineering. Boulder, CO: Westview Press, 1994.
  2. Ferrell, J. E., Jr. 2002. Self-perpetuating states in signal transduction: positive feedback, double-negative feedback and bistability. *Curr Opin Cell Biol* 14:140-148.
  3. Bhalla, U. S., Ram, P. T., and Iyengar, R. 2002. MAP kinase phosphatase as a locus of flexibility in a mitogen-activated protein kinase signaling network. *Science* 297:1018-1023.
  4. Ferrell, J. E., Jr., and Machleder, E. M. 1998. The biochemical basis of an all-or-none cell fate switch in Xenopus oocytes. *Science* 280:895-898.
  5. Xiong, W., and Ferrell, J. E., Jr. 2003. A positive-feedback-based bistable 'memory module' that governs a cell fate decision. *Nature* 426:460-465.
  6. Chickarmane, V., Troein, C., Nuber, U. A., Sauro, H. M., and Peterson, C. 2006. Transcriptional dynamics of the embryonic stem cell switch. *PLoS Comput Biol* 2:e123.

- **Stochastic gene expression and simulation**

  1. Elowitz, M. B., Levine, A. J., Siggia, E. D., and Swain, P. S. 2002. Stochastic gene expression in a single cell. *Science* 297:1183-1186.

2. Raser, J. M., and O'Shea, E. K. 2004. Control of stochasticity in eukaryotic gene expression. *Science* 304:1811-1814.
3. Kaern, M., Elston, T. C., Blake, W. J., and Collins, J. J. 2005. Stochasticity in gene expression: from theories to phenotypes. *Nat Rev Genet* 6:451-464.
4. Maamar, H., Raj, A., and Dubnau, D. 2007. Noise in gene expression determines cell fate in Bacillus subtilis. *Science* 317:526-529.
5. Gillespie, D. T. 1976. A general method for numerically simulating the stochastic time evolution of coupled chemical reactions. *Journal of Computational Physics* 22:403-434.
6. Gillespie, D. T. 1977. Exact stochastic simulation of coupled chemical reactions. *Journal of Physical Chemistry* 81:2340-2361.

- **Homeostasis, feedback and feedforward control.**

1. El-Samad, H., Kurata, H., Doyle, J. C., Gross, C. A., and Khammash, M. 2005. Surviving heat shock: control strategies for robustness and performance. *Proc Natl Acad Sci U S A* 102:2736-2741.
2. Barkai, N., and Leibler, S. 1997. Robustness in simple biochemical networks. *Nature* 387:913-917.
3. Yi, T. M., Huang, Y., Simon, M. I., and Doyle, J. 2000. Robust perfect adaptation in bacterial chemotaxis through integral feedback control. *Proc Natl Acad Sci U S A* 97:4649-4653.
4. Zhang, Q., and Andersen, M. E. 2007. Dose Response Relationship in Anti-Stress Gene Regulatory Networks. *PLoS Comput Biol* 3:e24.

- **Cell cycle and checkpoint control**

1. Novak, B., and Tyson, J. J. 2003. Modelling the controls of the eukaryotic cell cycle. *Biochem Soc Trans* 31:1526-1529.
2. Novak, B., Tyson, J. J., Gyorffy, B., and Csikasz-Nagy, A. 2007. Irreversible cell-cycle transitions are due to systems-level feedback. *Nat Cell Biol* 9:724-728.
3. Tyson, J. J., and Novak, B. 2001. Regulation of the eukaryotic cell cycle: molecular antagonism, hysteresis, and irreversible transitions. *J Theor Biol* 210:249-263.

- **Post-workshop readings**

1. Araujo, R. P., Liotta, L. A., and Petricoin, E. F. 2007. Proteins, drug targets and the mechanisms they control: the simple truth about complex networks. *Nat Rev Drug Discov* 6:871-880.
2. Kitano, H. 2007. Towards a theory of biological robustness. *Mol Syst Biol* 3:137.