

References

- Aberle H, Bauer A, Stappert J, Kispert A & Kemler R (1997) β -Catenin is a target for the ubiquitin-proteasome pathway. *EMBO J.* 16, 3797–3804. (Problem 15–148)
- Abrahams JP, Leslie AG, Lutter AGW & Walker JE (1994) Structure at 2.8 Å resolution of F1-ATPase from bovine heart mitochondria. *Nature* 370, 621–628. (Problem 14–32)
- Abrami L, Simon M, Rousselet G, Berthonaud V, Buhler JM & Ripoche P (1994) Sequence and functional expression of an amphibian water channel, FA-CHIP: a new member of the MIP family. *Biochim. Biophys. Acta* 1192, 147–151. (Problem 11–72)
- Adams GA & Rose JK (1985) Structural requirements of a membrane-spanning domain for protein anchoring and cell surface transport. *Cell* 41, 1007–1015. (Problem 13–56)
- Adams KL, Song K, Roessler PG, Nugent JM, Doyle JL, Doyle JJ & Palmer JD (1999) Intracellular gene transfer in action: Dual transcription and multiple silencings of nuclear and mitochondrial *cox2* genes in legumes. *Proc. Natl Acad. Sci. U.S.A.* 96, 13863–13868. (Problem 1–47)
- Adelstein RS & Klee CB (1980) Smooth muscle myosin light-chain kinase. In *Calcium and Cell Function* (WY Cheung ed), Vol. 1, pp 167–182. New York: Academic Press. (Problem 15–96)
- Alberts BM & Frey L (1970) T4 bacteriophage gene 32: a structural protein in the replication and recombination of DNA. *Nature* 227, 1313–1318. (Problem 5–37)
- Allard WJ & Lienhard GE (1985) Monoclonal antibodies to the glucose transporter from human erythrocytes: identification of the transporter as a $M_r = 55,000$ protein. *J. Biol. Chem.* 260, 8668–8675. (Problem 11–17)
- Alon R, Hammer DA & Springer TA (1995) Lifetime of the P-selectin-carbohydrate bond and its response to tensile force in hydrodynamic flow. *Nature* 374, 539–542. (Problem 19–21)
- Amann KJ & Pollard TD (2001) The ARP2/3 complex nucleates actin filament branches from the sides of preexisting filaments. *Nat. Cell Biol.* 3, 306–310. (Problem 16–64)
- Anderson JE (1993) Restriction endonucleases and modification methylases. *Curr. Opin. Struct. Biol.* 3, 24–30. (Problem 8–70)
- Andreasen PH, Dreisig H & Kristiansen K (1987) Unusual ciliate-specific codons in *Tetrahymena* mRNAs are translated correctly in a rabbit reticulocyte lysate supplemented with a subcellular fraction from *Tetrahymena*. *Biochem. J.* 244, 331–335. (Problem 6–93)
- Antonio C, Ferby I, Wilhelm H, Jones MJ, Karsenti E, Nebreda AR & Vernos I (2000) Xkid, a chromokinesin required for chromosome alignment on the metaphase plate. *Cell* 102, 425–435. (Problem 17–97)
- Armitage P & Doll R (1954) The age distribution of cancer and a multi-stage theory of carcinogenesis. Reprinted in 2004 in *Br. J. Cancer* 91, 1983–1989. (Problems 20–17 and 20–19)
- Artandi SE, Chang S, Lee S-L, Alson S, Gottlieb GJ, Chin L & DePinho RA (2000) Telomere dysfunction promotes non-reciprocal translocations and epithelial cancers in mice. *Nature* 406, 641–645. (Problem 4–41)
- Ashburner M, Chihara C, Meltzer P & Richards G (1973) Temporal control of puffing activity in polytene chromosomes. *Cold Spring Harbor Symp. Quant. Biol.* 38, 655–662. (Problem 15–49)
- Bachinger HP, Bruckner P, Timpl R, Prockop DJ & Engel J (1980) Folding mechanism of the triple helix in type III collagen and type III pN-collagen. *Eur. J. Biochem.* 106, 619–632. (Problem 19–86)
- Bachmair A, Finley D & Varshavsky A (1986) *In vivo* half-life of a protein is a function of its amino-terminal residue. *Science* 234, 179–186. (Problems 6–99 and 6–100)
- Bachurski CJ, Theodorakis NG, Coulson RM & Cleveland DW (1994) An amino-terminal tetrapeptide specifies cotranslational degradation of β -tubulin but not α -tubulin mRNAs. *Mol. Cell Biol.* 14, 4076–4086. (Problem 7–114)
- Baeuerle PA & Baltimore D (1988) Activation of DNA-binding activity in an apparently cytoplasmic precursor of the NF- κ B transcription factor. *Cell* 53, 211–217. (Problem 12–61)
- Baldin V, Lukas J, Marcote MJ, Pagano M & Draetta G (1993) Cyclin D1 is a nuclear protein required for cell cycle progression in G_1 . *Genes Dev.* 7, 812–821. (Problem 17–140)
- Baltzer F (1967) Theodor Boveri: Life and Work of a Great Biologist. Berkeley: University of California Press. (Problem 17–102)
- Bamberg E & Lauger P (1974) Temperature-dependent properties of gramicidin A channels. *Biochim. Biophys. Acta* 367, 127–133. (Problem 11–19)
- Barnes G & Rine J (1985) Regulated expression of endonuclease EcoRI in *Saccharomyces cerevisiae*: nuclear entry and biological consequences. *Proc. Natl Acad. Sci. U.S.A.* 82, 1354–1358. (Problems 12–52 and 12–53)
- Barron JT, Gu L & Parrillo JE (2000) NADH/NAD redox state of cytoplasmic glycolytic compartments in vascular smooth muscle. *Am. J. Physiol. Heart Circ. Physiol.* 279, H2872–H2878. (Problem 14–55)
- Bartel DP & Szostak JW (1993) Isolation of new ribozymes from a large pool of random sequences. *Science* 261, 1411–1418. (Problems 6–105, 6–109, 6–110, and 6–111)
- Baserga R & Wiebel F (1969) The cell cycle of mammalian cells. *Intern. Rev. Exp. Pathol.* 7, 1–30. (Problem 17–19)
- Beck M, Forster F, Ecke M, Plitzko JM, Melchior F, Gerisch G, Baumeister W & Medalia O (2004) Nuclear pore complex structure and dynamics revealed by cryoelectron tomography. *Science* 306, 1387–1390. (Problem 9–45)
- Bell SP & Dutta A (2002) DNA replication in eukaryotic cells. *Annu. Rev. Biochem.* 71, 333–374. (Problem 17–45)
- Bender J & Kleckner N (1986) Genetic evidence that Tn10 transposes by a nonreplicative mechanism. *Cell* 45, 801–815. (Problem 5–110)
- Benezra R, Davis RL, Lockshon D, Turner DL & Weintraub H (1990) The protein Id: a negative regulator of helix-loop-helix DNA binding proteins. *Cell* 61, 49–59. (Problem 7–29)
- Bennett V & Stenbuck PJ (1979) The membrane attachment protein for spectrin is associated with band 3 in human erythrocyte membranes. *Nature* 280, 468–473. (Problem 10–66)
- Bennett V & Stenbuck PJ (1980) Association between ankyrin and the cytoplasmic domain of band 3 isolated from the human erythrocyte membrane. *J. Biol. Chem.* 255, 6424–6432. (Problem 10–66)
- Berg HC (1993) *Random Walks in Biology*, Expanded Edition, pp 5–6. Princeton, NJ: Princeton University Press. (Problems 2–91 and 2–92)

- Berg JM, Tymoczko JL & Stryer L (2002) *Biochemistry*, Fifth Edition, pp 436–437. New York: WH Freeman and Co. (Problem 2–97)
- Berget SM, Berk AJ, Harrison T & Sharp PA (1977) Spliced segments at the 5' termini of adenovirus-2 late mRNA: a role for heterogeneous nuclear RNA in mammalian cells. *Cold Spring Harbor Symp. Quant. Biol.* 42, 523–529. (Problem 6–26)
- Bestvater F, Spiess E, Stobrawa G, Hacker M, Feurer T, Porwol T, Berchner-Phannschmidt U, Wotzlaw C & Acker H (2002) Two-photon fluorescence absorption and emission spectra of dyes relevant for cell imaging. *J. Microscopy* 208, 108–115. (Problem 9–30)
- Beug H, Katz FE & Gerisch G (1973) Dynamics of antigenic membrane sites relating to cell aggregation in *Dictyostellium discoideum*. *J. Cell Biol.* 56, 647–658. (Problem 19–13)
- Bi X, Braunstein M, Shei G-J & Broach J (1999) The yeast *HML1* silencer defines a heterochromatin domain boundary by directional establishment of silencing. *Proc. Natl Acad. Sci. U.S.A.* 96, 11934–11939. (Problem 7–68)
- Bittner JJ (1936) Some possible effects of nursing on the mammary gland tumor incidence in mice. *Science* 84, 2172. (Problem 20–29)
- Bleil JD & Bretscher MS (1982) Transferrin receptor and its recycling in HeLa cells. *EMBO J.* 1, 351–355. (Problems 13–98 and 13–99)
- Bloom K (1993) The centromere frontier: kinetochore components, microtubule-based motility, and the CEN-value paradox. *Cell* 73, 621–624. (Problem 17–87)
- Bloom KS & Carbon J (1982) Yeast centromere DNA is in a unique and highly ordered structure in chromosomes and small circular minichromosomes. *Cell* 29, 305–317. (Problem 4–73)
- Boeke JD, Garfinkel DJ, Styles CA & Fink GR (1985) Ty elements transpose through an RNA intermediate. *Cell* 40, 491–500. (Problem 5–111)
- Bogenhagen D & Clayton DA (1977) Mouse L cell mitochondrial DNA molecules are selected randomly for replication throughout the cell cycle. *Cell* 11, 719–727. (Problem 14–112)
- Bonfanti L, Mironov Jr. AA, Martinez-Menarguez JA, Martella O, Fusella A, Baldassarre M, Buccione R, Geuze HJ, Mironov AA & Luini A (1998) Procollagen traverses the Golgi stack without leaving the lumen of cisternae: evidence for cisternal maturation. *Cell* 95, 993–1003. (Problem 13–60)
- Bonner JT & Savage LJ (1947) Evidence for the formation of cell aggregates by chemotaxis in the development of the slime mold *Dictyostelium discoideum*. *J. Exp. Zool.* 106, 1–26. (Problem 15–46)
- Bootsma D, Budke L & Vos O (1964) Studies on synchronous division of tissue culture cells initiated by excess thymidine. *Exp. Cell Res.* 33, 301–309. (Problem 17–14)
- Bostock CJ, Prescott DM & Kirkpatrick JB (1971) An evaluation of the double thymidine block for synchronizing mammalian cells at the G₁-S border. *Exp. Cell Res.* 68, 163–168. (Problem 17–14)
- Boveri T (1902) Über mehrpolige Mitosen als mittel zur Analyse des Zellkerns. *Verh. d. phys.-med. Ges. Würzburg, N.F.* 35, 67–90. (Available in English translation, Foundations of Experimental Embryology, B Willier and J Oppenheimer eds. Englewood Cliffs, NJ: Prentice-Hall, 1964.) (Problem 17–102)
- Boveri T (1907) Zellenstudien VI: Die Entwicklung dispermer Seeiegeleier. Ein Beitrag zur Befruchtungslehre und zur Theorie des Kernes. *Jenaische Zeitschr. Naturwissen.* 43, 1–292. (Problem 17–102)
- Bretscher M (1972) Asymmetrical lipid bilayer structure for biological membranes. *Nat. New Biol.* 236, 11–12. (Problem 10–29)
- Brewer BJ & Fangman WL (1987) The localization of replication origins on ARS plasmids in *S. cerevisiae*. *Cell* 51, 463–471. (Problem 5–61)
- Brinker A, Pfeifer G, Kerner MJ, Naylor DJ, Hartl FU & Hayer-Hartl M (2001) Dual function of protein confinement in chaperonin-assisted protein folding. *Cell* 107, 223–233. (Problem 6–96)
- Brokaw CJ, Luck DJL & Huang B (1982) Analysis of the movement of *Chlamydomonas* flagella: the function of the radial-spoke system is revealed by comparison of wild-type and mutant flagella. *J. Cell Biol.* 92, 722–732. (Problem 16–107)
- Brown CJ, Ballabio A, Rupert JL, Lafreniere RG, Grompe M, Tonlorenzi R & Willard HF (1993) A gene from the region of the human X inactivation center is expressed exclusively from the inactive X chromosome. *Nature* 349, 38–44. (Problem 7–93)
- Brown DA & Rose JK (1992) Sorting of GPI-anchored proteins to glycolipid-enriched membrane subdomains during transport to the apical cell surface. *Cell* 68, 533–544. (Problem 10–30)
- Brown MS & Goldstein JL (1979) Receptor-mediated endocytosis: insights from the lipoprotein receptor system. *Proc. Natl Acad. Sci. U.S.A.* 76, 3330–3337. (Problems 13–100 and 13–101)
- Brown NR, Noble MEM, Lawrie AM, Morris MC, Tunnah P, Divita G, Johnson LN & Endicott JA (1999) Effects of phosphorylation of threonine 160 on cyclin-dependent kinase 2 structure and activity. *J. Biol. Chem.* 274, 8746–8756. (Problem 3–109)
- Brutlag D & Kornberg A (1972) Enzymatic synthesis of deoxyribonucleic acid. 36. A proofreading function for the 3' to 5' exonuclease activity in deoxyribonucleic acid polymerases. *J. Biol. Chem.* 247, 241–248. (Problem 5–41)
- Bubb MR, Spector I, Bershadsky AD & Korn ED (1995) Swinholid A is a microfilament disrupting marine toxin that stabilizes actin dimers and severs actin filaments. *J. Biol. Chem.* 270, 3463–3466. (Problem 16–43)
- Burch RM., Luini A & Axelrod J (1986) Phospholipase A₂ and phospholipase C are activated by distinct GTP-binding proteins in response to α_1 -adrenergic stimulation in FRTL5 thyroid cells. *Proc. Natl Acad. Sci. U.S.A.* 83, 7201–7205. (Problem 15–94)
- Byers D, Davis RL & Kiger JA (1981) Defect in cyclic AMP phosphodiesterase due to the *dunce* mutation of learning in *Drosophila melanogaster*. *Nature* 289, 79–81. (Problem 15–93)
- Callan HG (1963) The nature of lampbrush chromosomes. *Int. Rev. Cytol.* 15, 1–34. (Problem 4–82)
- Candido EPM, Reeves R & Davie JR (1978) Sodium butyrate inhibits histone deacetylation in cultured cells. *Cell* 14, 105–113. (Problem 4–69)
- Cantor CR & Schimmel PR (1980) *Biophysical Chemistry*. New York: WH Freeman and Company. (Problems 2–59, 3–107, 3–108, 8–17, 8–23, and 8–24)
- Capaldi RA, Darley-USmar V, Fuller S & Millet F (1982) Structural and functional features of the interaction of cytochrome *c* with complex III and cytochrome *c* oxidase. *FEBS Lett.* 138, 1–7. (Problem 14–62)
- Carlier M-F, Pantaloni D & Korn ED (1984) Evidence for an ATP cap at the ends of actin filaments and its regulation of the F-actin steady state. *J. Biol. Chem.* 259, 9983–9986. (Problem 16–37)
- Carlier M-F, Pantaloni D & Korn ED (1985) Polymerization of ADP- and ATP-actin under sonication and characteristics of the ATP-actin equilibrium polymer. *J. Biol. Chem.* 260, 6565–6571. (Problem 16–12)
- Castagnola M (1998) Sensitive to the yoctomole limit. *Trends Biochem. Sci.* 23, 283. (Problem 8–32)
- Cecconi F, Alvarez-Bolado G, Meyer BI, Roth KA & Gruss P (1998) Apaf1 (CED-4 homolog) regulates programmed cell death in mammalian development. *Cell* 94, 727–737. (Problem 18–20)
- Cha TA & Alberts BM (1986) Studies of the DNA helicase-RNA primase unit from bacteriophage T4. A trinucleotide sequence on the DNA template starts RNA primer synthesis. *J. Biol. Chem.* 261, 7001–7010. (Problem 5–42)
- Chalfie M, Tu Y, Euskirchen G, Ward WW & Prasher DC (1994) Green fluorescent protein as a marker for gene expression. *Science* 263, 802–805. (Problem 9–25)
- Chamberlain JS, Gibbs RA, Ranier JE & Caskey CT (1990) Multiplex PCR for the diagnosis of Duchenne muscular dystrophy. In *PCR Protocols* (MA Innis, DH Gelfand, JJ Sninsky & TJ White eds), pp 272–281. San Diego, CA: Academic Press. (Problem 8–96)
- Chant J & Herskowitz I (1991) Genetic control of bud site selection in yeast by a set of gene products that constitute a morphogenetic pathway. *Cell* 65, 1203–1212. (Problem 16–112)
- Chant J, Corrado K, Pringle JR & Herskowitz I (1991) Yeast BUD5, encoding a putative GDP-GTP exchange factor, is necessary for bud site selection and interacts with bud formation gene *BEM1*. *Cell* 65, 1213–1224. (Problem 16–112)

- Chao S-H, Fujinaga K, Marion JE, Taube R, Sausville EA, Senderowicz AM, Peterlin BM & Price DH (2000) Flavopiridol inhibits P-TENb and blocks HIV-1 replication. *J. Biol. Chem.* 275, 28345–28348. (Problem 7–104)
- Chapeville F, Lipmann F, von Ehrenstein G, Weisblum B, Ray WJ & Benzer S (1962) On the role of soluble ribonucleic acid in coding for amino acids. *Proc. Natl Acad. Sci. U.S.A.* 48, 1086–1092. (Problem 6–72)
- Chardin P & McCormick F (1999) Brefeldin A: the advantage of being uncompetitive. *Cell* 97, 153–155. (Problem 13–29)
- Chen C-N, Denome S & Davis RL (1986) Molecular analysis of cDNA clones and the corresponding genomic coding sequences of the *Drosophila dunce⁺* gene, the structural gene for cyclic AMP phosphodiesterase. *Proc. Natl Acad. Sci. U.S.A.* 83, 9313–9317. (Problem 15–93)
- Chen C-Y & Sarnow P (1995) Initiation of protein synthesis by the eucaryotic translation apparatus on circular RNAs. *Science* 268, 415–417. (Problem 7–119)
- Chen S-H, Habib G, Yang CY, Gu ZW, Lee BR, Weng S-A, Silbermann SR, Cai S-J, Deslypere JP, Rosseneu M, Gotto AM, Li W-H & Chan L (1987) Apolipoprotein B-48 is the product of a messenger RNA with an organ-specific in-frame stop codon. *Science* 238, 363–366. (Problem 7–113)
- Cheng CHC & Chen L (1999) Evolution of an antifreeze protein. *Nature* 401, 443–444. (Problem 3–64)
- Chrétien D, Fuller SD & Karsenti E (1995) Structure of growing microtubule ends: Two-dimensional sheets close into tubes at variable rates. *J. Cell Biol.* 117, 1311–1328. (Problem 16–17)
- Chun T-H, Hotary KB, Sabeh F, Saltiel AR, Allen ED, Weiss SJ (2006) A pericellular collagenase directs the three-dimensional development of white adipose tissue. *Cell* 125, 577–591. (Problem 19–57)
- Claude P (1978) Morphological factors influencing transepithelial permeability: a model for the resistance of the zonula occludens. *J. Membr. Biol.* 39, 219–232. (Problem 19–33)
- Cohen S, Ushiro H, Stoccheck C & Chinkers M (1982) A native 170,000 epidermal growth factor receptor-kinase complex from shed plasma membrane vesicles. *J. Biol. Chem.* 257, 1523–1531. (Problem 17–139)
- Coluccio LM & Tilney LG (1984) Phalloidin enhances actin assembly by preventing monomer dissociation. *J. Cell Biol.* 99, 529–535. (Problem 16–42)
- Conway L & Wickens M (1987) Analysis of mRNA 3'-end formation by modification interference: the only modifications which prevent processing lie in AAUAAA and the poly(A) site. *EMBO J.* 6, 4177–4184. (Problem 6–46)
- Cox M & Lehman IR (1981) The polarity of the recA protein-mediated branch migration. *Proc. Natl Acad. Sci. U.S.A.* 78, 6023–6027. (Problem 5–96)
- Craig WJ, Cook RG, Tate WP & Caskey CT (1985) Bacterial peptide chain release factors: conserved primary structure and possible frameshift regulation of release factor 2. *Proc. Natl Acad. Sci. U.S.A.* 82, 3616–3620. (Problem 6–91)
- Creighton TE (1993) *Proteins*, 2nd ed. New York: WH Freeman. (Problems 3–13, 3–37, and 3–41)
- Crick F (1988) *What Mad Pursuit: A Personal View of Scientific Discovery*, p 109. New York: Basic Books, Inc. (Problem 6–17)
- D'Atri S, Tentori L, Lacal PM, Graziani G, Pagani E, Benincasa E, Zambruno G, Bonmassar E & Jiricny J (1998) Involvement of the mismatch repair system in temozolomide-induced apoptosis. *Mol. Pharmacol.* 54, 334–341. (Problem 18–29)
- Dammai V & Subramani S (2001) The human peroxisomal targeting signal receptor, Pex5p, is translocated into the peroxisomal matrix and recycled to the cytosol. *Cell* 105, 187–196. (Problem 12–98)
- Dammer U, Popescu O, Wagner P, Anselmetti D, Guntherodt H-J & Misevic GN (1995) Binding strength between cell adhesion proteoglycans measured by atomic force microscopy. *Science* 267, 1173–1175. (Problem 19–18)
- Datar SA, Jacobs HW, Flor A, de la Cruz A, Lehner CF & Edgar BA (2000) The *Drosophila* cyclin D-Cdk4 complex promotes cellular growth. *EMBO J.* 19, 4543–4554. (Problem 17–146, Problem 17–147)
- Dave UP, Jenkins NA & Copeland NG (2004) Gene therapy insertional mutagenesis insights. *Science* 303, 333. (Problem 20–42)
- Davis RL, Weintraub H & Lassar AB (1987) Expression of a single transfected cDNA converts fibroblasts to myoblasts. *Cell* 51, 987–1000. (Problem 7–92)
- de Oca Luna RM, Wagner DS & Lozano G (1995) Rescue of early embryonic lethality in *mdm2*-deficient mice by deletion of *p53*. *Nature* 378, 203–206. (Problem 20–55)
- de Saint Phalle B & Sullivan W (1998) Spindle assembly and mitosis without centrosomes in parthenogenetic *Sciara* embryos. *J. Cell Biol.* 141, 1383–1391. (Problem 17–99)
- DeAngelis PL (1999) Molecular directionality of polysaccharide polymerization by the *Pasteurella multocida* hyaluronan synthase. *J. Biol. Chem.* 274, 26557–26562. (Problem 19–85)
- Deenen LLM & DeGier J (1974) Lipids of the red cell membrane. In *The Red Blood Cell* (D MacN Surgenor, ed), pp 147–211. New York: Academic Press. (Problem 10–29)
- DeFranco D & Yamamoto KR (1986) Two different factors act separately or together to specify functionally distinct activities at a single transcriptional enhancer. *Mol. Cell Biol.* 6, 993–1001. (Problem 15–47)
- Delgado-Partin VM & Dalbey RE (1998) The proton motive force, acting on acidic residues, promotes translocation of amino-terminal domains of membrane proteins when the hydrophobicity of the translocation signal is low. *J. Biol. Chem.* 273, 9927–9934. (Problem 12–27)
- Desai A & Mitchison TJ (1997) Microtubule polymerization dynamics. *Annu. Rev. Cell Dev. Biol.* 13, 83–117. (Problem 16–15)
- Deshaies RJ & Schekman R (1987) A yeast mutant defective at an early stage in import of secretory protein precursors into the endoplasmic reticulum. *J. Cell Biol.* 105, 633–645. (Problem 12–131)
- Detrich WH, Parker SK, Williams RC, Nogales E & Downing KH (2000) Cold adaptation of microtubule assembly and dynamics. *J. Biol. Chem.* 275, 37038–37047. (Problems 16–29 and 16–35)
- Deuerling E, Schulze-Specking A, Tomoyasu T, Mogk A & Bukau B (1999) Trigger factor and DnaK cooperate in folding of newly synthesized proteins. *Nature* 400, 693–696. (Problems 6–94 and 6–95)
- Dingwall C, Sharnick SV & Laskey RA (1982) A polypeptide domain that specifies migration of nucleoplasm into the nucleus. *Cell* 30, 449–458. (Problem 12–51)
- Dittmer F, Ulbrich EJ, Hafner A, Schmahl W, Meister T, Pohlmann R & von Figura K (1999) Alternative mechanisms for trafficking of lysosomal enzymes in mannose 6-phosphate receptor-deficient mice are cell type specific. *J. Cell Sci.* 112, 1591–1597. (Problem 13–70)
- Dodson M, Dean FB, Bullock P, Echols H & Hurwitz J (1987) Unwinding of duplex DNA from the SV40 origin of replication by T-antigen. *Science* 238, 964–967. (Problem 5–59)
- Doheny KE, Sorger PK, Hyman AA, Tugendreich S, Spencer F & Hieter P (1993) Identification of essential components of the *S. cerevisiae* kinetochore. *Cell* 73, 761–774. (Problems 17–95 and 17–96)
- Doll R & Hill AB (1954) The mortality of doctors in relation to their smoking habits: A preliminary report. Reprinted in 2004 in *Br. Med. J.* 328, 1529–1533. (Problem 20–20)
- Doll R, Peto R, Boreham J & Sutherland I (2004) Mortality in relation to smoking: 50 years' observations on male British doctors. *Br. Med. J.* 328, 1519–1528. (Problem 20–20)
- Dolzign H, Bartunek P, Nasmyth K, Mullner EW & Beug H (1995) Terminal differentiation of normal chicken erythroid progenitors: shortening of G₁ correlates with loss of D-cyclin/cdk4 expression and altered cell size control. *Cell Growth Differ.* 6, 1341–1352. (Problem 17–130)
- Donaldson JG, Finazzi D & Klausner RD (1992) Brefeldin A inhibits Golgi membrane-catalyzed exchange of guanine nucleotide into Arf protein. *Nature* 360, 350–352. (Problem 13–29)
- Donzeau M, Káldi K, Adam A, Paschen S, Wanner G, Guiard B, Bauer MF, Neupert W & Brunner M (2000) Tim23 links the inner and outer mitochondrial membranes. *Cell* 101, 401–412. (Problem 12–86)
- Drams S & Cossart P (1998) Intracellular pathogens and the actin cytoskeleton. *Annu. Rev. Cell Dev. Biol.* 14, 137–166. (Problem 16–65)

- Dugaiczky A, Woo SL, Lai EC, Mace Jr ML, McReynolds L & O'Malley BW (1978) The natural ovalbumin gene contains seven intervening sequences. *Nature* 274, 328–333. (Problem 6–43)
- Dunham I et al. (1999) The DNA sequence of human chromosome 22. *Nature* 402, 489–495. (Problem 4–45, Problem 4–46)
- Dunn TM, Hahn S, Ogden S & Schleif RF (1984) An operator at –280 base pairs that is required for repression of *araBAD* operon promoter: addition of DNA helical turns between the operator and promoter cyclically hinders repression. *Proc. Natl Acad. Sci. U.S.A.* 81, 5017–5020. (Problem 7–62)
- Duysens LNM, Ames J & Kamp BM (1961) Two photochemical systems in photosynthesis. *Nature* 190, 510–511. (Problem 14–94)
- Earnshaw WC, Martins LM & Kaufmann SH (1999) Mammalian caspases. *Annu. Rev. Biochem.* 68, 383–424. (Problem 18–21)
- Echols H (2001) Operators and Promoters: The Story of Molecular Biology and Its Creators, pp 46–47. Berkeley: University of California Press. (Problem 7–31)
- Edelman P & Gallant J (1977) Mistranslation in *E. coli*. *Cell* 10, 131–137. (Problem 6–88)
- Edgar BA & Lehner CF (1996) Developmental control of cell cycle regulators: A fly's perspective. *Science* 274, 1646–1652. (Problem 17–143)
- Eilers M & Schatz G (1986) Binding of a specific ligand inhibits import of a purified precursor protein into mitochondria. *Nature* 322, 228–232. (Problem 12–81)
- Eisenberg E & Hill TL (1985) Muscle contraction and free energy transduction in biological systems. *Science* 227, 999–1006. (Problem 16–76)
- Eliasson C, Sahlgren C, Berthold CH, Stakeberg J, Celis JE, Betsholtz C, Eriksson JE & Pekny M (1999) Intermediate filament protein partnership in astrocytes. *J. Biol. Chem.* 274, 23996–24006. (Problem 16–26)
- Elledge SJ, Mulligan JT, Ramer SW, Spottswood M & Davis RW (1991) λ YES: a multifunctional cDNA expression vector for the isolation of genes by complementation of yeast and *Escherichia coli* mutations. *Proc. Natl Acad. Sci. U.S.A.* 88, 1731–1735. (Problem 8–88)
- Ellis HM & Horvitz RH (1986) Genetic control of programmed cell death in the nematode *C. elegans*. *Cell* 44, 817–829. (Problem 18–18)
- Emerson R (1958) The quantum yield of photosynthesis. *Annu. Rev. Plant Physiol.* 9, 1–24. (Problem 14–93)
- Fabian MA et al. (2005) A small molecule-kinase interaction map for clinical kinase inhibitors. *Nat. Biotechnol.* 23, 329–336. (Problems 20–68, 20–69, and 20–70)
- Fan J, Griffiths AD, Lockhart A, Cross RA & Amos LA (1996) Microtubule minus ends can be labeled with a phage display antibody specific to α -tubulin. *J. Mol. Biol.* 259, 325–330. (Problems 16–32, 16–74, and 16–75)
- Farrell PJ, Balkow K, Hunt T, Jackson RJ & Trachsel H (1977) Phosphorylation of initiation factor eIF-2 and the control of reticulocyte protein synthesis. *Cell* 11, 187–200. (Problem 7–112)
- Faull RJ, Kovach NL, Harlan JM & Ginsberg MH (1993) Affinity modulation of integrin $\alpha_5\beta_1$: regulation of the functional response by soluble fibronectin. *J. Cell Biol.* 121, 155–162. (Problem 19–66)
- Federman AD, Conklin BR, Schrader KA, Reed RR & Bourne HR (1992) Hormonal stimulation of adenylyl cyclase through G_i protein $\beta\gamma$ subunits. *Nature* 356, 159–161. (Problem 15–91)
- Ferrell JE & Machleder EM (1998) The biochemical basis of an all-or-none cell fate switch in *Xenopus* oocytes. *Science* 280, 895–898. (Problem 15–50)
- Fersht A (1999) Structure and Mechanism in Protein Science. New York: WH Freeman. (Problems 3–23 and 3–96)
- Fields S & Song O (1989) A novel genetic system to detect protein–protein interactions. *Nature* 340, 245–246. (Problem 8–47)
- Fijalkowska IJ, Jonczyk P, Tkaczyk MM, Bialoskorska M & Schaaper RM (1998) Unequal fidelity of leading strand and lagging strand DNA replication on the *Escherichia coli* chromosome. *Proc. Natl Acad. Sci. U.S.A.* 95, 10020–10025. (Problem 5–44)
- Fisher JC & Hollomon JH (1951) A hypothesis for the origin of cancer foci. *Cancer* 4, 916–918. (Problem 20–19)
- Flint AJ, Tiganis T, Barford D & Tonks NK (1997) Development of substrate-trapping mutants to identify physiological substrates of protein tyrosine phosphatases. *Proc. Natl Acad. Sci. U.S.A.* 94, 1680–1685. (Problem 3–110)
- Folkman J & Moscona A (1978) Role of cell shape in growth control. *Nature* 273, 345–349. (Problem 17–144)
- Forbush B, Kok B & McGloin M (1971) Cooperation of charges in photosynthetic oxygen evolution II. Damping of flash yield, oscillation and deactivation. *Photochem. Photobiol.* 14, 307–321. (Problem 14–95)
- Fornerod M, Ohno M, Yoshida M & Mattaj IW (1997) CRM1 is an export receptor for leucine-rich nuclear export signals. *Cell* 90, 1051–1060. (Problem 12–60)
- Fox TD (1986) Nuclear gene products required for translation of specific mitochondrially coded mRNAs in yeast. *Trends Genet.* 2, 97–100. (Problem 14–116)
- Foyer CH (1984) Photosynthesis, pp 176–195. New York: Wiley. (Problem 14–91)
- Frayn KN (1996) Metabolic Regulation: A Human Perspective, p 179. London: Portland Press. (Problem 2–120)
- Freeland FJ & Hurst LD (1998) The genetic code is one in a million. *J. Mol. Evol.* 47, 238–248. (Problem 1–14)
- Friedberg EC, Walker GC & Siede W (1995) DNA Repair and Mutagenesis, pp 92–103. New York: WH Freeman. (Problem 5–76)
- Fries E, Gustafsson L & Peterson PA (1984) Four secretory proteins synthesized by hepatocytes are transported from the endoplasmic reticulum to Golgi complex at different rates. *EMBO J.* 3, 147–152. (Problem 13–114)
- Fujiki Y (2000) Peroxisome biogenesis and peroxisome biogenesis disorders. *FEBS Lett.* 476, 42–46. (Problem 12–94)
- Fujimoto K (1995) Freeze-fracture replica electron microscopy combined with SDS digestion for cytochemical labeling of integral membrane proteins. *J. Cell Sci.* 108, 3443–3449. (Problem 9–47)
- Funabiki H & Murray AW (2000) The *Xenopus* chromokinesin Xkid is essential for metaphase chromosome alignment and must be degraded to allow anaphase chromosome movement. *Cell* 102, 411–424. (Problem 17–98)
- Fung BK-K & Stryer L (1980) Photolyzed rhodopsin catalyzes the exchange of GTP for bound GDP in retinal rod outer segments. *Proc. Natl Acad. Sci. U.S.A.* 77, 2500–2504. (Problem 15–89)
- Fung BK-K, Hurley JB & Stryer L (1981) Flow of information in the light-triggered cyclic nucleotide cascade of vision. *Proc. Natl Acad. Sci. U.S.A.* 78, 152–156. (Problem 15–89)
- Fung Y-KT, Murphree AL, T'Ang A, Qian J, Hinrichs SH & Benedict WF (1987) Structural evidence for the authenticity of the human retinoblastoma gene. *Science* 236, 1657–1661. (Problem 20–43)
- Gall JG & Murphy C (1998) Assembly of lampbrush chromosomes from sperm chromatin. *Mol. Biol. Cell* 9, 733–747. (Problem 4–80)
- Garapin AC, Cami B, Roskam W, Kourilsky P, Le Penec JP, Perrin F, Gerlinger P, Cochet M & Chambon P (1978) Electron microscopy and restriction enzyme mapping reveal additional intervening sequences in the chicken ovalbumin split gene. *Cell* 14, 629–639. (Problem 6–43)
- Gartenberg MR & Crothers DM (1988) DNA sequence determinants of CAP-induced bending and protein binding affinity. *Nature* 333, 824–829. (Problem 7–33)
- Gay DA, Yen TJ, Lau JTY & Cleveland DW (1987) Sequences that confer β -tubulin autoregulation through modulated mRNA stability reside within exon 1 of a β -tubulin mRNA. *Cell* 50, 671–679. (Problem 7–114)
- Gelehrter TD & Collins FS (1990) Principles of Medical Genetics, p 80. Baltimore: Williams & Wilkins. (Problem 4–102)
- Gerhart JH & Pardee AB (1963) The effect of the feedback inhibitor, CTP, on subunit interactions in aspartate transcarbamylase. *Cold Spring Harbor Symp. Quant. Biol.* 28, 491–496. (Problem 3–107)

- Dugaiczek A, Woo SL, Lai EC, Mace Jr ML, McReynolds L & O'Malley BW (1978) The natural ovalbumin gene contains seven intervening sequences. *Nature* 274, 328–333. (Problem 6–43)
- Dunham I et al. (1999) The DNA sequence of human chromosome 22. *Nature* 402, 489–495. (Problem 4–45, Problem 4–46)
- Dunn TM, Hahn S, Ogden S & Schleif RF (1984) An operator at –280 base pairs that is required for repression of *araBAD* operon promoter: addition of DNA helical turns between the operator and promoter cyclically hinders repression. *Proc. Natl Acad. Sci. U.S.A.* 81, 5017–5020. (Problem 7–62)
- Duysens LNM, Ames J & Kamp BM (1961) Two photochemical systems in photosynthesis. *Nature* 190, 510–511. (Problem 14–94)
- Earnshaw WC, Martins LM & Kaufmann SH (1999) Mammalian caspases. *Annu. Rev. Biochem.* 68, 383–424. (Problem 18–21)
- Echols H (2001) Operators and Promoters: The Story of Molecular Biology and Its Creators, pp 46–47. Berkeley: University of California Press. (Problem 7–31)
- Edelman P & Gallant J (1977) Mistranslation in *E. coli*. *Cell* 10, 131–137. (Problem 6–88)
- Edgar BA & Lehner CF (1996) Developmental control of cell cycle regulators: A fly's perspective. *Science* 274, 1646–1652. (Problem 17–143)
- Eilers M & Schatz G (1986) Binding of a specific ligand inhibits import of a purified precursor protein into mitochondria. *Nature* 322, 228–232. (Problem 12–81)
- Eisenberg E & Hill TL (1985) Muscle contraction and free energy transduction in biological systems. *Science* 227, 999–1006. (Problem 16–76)
- Eliasson C, Sahlgren C, Berthold CH, Stakeberg J, Celis JE, Betsholtz C, Eriksson JE & Pekny M (1999) Intermediate filament protein partnership in astrocytes. *J. Biol. Chem.* 274, 23996–24006. (Problem 16–26)
- Elledge SJ, Mulligan JT, Ramer SW, Spottswood M & Davis RW (1991) λYES: a multifunctional cDNA expression vector for the isolation of genes by complementation of yeast and *Escherichia coli* mutations. *Proc. Natl Acad. Sci. U.S.A.* 88, 1731–1735. (Problem 8–88)
- Ellis HM & Horvitz RH (1986) Genetic control of programmed cell death in the nematode *C. elegans*. *Cell* 44, 817–829. (Problem 18–18)
- Emerson R (1958) The quantum yield of photosynthesis. *Annu. Rev. Plant Physiol.* 9, 1–24. (Problem 14–93)
- Fabian MA et al. (2005) A small molecule-kinase interaction map for clinical kinase inhibitors. *Nat. Biotechnol.* 23, 329–336. (Problems 20–68, 20–69, and 20–70)
- Fan J, Griffiths AD, Lockhart A, Cross RA & Amos LA (1996) Microtubule minus ends can be labeled with a phage display antibody specific to α -tubulin. *J. Mol. Biol.* 259, 325–330. (Problems 16–32, 16–74, and 16–75)
- Farrell PJ, Balkow K, Hunt T, Jackson RJ & Trachsel H (1977) Phosphorylation of initiation factor eIF-2 and the control of reticulocyte protein synthesis. *Cell* 11, 187–200. (Problem 7–112)
- Faull RJ, Kovach NL, Harlan JM & Ginsberg MH (1993) Affinity modulation of integrin $\alpha_5\beta_1$: regulation of the functional response by soluble fibronectin. *J. Cell Biol.* 121, 155–162. (Problem 19–66)
- Federman AD, Conklin BR, Schrader KA, Reed RR & Bourne HR (1992) Hormonal stimulation of adenylyl cyclase through G_i protein $\beta\gamma$ subunits. *Nature* 356, 159–161. (Problem 15–91)
- Ferrell JE & Machleder EM (1998) The biochemical basis of an all-or-none cell fate switch in *Xenopus* oocytes. *Science* 280, 895–898. (Problem 15–50)
- Fersht A (1999) Structure and Mechanism in Protein Science. New York: WH Freeman. (Problems 3–23 and 3–96)
- Fields S & Song O (1989) A novel genetic system to detect protein–protein interactions. *Nature* 340, 245–246. (Problem 8–47)
- Fijalkowska JJ, Jonczyk P, Tkaczyk MM, Bialoskorska M & Schaaper RM (1998) Unequal fidelity of leading strand and lagging strand DNA replication on the *Escherichia coli* chromosome. *Proc. Natl Acad. Sci. U.S.A.* 95, 10020–10025. (Problem 5–44)
- Fisher JC & Hollomon JH (1951) A hypothesis for the origin of cancer foci. *Cancer* 4, 916–918. (Problem 20–19)
- Flint AJ, Tiganis T, Barford D & Tonks NK (1997) Development of substrate-trapping mutants to identify physiological substrates of protein tyrosine phosphatases. *Proc. Natl Acad. Sci. U.S.A.* 94, 1680–1685. (Problem 3–110)
- Folkman J & Moscona A (1978) Role of cell shape in growth control. *Nature* 273, 345–349. (Problem 17–144)
- Forbush B, Kok B & McGloin M (1971) Cooperation of charges in photosynthetic oxygen evolution II. Damping of flash yield, oscillation and deactivation. *Photochem. Photobiol.* 14, 307–321. (Problem 14–95)
- Fornerod M, Ohno M, Yoshida M & Mattaj IW (1997) CRM1 is an export receptor for leucine-rich nuclear export signals. *Cell* 90, 1051–1060. (Problem 12–60)
- Fox TD (1986) Nuclear gene products required for translation of specific mitochondrially coded mRNAs in yeast. *Trends Genet.* 2, 97–100. (Problem 14–116)
- Foyer CH (1984) Photosynthesis, pp 176–195. New York: Wiley. (Problem 14–91)
- Frayn KN (1996) Metabolic Regulation: A Human Perspective, p 179. London: Portland Press. (Problem 2–120)
- Freeland FJ & Hurst LD (1998) The genetic code is one in a million. *J. Mol. Evol.* 47, 238–248. (Problem 1–14)
- Friedberg EC, Walker GC & Siede W (1995) DNA Repair and Mutagenesis, pp 92–103. New York: WH Freeman. (Problem 5–76)
- Fries E, Gustafsson L & Peterson PA (1984) Four secretory proteins synthesized by hepatocytes are transported from the endoplasmic reticulum to Golgi complex at different rates. *EMBO J.* 3, 147–152. (Problem 13–114)
- Fujiki Y (2000) Peroxisome biogenesis and peroxisome biogenesis disorders. *FEBS Lett.* 476, 42–46. (Problem 12–94)
- Fujimoto K (1995) Freeze-fracture replica electron microscopy combined with SDS digestion for cytochemical labeling of integral membrane proteins. *J. Cell Sci.* 108, 3443–3449. (Problem 9–47)
- Funabiki H & Murray AW (2000) The *Xenopus* chromokinesin Xkid is essential for metaphase chromosome alignment and must be degraded to allow anaphase chromosome movement. *Cell* 102, 411–424. (Problem 17–98)
- Fung BK-K & Stryer L (1980) Photolyzed rhodopsin catalyzes the exchange of GTP for bound GDP in retinal rod outer segments. *Proc. Natl Acad. Sci. U.S.A.* 77, 2500–2504. (Problem 15–89)
- Fung BK-K, Hurley JB & Stryer L (1981) Flow of information in the light-triggered cyclic nucleotide cascade of vision. *Proc. Natl Acad. Sci. U.S.A.* 78, 152–156. (Problem 15–89)
- Fung Y-KT, Murphree AL, T'Ang A, Qian J, Hinrichs SH & Benedict WF (1987) Structural evidence for the authenticity of the human retinoblastoma gene. *Science* 236, 1657–1661. (Problem 20–43)
- Gall JG & Murphy C (1998) Assembly of lampbrush chromosomes from sperm chromatin. *Mol. Biol. Cell* 9, 733–747. (Problem 4–80)
- Garapin AC, Cami B, Roskam W, Kourilsky P, Le Pennec JP, Perrin F, Gerlinger P, Cochet M & Chambon P (1978) Electron microscopy and restriction enzyme mapping reveal additional intervening sequences in the chicken ovalbumin split gene. *Cell* 14, 629–639. (Problem 6–43)
- Gartenberg MR & Crothers DM (1988) DNA sequence determinants of CAP-induced bending and protein binding affinity. *Nature* 333, 824–829. (Problem 7–33)
- Gay DA, Yen TJ, Lau JTY & Cleveland DW (1987) Sequences that confer β -tubulin autoregulation through modulated mRNA stability reside within exon 1 of a β -tubulin mRNA. *Cell* 50, 671–679. (Problem 7–114)
- Gelehrter TD & Collins FS (1990) Principles of Medical Genetics, p 80. Baltimore: Williams & Wilkins. (Problem 4–102)
- Gerhart JH & Pardee AB (1963) The effect of the feedback inhibitor, CTP, on subunit interactions in aspartate transcarbamylase. *Cold Spring Harbor Symp. Quant. Biol.* 28, 491–496. (Problem 3–107)

- bbons IR (1981) Cilia and flagella of eucaryotes. *J. Cell Biol.* 91, 107s–124s. (Problem 16–107)
- lbert W & Müller-Hill B (1966) Isolation of the Lac repressor. *Proc. Natl Acad. Sci. U.S.A.* 56, 1891–1898. (Problem 3–101)
- andsdorff N (1987) Biosynthesis of arginine and polyamines. In *Escherichia coli and Salmonella typhimurium: Cellular and Molecular Biology* (FC Neidhardt ed), pp 321–344. Washington DC: American Society for Microbiology. (Problem 7–48)
- odowski PJ, Rusconi S, Miesfeld R & Yamamoto KR (1987) Glucocorticoid receptor mutants that are constitutive activators of transcriptional enhancement. *Nature* 325, 365–368. (Problem 7–64)
- oldberg E (1983) Recognition, attachment, injection. In *Bacteriophage T4* (CK Mathews, EM Kutter, G Mosig, PB Berget, eds), pp 32–39. Washington, DC: American Society for Microbiology. (Problem 19–19)
- oldberg J (1999) Structural and functional analysis of the Arf1–ArfGAP complex reveals a role for coatamer in GTP hydrolysis. *Cell* 96, 893–902. (Problem 13–30)
- oldman YE, Hibberd MG, McCray JA & Trentham DR (1980) Relaxation of muscle fibers by photolysis of caged ATP. *Nature* 300, 701–705. (Problem 16–104)
- oldstein JC, Waterhouse NJ, Juin P, Evan GI & Green DR (2000) The coordinate release of cytochrome *c* during apoptosis is rapid, complete and kinetically invariant. *Nat. Cell Biol.* 2, 156–162. (Problem 18–23, Problem 18–24)
- ordon AM, Huxley AF & Julian FJ (1966) The variation in isometric tension with sarcomere length in vertebrate muscle fibres. *J. Physiol.* 184, 170–192. (Problem 16–105)
- örlich D, Prehn S, Laskey RA & Hartmann E (1994) Isolation of a protein that is essential for the first step of nuclear protein import. *Cell* 79, 767–776. (Problem 12–54)
- Gottesman MM (1985) Genetics of cyclic-AMP-dependent protein kinases. In *Molecular Cell Genetics* (MM Gottesman ed), pp 711–743. New York: Wiley. (Problem 15–92)
- Gottlieb TA, Beaudry G, Rizzolo L, Colman A, Rindler MJ, Adesnik M & Sabatini DD (1986) Secretion of endogenous and exogenous proteins from polarized MDCK monolayers. *Proc. Natl Acad. Sci. U.S.A.* 83, 2100–2104. (Problem 13–117)
- Goutte C & Johnson AD (1988) $\alpha 1$ protein alters the DNA-binding specificity of $\alpha 2$ repressor. *Cell* 52, 875–882. (Problem 7–87)
- Griffin JD (2005) Interaction maps for kinase inhibitors. *Nat. Biotechnol.* 23, 308–309. (Problem 20–68)
- Guo W, Radford D, Walch-Solimena C & Novick P (1999) The exocyst is an effector for Sec4p, targeting secretory vesicles to sites of exocytosis. *EMBO J.* 18, 1071–1080. (Problem 13–35)
- Hacein-Bey-Abina S, von Kalle C, Schmidt M, Le Deist F, Wulffraat N, McIntyre E, Radford I, Villeval J-L, Fraser CC, Cavazzana-Calvo M & Fischer A (2003) A serious adverse event after successful gene therapy for severe combined immunodeficiency syndrome. *N. Engl. J. Med.* 348, 255–256. (Problem 20–42)
- Hadwiger JA, Wittenberg C, Richardson HE, de Barros Lopes M & Reed SI (1989) A family of cyclin homologs that control the G₁ phase in yeast. *Proc. Natl Acad. Sci. U.S.A.* 86, 6255–6259. (Problem 17–36)
- Haigler HT, McKanna JA & Cohen S (1979) Rapid stimulation of pinocytosis in human A-431 carcinoma cells by epidermal growth factor. *J. Cell Biol.* 83, 82–90. (Problem 13–96)
- Hakem R, Hakem A, Duncan GS, Henderson JT, Woo M, Soengas MS, Elia A, de la Pompa JL, Kagi D, Khoo W, Potter J, Yoshida R, Kaufman SA, Lowe SW, Penninger JM & Mak TW (1998) Differential requirement for caspase 9 in apoptotic pathways *in vivo*. *Cell* 94, 339–352. (Problem 18–20)
- Hale SP, Auld DS, Schmidt E & Schimmel P (1997) Discrete determinants in transfer RNA for editing and aminoacylation. *Science* 276, 1250–1252. (Problem 6–89)
- Hall A (1998) Rho GTPases and the actin cytoskeleton. *Science* 279, 509–514. (Problem 16–98)
- Hancock WO & Howard J (1998) Processivity of the motor protein kinesin requires two heads. *J. Cell Biol.* 140, 1395–1405. (Problem 16–77)
- Harada Y, Ohara O, Takatsuki A, Itoh H, Shimamoto N & Kinoshita K (2001) Direct observation of DNA rotation during transcription by *Escherichia coli* RNA polymerase. *Nature* 409, 113–115. (Problem 6–23)
- Harder T & Simons K (1997) Caveolae, DIGs, and the dynamics of sphingolipid-cholesterol microdomains. *Curr. Opin. Cell Biol.* 9, 534–542. (Problem 10–20)
- Harland RM & Laskey RA (1980) Regulated replication of DNA microinjected into eggs of *Xenopus laevis*. *Cell* 21, 761–771. (Problem 5–60)
- Hartwell LH (1978) Cell division from a genetic perspective. *J. Cell Biol.* 77, 627–637. (Problems 17–17 and 17–18)
- Hartwell LH, Hood L, Goldberg ML, Reynolds AE, Silver LM & Veres RC (2000) Genetics: From Genes to Genomes. New York: McGraw Hill. (Problems 5–5, 7–84, and 8–121)
- Hartwell LH & Weinert TA (1989) Checkpoints: controls that ensure the order of cell cycle events. *Science* 246, 629–634. (Problem 17–141)
- Heald R & McKeon F (1990) Mutations of phosphorylation sites in lamin A that prevent nuclear lamina disassembly in mitosis. *Cell* 61, 579–589. (Problem 16–39)
- Hedjran F, Yeakley JM, Huh GS, Hynes RO & Rosenfeld MG (1997) Control of alternative pre-mRNA splicing by distributed repeats. *Proc. Natl Acad. Sci. U.S.A.* 94, 12343–12347. (Problem 7–112)
- Heim R, Prasher DC & Tsien RY (1994) Wavelength mutations and posttranslational autooxidation of green fluorescent protein. *Proc. Natl Acad. Sci. U.S.A.* 91, 12501–12504. (Problem 9–25)
- Helms JB & Rothman JE (1992) Inhibition by brefeldin A of a Golgi membrane enzyme that catalyzes exchange of guanine nucleotide bound to ARF. *Nature* 360, 352–354. (Problem 13–29)
- Hentze MW & Kühn LC (1996) Molecular control of vertebrate iron metabolism: mRNA-based regulatory circuits operated by iron, nitric oxide, and oxidative stress. *Proc. Natl Acad. Sci. U.S.A.* 93, 8175–8182. (Problems 7–107 and 7–108)
- Herrmann H & Aebi U (2000) Intermediate filaments and their associates: multi-talented structural elements specifying cytoarchitecture and cytodynamics. *Curr. Opin. Cell Biol.* 12, 79–90. (Problem 16–26)
- Hershey AD & Chase M (1952) Independent functions of viral protein and nucleic acid in growth of bacteriophage. *J. Gen. Physiol.* 36, 39–56. (Problem 4–17)
- Hertel C, Muller P, Portenier M & Staehelin M (1983) Determination of the desensitization of β -adrenergic receptors by [³H]CGP-12177. *Biochem. J.* 216, 669–674. (Problem 15–51)
- Higgs HN & Pollard TD (2001) Regulation of actin filament network formation through ARP2/3 complex: Activation by a diverse array of proteins. *Annu. Rev. Biochem.* 70, 649–676. (Problem 16–64)
- Higuchi R (1990) Recombinant PCR. In *PCR Protocols* (MA Innis, DH Gelfand, JJ Sninsky & TJ White, eds), pp 177–183. San Diego, CA: Academic Press. (Problem 8–84)
- Hille B (1992) Ionic Channels of Excitable Membranes, 2nd ed. Sunderland, MA: Sinauer. (Problems 11–84, 11–86, and 11–91)
- Holloway SL, Glotzer M, King RW & Murray AW (1993) Anaphase is initiated by proteolysis rather than by the inactivation of maturation-promoting factor. *Cell* 73, 1393–1402. (Problem 17–100)
- Honegger AM, Kris RM, Ullrich A & Schlessinger J (1989) Evidence that autophosphorylation of solubilized receptors for epidermal growth factor is mediated by intermolecular cross-phosphorylation. *Proc. Natl Acad. Sci. U.S.A.* 86, 925–929. (Problem 15–126)
- Honegger AM, Schmidt A, Ullrich A & Schlessinger J (1990) Evidence for epidermal growth factor (EGF)-induced intermolecular autophosphorylation of the EGF receptors in living cells. *Mol. Cell. Biol.* 10, 4035–4044. (Problem 15–126)
- Horio T & Hotani H (1986) Visualization of the dynamic instability of individual microtubules by dark-field microscopy. *Nature* 321, 605–607. (Problems 16–33 and 16–55)

- Horowitz S & Gorovsky MA (1985) An unusual genetic code in nuclear genes of *Tetrahymena*. *Proc. Natl Acad. Sci. U.S.A.* 82, 2452–2455. (Problem 6–93)
- Howard J (2001) Mechanics of Motor Proteins and the Cytoskeleton, pp 151–163. Sunderland, MA: Sinauer Associates, Inc. (Problem 2–96)
- Huang C-Y F & Ferrell JE (1996) Ultrasensitivity in the mitogen-activated protein kinase cascade. *Proc. Natl Acad. Sci. U.S.A.* 93, 10078–10083. (Problem 15–128)
- Huang S, Ratliff KS, Schwartz MP, Spenner JM & Matouschek A (1999) Mitochondria unfold precursor proteins by unraveling them from their N-termini. *Nat. Struct. Biol.* 6, 1132–1138. (Problems 12–84 and 12–85)
- Huberman JA & Riggs AD (1968) On the mechanism of DNA replication in mammalian chromosomes. *J. Mol. Biol.* 32, 327–341. (Problem 5–58)
- Huganir RL, Delcour AH, Greengard P & Hess GP (1986) Phosphorylation of the nicotine acetylcholine receptor regulates its rate of desensitization. *Nature* 321, 774–776. (Problem 15–52)
- Hughes PE, Diaz-Gonzalez F, Leong L, Wu C, McDonald JA, Shattil SJ & Ginsberg MH (1996) Breaking the integrin hinge: A defined structural constraint regulates integrin signaling. *J. Biol. Chem.* 271, 6571–6574. (Problem 19–65)
- Hume AN, Tarafder AK, Ramalho JS, Sviderskaya EV & Seabra MC (2006) A coiled-coil domain of melanophilin is essential for myosin Va recruitment and melanosome transport in melanocytes. *Mol. Biol. Cell* 17, 4720–4735. (Problem 13–75)
- Hunt T, Luca FC & Ruderman JV (1992) The requirement for protein synthesis and degradation, and the control of destruction of cyclins A and B in the meiotic and mitotic cell cycles of the clam embryo. *J. Cell Biol.* 116, 707–724. (Problem 17–35)
- Hyman AA & Karsenti E (1996) Morphogenetic properties of microtubules and mitotic spindle assembly. *Cell* 84, 401–410. (Problem 17–72)
- Im D-S, Heise CE, Nguyen T, O'Dowd BF & Lynch KR (2001) Identification of a molecular target of psychosine and its role in globoid cell formation. *J. Cell Biol.* 153, 429–434. (Problem 17–117)
- Ingledeu JW (1982) *Thiobacillus ferrooxidans*: the bioenergetics of an acidophilic chemolithotroph. *Biochim. Biophys. Acta* 683, 89–117. (Problems 14–26 and 14–57)
- Inman RB & Schnos M (1971) Structure of branch points in replicating DNA: presence of single-stranded connections in lambda DNA branch points. *J. Mol. Biol.* 56, 319–325. (Problem 5–39)
- Jacks T & Varmus H (1985) Expression of the Rous sarcoma virus *pol* gene by ribosomal frameshifting. *Science* 230, 1237–1242. (Problem 6–91)
- Jacobson MD, Burne JF, King MP, Miyashita T, Reed JC & Raff MC (1993) Bcl-2 blocks apoptosis in cells lacking mitochondrial DNA. *Nature* 361, 365–369. (Problem 18–17)
- Jady B & Kiss T (2001) A small nucleolar guide RNA functions both in 2'-O-ribose methylation and pseudouridylation of the U5 spliceosomal RNA. *EMBO J.* 20, 541–551. (Problems 6–48 and 6–49)
- Jagendorf AT & Uribe E (1966) ATP formation caused by acid–base transition of spinach chloroplasts. *Proc. Natl Acad. Sci. U.S.A.* 55, 170–177. (Problem 14–97)
- Jain R, Rivera MC & Lake JA (1999) Horizontal gene transfer among genomes: The complexity hypothesis. *Proc. Natl Acad. Sci. U.S.A.* 96, 3801–3806. (Problem 1–37)
- Jensen RA, Thompson ME, Jetton TL, Szabo CI, van der Meer R, Helou B, Tronick SR, Page DL, King MC & Holt JT (1996) BRCA1 is secreted and exhibits properties of a granin. *Nat. Genet.* 12, 303–308. (Problem 3–100)
- Jia Z & Davies PL (2002) Antifreeze proteins: an unusual receptor–ligand interaction. *Trends Biochem. Sci.* 27, 101–106. (Problem 3–64)
- Johnson KA (1993) Conformational coupling in DNA polymerase fidelity. *Annu. Rev. Biochem.* 62, 685–713. (Problem 5–34)
- Johnson PJ, Kooter JM & Borst P (1987) Inactivation of transcription by UV irradiation of *T. brucei* provides evidence for a multicistronic transcription unit including a VSG gene. *Cell* 51, 273–281. (Problem 6–34)
- Johnson RT & Rao PN (1971) Nucleo-cytoplasmic interactions in the achievement of nuclear synchrony in DNA synthesis and mitosis in multinucleate cells. *Biol. Rev. Camb. Philos. Soc.* 46, 97–155. (Problem 17–48)
- Jones KA (1997) Taking a new TAK on Tat transactivation. *Genes Dev.* 11, 2593–2599. (Problem 7–104)
- Jones SN, Roe AE, Donehower LA & Bradley A (1995) Rescue of embryonic lethality in Mdm2-deficient mice by absence of p53. *Nature* 378, 206–208. (Problem 20–55)
- Kabata H, Kurosawa O, Arai I, Washizu M, Margaron SA, Glass RE & Shimamoto N (1993) Visualization of single molecules of RNA polymerase sliding along DNA. *Science* 262, 1561–1563. (Problem 7–32)
- Kanethi P, Qiao X, Diaz ME, Peden AA, Meyer GE, Carskadon SI, Kapfhammer D, Sufalko D, Robinson MS, Noebels JL & Burmeister M (1998) Mutation in AP-3 delta in the *mocha* mouse links endosomal transport to storage deficiency in platelets, melanosomes, and synaptic vesicles. *Neuron* 21, 111–122. (Problem 13–71)
- Kaplan A, Achord DT & Sly WS (1977) Phosphohexosyl components of a lysosomal enzyme are recognized by pinocytosis receptors on human fibroblasts. *Proc. Natl Acad. Sci. U.S.A.* 74, 2026–2030. (Problem 13–73)
- Karaiskou A, Jessup C, Brassac T & Ozon R (1999) Phosphatase 2A and Polo kinase, two antagonistic regulators of Cdc25 activation and MPF auto-amplification. *J. Cell Sci.* 112, 3747–3756. (Problem 17–34)
- Karrer KM & Gall JG (1976) The macronuclear ribosomal DNA of *Tetrahymena pyriformis* is a palindrome. *J. Mol. Biol.* 104, 421–453. (Problem 8–92)
- Karza AW, Susskind MM & Sauer RT (1999) SmpB, a unique RNA-binding protein essential for the peptide-tagging activity of SsrA (tmRNA). *EMBO J.* 18, 3793–3799. (Problems 3–102 and 6–92)
- Keilin D (1966) The History of Cell Respiration and Cytochrome. Cambridge, UK: Cambridge University Press. (Problem 14–59)
- Kellems RE, Allison VF & Butow RA (1975) Cytoplasmic type 80S ribosomes associated with yeast mitochondria. IV. Attachment of ribosomes to the outer membrane of isolated mitochondria. *J. Cell Biol.* 65, 1–14. (Problem 12–74)
- Kimura K & Hirano T (1997) ATP-dependent positive supercoiling of DNA by 13S condensin: A biochemical implication for chromosome condensation. *Cell* 90, 625–634. (Problem 4–87)
- Kimura K, Rybenkov VV, Crisona NJ, Hirano T, & Cozzarelli NR (1999) 13S condensin actively reconfigures DNA by introducing global positive writhe: Implications for chromosome condensation. *Cell* 98, 239–248. (Problem 17–89)
- Kinoshita N, Ghaedi K, Shimosawa N, Wanders RJA, Matsuzono Y, Imanaka T, Okumoto K, Suzuki Y, Kondo N & Fujiki Y (1998) Newly identified Chinese hamster ovary cell mutants are defective in biogenesis of peroxisomal membrane vesicles (peroxisome ghosts), representing a novel complementation group in mammals. *J. Biol. Chem.* 273, 24122–24130. (Problems 12–92 and 12–97)
- Kirchhausen T (2000) Clathrin. *Annu. Rev. Biochem.* 69, 699–727. (Problems 13–19 and 13–20)
- Kirschner MW & Schachman HK (1973) Local and gross conformational changes in aspartate transcarbamylase. *Biochemistry* 12, 2997–3004. (Problem 3–108)
- Klemm RD, Austin RJ & Bell SP (1997) Coordinate binding of ATP and origin DNA regulates the ATPase activity of the origin recognition complex. *Cell* 88, 493–502. (Problem 5–63)
- Knoop F (1905) Der Abbau aromatischer Fettsäuren im Tierkörper. *Beitr. Chem. Physiol.* 6, 150–162. (Problem 2–125)
- Knudson AG (1971) Mutation and cancer: statistical study of retinoblastoma. *Proc. Natl Acad. Sci. U.S.A.* 68, 820–823. (Problem 20–43)
- Knudson AG (2001) Two genetic hits (more or less) to cancer. *Nat. Rev. Cancer* 1, 157–162. (Problem 20–16)
- Kobayashi T, Rein T & DePamphilis ML (1998) Identification of primary initiation sites for DNA replication in the hamster dihydrofolate reductase gene initiation zone. *Mol. Cell. Biol.* 18, 3266–3277. (Problem 5–64)

- Benig JH & Ikeda K (1999) Contribution of active zone subpopulation of vesicles to evoked and spontaneous release. *J. Neurophysiol.* 81, 1495–1505. (Problem 13–113)
- Bleske AJ, Buratowski S, Nonet M & Young RA (1992) A novel transcription factor reveals a functional link between the RNA polymerase II CTD and TFIID. *Cell* 69, 883–894. (Problem 6–41)
- Condor-Koch C, Bravo R, Fuller SD, Cutler D & Garoff H (1985) Protein secretion in the polarized epithelial cell line MDCK. *Cell* 43, 297–306. (Problem 13–117)
- Konkel DA, Maizel JV & Leder P (1979) The evolution and sequence comparison of two recently diverged mouse chromosomal β -globin genes. *Cell* 18, 865–873. (Problem 4–99)
- Krause M & Hirsh D (1987) A trans-spliced leader sequence on actin mRNA in *C. elegans*. *Cell* 49, 753–761. (Problem 6–45)
- Krebs HA & Johnson WA (1973) The role of citric acid in intermediate metabolism in animal tissues. *Enzymologia* 4, 148–156. (Problem 2–126)
- Krings M, Stone A, Schmitz RW, Krainitzki H, Stoneking M & Pääbo S (1997) Neanderthal DNA sequences and the origin of modern humans. *Cell* 90, 19–30. (Problem 4–100)
- Kristic RV (1997) Ultrastructure of the Mammalian Cell, p 207. Berlin, Germany: Springer-Verlag. (Problem 11–40)
- Kudo N, Matsumori N, Taoka H, Fujiwara D, Schreiner EP, Wolff B, Yoshida M & Horinouchi S (1999) Leptomycin B inactivates CRM1/exportin 1 by covalent modification at a cysteine residue in the central conserved region. *Proc. Natl Acad. Sci. U.S.A.* 96, 9112–9117. (Problems 12–58 and 12–59)
- Kuhne T, Wieringa B, Reiser J & Weissmann C (1983) Evidence against a scanning model for RNA splicing. *EMBO J.* 2, 727–733. (Problem 6–30)
- Kuida K, Haydar TF, Kuan C-Y, Gu Y, Taya C, Karasuyama H, Su MS-S, Rakic P & Flavell RA (1998) Reduced apoptosis and cytochrome *c*-mediated caspase activation in mice lacking caspase 9. *Cell* 94, 325–337. (Problem 18–20)
- Kumagai A & Dunphy WG (1992) Regulation of the Cdc25 protein during the cell cycle in *Xenopus* extracts. *Cell* 70, 139–151. (Problem 17–88)
- Kurjan I (1992) Pheromone response in yeast. *Annu. Rev. Biochem.* 61, 1097–1129. (Problem 15–90)
- Kyte J (1995) Mechanism in Protein Chemistry. New York: Garland Publishing. (Problems 3–73 and 3–101)
- Lachner M, O'Carroll D, Rea S, Mechtler K & Jenuwein T (2001) Methylation of H3 lysine 9 creates a binding site for HP1 proteins. *Nature* 410, 116–120. (Problem 4–70)
- Landegren U, Kaiser R, Sanders J & Hood L (1988) A ligase-mediated gene detection technique. *Science* 241, 1077–1080. (Problem 8–94)
- Lander ES et al. (2001) Initial sequencing and analysis of the human genome. *Nature* 409, 860–921. (Problems 4–35, 4–45, 4–51, 4–52, 4–96, and 6–69)
- Larschan E & Winston F (2001) The *S. cerevisiae* SAGA complex functions *in vivo* as a coactivator for transcriptional activation by Gal4. *Genes Dev.* 15, 1946–1956. (Problem 7–66)
- Lawlor DW (1987) Photosynthesis: Metabolism, Control, and Physiology. New York: Wiley. (Problem 14–93)
- LeBowitz JH & McMacken R (1986) The *Escherichia coli* DnaB replication protein is a DNA helicase. *J. Biol. Chem.* 261, 4738–4748. (Problem 5–43)
- Lee JT & Lu N (1999) Targeted mutagenesis of *Tsix* leads to nonrandom X inactivation. *Cell* 99, 47–57. (Problem 7–95)
- Lee M-H & Schedl T (2001) Identification of *in vivo* mRNA targets of GLD-1, a maxi-KH motif containing protein required for *C. elegans* germ cell development. *Genes Dev.* 15, 2408–2420. (Problem 7–118)
- Leff SE, Evans RM & Rosenfeld MG (1987) Splice commitment dictates neuron-specific alternative RNA processing in calcitonin/CGRP gene expression. *Cell* 48, 517–524. (Problem 7–112)
- Lefkowitz RJ, Limbird LE, Mukherjee C & Caron MG (1976) The β -adrenergic receptor and adenylate cyclase. *Biochim. Biophys. Acta* 457, 1–39. (Problem 15–88)
- Leguy R, Melki R, Pantaloni D & Carlier M-F (2000) Monomeric γ -tubulin nucleates microtubules. *J. Biol. Chem.* 275, 21975–21980. (Problems 16–50, 16–60, and 16–62)
- Li K, Li Y, Shelton JM, Richardson JA, Spencer E, Chen ZJ, Wang X & Williams RS (2000) Cytochrome *c* deficiency causes embryonic lethality and attenuates stress-induced apoptosis. *Cell* 101, 389–399. (Problem 18–12)
- Li L, Zhou J, James G, Heller-Harrison R, Czech MP & Olsen EN (1992) FGF inactivates myogenic helix-loop-helix proteins through phosphorylation of a conserved protein kinase C site in their DNA-binding domains. *Cell* 71, 1181–1194. (Problem 7–29)
- Li R & Murray AW (1991) Feedback control of mitosis in budding yeast. *Cell* 66, 519–531. (Problem 17–80)
- Li WH (1997) Molecular Evolution. Sinauer Associates, Inc.: Sunderland MA. (Problems 1–46 and 1–49)
- Lieber MR, Ma Y, Pannicke U & Schwarz K (2003) Mechanism and regulation of human non-homologous DNA end-joining. *Nat. Rev. Mol. Cell Biol.* 4, 712–720. (Problems 5–77 and 5–78)
- Liebold EA & Munro HN (1988) Cytoplasmic protein binds *in vitro* to a highly conserved sequence in the 5' untranslated region of ferritin heavy- and light-subunit mRNAs. *Proc. Natl Acad. Sci. U.S.A.* 85, 2171–2175. (Problem 7–111)
- Lin FC, Brown RM, Drake RR & Haley BE (1990) Identification of the uridine 5'-diphosphoglucose (UDP-Glc) binding subunit of cellulose synthase in *Acetobacter xylinum* using the photoaffinity probe 5-azido-UDP-Glc. *J. Biol. Chem.* 265, 4782–4784. (Problem 19–100)
- Lindahl T, Demple B & Robins P (1982) Suicide inactivation of the *E. coli* O⁶-methylguanine-DNA methyltransferase. *EMBO J.* 1, 1359–1363. (Problem 5–84)
- Lipmann F (1941) Metabolic generation and utilization of phosphate bond energy. *Adv. Enzymol.* 1, 99–162. (Problem 2–122)
- Little CC (1933) The existence of non-chromosomal influence in the incidence of mammary tumors in mice. *Science* 78, 465–466. (Problem 20–29)
- Liu LF & Wang JC (1987) Supercoiling of the DNA template during transcription. *Proc. Natl Acad. Sci. U.S.A.* 84, 7024–7027. (Problem 6–22)
- Liu X, Kim CN, Yang J, Jemmerson R & Wang X (1996) Induction of apoptotic program in cell-free extracts: Requirement for dATP and cytochrome *c*. *Cell* 86, 147–157. (Problem 18–18)
- Lo CW & Gilula NB (1979) Gap junctional communication in the preimplantation mouse embryo. *Cell* 18, 399–409. (Problem 19–44)
- Lodish HF, Kong N, Snider M & Strous GJAM (1983) Hepatoma secretory proteins migrate from rough endoplasmic reticulum to Golgi at characteristic rates. *Nature* 304, 80–83. (Problem 13–114)
- Logothetis DE, Kurachi Y, Galper J, Neer EJ & Clapham DE (1987) The $\beta\gamma$ subunits of GTP-binding proteins activate the muscarinic K⁺ channel in heart. *Nature* 325, 321–326. (Problem 15–97)
- Losada A & Hirano T (2001) Intermolecular DNA interactions stimulated by the cohesin complex *in vitro*: Implications for sister chromatid cohesion. *Curr. Biol.* 11, 268–272. (Problem 17–89)
- Lucas WJ (2006) Plant viral movement proteins: agents for cell-to-cell trafficking of viral genomes. *Virology* 344, 169–184. (Problem 19–45)
- Luck DJL (1984) Genetic and biochemical dissection of the eucaryotic flagellum. *J. Cell Biol.* 98, 789–794. (Problem 16–108)
- Luria SE & Delbrück M (1943) Mutations of bacteria from virus sensitivity to virus resistance. *Genetics* 28, 491–511. (Problem 5–10)
- Maarse AC, Blom J, Grivell LA & Meijer M (1992) MPII, an essential gene encoding a mitochondrial membrane protein, is possibly involved in protein import into yeast mitochondria. *EMBO J.* 11, 3619–3628. (Problem 12–77)
- MacKinnon R, Aldrich RW & Lee AW (1993) Functional stoichiometry of *shaker* potassium channel inactivation. *Science* 262, 757–759. (Problem 11–89)
- MacLean-Fletcher S & Pollard TD (1980) Mechanism of action of cytochalasin B on actin. *Cell* 20, 329–341. (Problem 16–40)

- MacNicol A, Muslin AJ & Williams LT (1993) Raf-1 kinase is essential for early *Xenopus* development and mediates the induction of mesoderm by FGF. *Cell* 73, 571–583. (Problem 8–124)
- Madhuri HD & Fink GR (1998) The control of filamentous differentiation and virulence in fungi. *Trends Cell Biol.* 8, 348–353. (Problem 15–162)
- Madison-Antenucci S, Grams J & Hajduk SL (2002) Editing machines: the complexities of *Trypanosoma* RNA editing. *Cell* 108, 435–438. (Problem 7–106)
- Maizia D, Harris PJ & Bibring T (1960) The multiplicity of mitotic centers and the time-course of their duplication and separation. *J. Biophys. Biochem. Cytol.* 7, 1–20. (Problem 17–91)
- Mallavarapu A & Mitchison TJ (1999) Regulated actin cytoskeleton assembly at filopodium tips controls their extension and retraction. *J. Cell Biol.* 146, 1097–1106. (Problem 16–111)
- Mann C & Davis RW (1983) Instability of dicentric plasmids in yeast. *Proc. Natl Acad. Sci. U.S.A.* 80, 228–232. (Problem 17–93)
- Manoil C & Beckwith J (1986) A genetic approach to analyzing membrane protein topology. *Science* 233, 1403–1408. (Problem 12–132)
- Manson MD, Blank V, Brade G & Higgins CF (1986) Peptide chemotaxis in *E. coli* involves the Tap signal transducer and the dipeptide permease. *Nature* 321, 253–258. (Problem 15–132)
- Manson MD, Tedesco P, Berg HC, Harold FM & van der Drift C (1977) A protonmotive force drives bacteria flagella. *Proc. Natl Acad. Sci. U.S.A.* 74, 3060–3064. (Problem 14–64)
- Marks B, Stowell MHB, Vallis Y, Mills IG, Gibson A, Hopkins CR & McMahon HT (2001) GTPase activity of dynamin and resulting conformation changes are essential for endocytosis. *Nature* 410, 231–235. (Problem 13–22)
- Masaïke T, Mitome N, Noji H, Muneyuki E, Yasuda R, Kinoshita K & Yoshida M (2000) Rotation of F₁-ATPase and the hinge residues of the β subunit. *J. Exp. Biol.* 203, 1–8. (Problem 14–31)
- Masutani C, Araki M, Yamada A, Kusumoto R, Nogimori T, Maekawa T, Iwai S & Hanaoka F (1999) Xeroderma pigmentosum variant (XP-V) correcting protein from HeLa cells has a thymine dimer bypass DNA polymerase activity. *EMBO J.* 18, 3491–3501. (Problem 5–82)
- Matteoli M, Takei K, Perin MS, Südhof TC & DeCamilli P (1992) Exo-endocytotic recycling of synaptic vesicles in developing processes of cultured hippocampal neurons. *J. Cell Biol.* 117, 849–861. (Problem 13–118)
- McClintock B (1939) The behavior of successive nuclear divisions of a chromosome broken at meiosis. *Proc. Natl Acad. Sci. U.S.A.* 25, 405–416. (Problem 20–58)
- McKeon FD, Kirschner MW & Caput D (1986) Homologies in both primary and secondary structure between nuclear envelope and intermediate filament proteins. *Nature* 31, 463–468. (Problem 3–34)
- McKnight SL & Kingsbury R (1982) Transcriptional control signals of a eukaryotic protein-coding gene. *Science* 217, 316–324. (Problem 6–38)
- Meikrantz W, Bergom MA, Memisoglu A & Samson L (1998) O⁶-Alkylguanine DNA lesions trigger apoptosis. *Carcinogenesis* 19, 369–372. (Problems 5–85 and 18–28)
- Meselson M & Stahl FW (1958) The replication of DNA in *Escherichia coli*. *Proc. Natl Acad. Sci. U.S.A.* 44, 671–682. (Problem 8–23)
- Meuse CW, Krueger S, Majkrzak CF, Dura JA, Fu J, Connor JT & Plant AL (1998) Hybrid bilayer membranes in air and water: infrared spectroscopy and neutron reflectivity studies. *Biophys. J.* 74, 1388–1398. (Problem 13–28)
- Meyer CA, Jacobs HW, Datar SA, Du W, Edgar BA & Lehner CF (2000) *Drosophila* Cdk4 is required for normal growth and is dispensable for cell cycle progression. *EMBO J.* 19, 4533–4542. (Problems 17–146 and 17–147)
- Michaelis C, Ciosk R & Nasmyth K (1997) Cohesins: chromosomal proteins that prevent premature separation of sister chromatids. *Cell* 91, 35–45. (Problem 17–49)
- Miller JH (1985) Mutagenic specificity of ultraviolet light. *J. Mol. Biol.* 182, 45–65. (Problem 5–81)
- Milton RC, Milton SC & Kent SB (1992) Total chemical synthesis of a D-enzyme: the enantiomers of HIV-1 protease show reciprocal chiral substrate specificity. *Science* 256, 1445–1448. (Problem 3–72)
- Minakami S, Suzuki C, Saito T & Yoshikawa H (1965) Studies on erythrocyte glycolysis. I. Determination of the glycolytic intermediates in human erythrocytes. *J. Biochem. (Tokyo)* 58, 543–550. (Problem 2–97)
- Mitchell MB & Mitchell HK (1952) A case of “maternal” inheritance in *Neurospora crassa*. *Proc. Natl Acad. Sci. U.S.A.* 38, 442–449. (Problem 14–115)
- Mitchell MB, Mitchell HK & Tissieres A (1953) Mendelian and non-Mendelian factors affecting the cytochrome system in *Neurospora crassa*. *Proc. Natl Acad. Sci. U.S.A.* 39, 605–613. (Problem 14–115)
- Mitchison TJ (1993) Localization of an exchangeable GTP binding site at the plus end of microtubules. *Science* 261, 1044–1047. (Problem 16–32)
- Mitchison TJ (2001) Psychosine, cytokinesis, and orphan receptors: Unexpected connections. *J. Cell Biol.* 153, F1–F3. (Problem 17–117)
- Mitchison TJ & Kirschner MW (1984) Microtubule assembly nucleated by isolated centrosomes. *Nature* 312, 232–237. (Problem 16–59)
- Mitchison TJ & Kirschner MW (1985) Properties of the kinetochore *in vitro*. I. Microtubule nucleation and tubulin binding. *J. Cell Biol.* 101, 755–765. (Problem 16–61)
- Mitchison TJ & Kirschner MW (1985) Properties of the kinetochore *in vitro*. II. Microtubule capture and ATP-dependent translocation. *J. Cell Biol.* 101, 766–777. (Problem 17–92)
- Miyawaki A, Llopis J, Heim R, McCafferty JM, Adams JA, Ikura M & Tsien RY (1997) Fluorescent indicators for Ca²⁺ based on green fluorescent protein and calmodulin. *Nature* 388, 882–887. (Problem 9–34)
- Mlynarczyk SK & Panning B (2000) X inactivation: *Tsix* and *Xist* as yin and yang. *Curr. Biol.* 10, R899–R903. (Problem 7–96)
- Molecular Probes Handbook, 1999 (www.probes.com/handbook). (Problem 11–42)
- Monod J (1947) The phenomenon of enzymatic adaptation. Growth Symposium XI:223–289. [Reprinted in Selected Papers in Molecular Biology by Jacques Monod (A Lwoff, A Ullmann, eds), pp 68–134. New York: Academic Press, 1947.] (Problem 7–60)
- Montoya J, Ojala D & Attardi G (1981) Distinctive features of the 5′-terminal sequences of the human mitochondrial mRNAs. *Nature* 290, 465–470. (Problem 14–114)
- Moore MS & Blobel G (1993) The GTP-binding protein Ran/TC4 is required for protein import into the nucleus. *Nature* 365, 661–663. (Problem 12–54)
- Moore MS & Blobel G (1994) Purification of a Ran-interacting protein that is required for protein import into the nucleus. *Proc. Natl Acad. Sci. U.S.A.* 91, 10212–10216. (Problem 12–54)
- Moore T & Haig D (1991) Genomic imprinting in mammalian development: a parental tug of war. *Trends Genet.* 7, 45–49. (Problem 7–84)
- Morand OH, Allen LA, Zoeller RA & Raetz CR (1990) A rapid selection for animal cell mutants with defective peroxisomes. *Biochim. Biophys. Acta* 1034, 132–141. (Problem 12–93)
- Moriyoshi K, Masu M, Ishii T, Shigemoto R, Mizuno N & Nakanishi S (1991) Molecular cloning and characterization of the rat NMDA receptor. *Nature* 354, 31–37. (Problem 11–93)
- Mowry KL & Steitz JA (1987) Identification of human U7 snRNP as one of several factors involved in the 3′-end maturation of histone pre-messenger RNAs. *Science* 238, 1682–1687. (Problem 6–47)
- Mueller-Sturm HP, Sogo JM & Schaffner W (1989) An enhancer stimulates transcription in trans when attached to the promoter via a protein bridge. *Cell* 58, 767–777. (Problem 7–52)
- Munro S & Pelham HR (1987) A C-terminal signal prevents secretion of luminal ER proteins. *Cell* 48, 899–907. (Problem 13–50)
- Murray A & Hunt T (1993) The Cell Cycle: An Introduction, pp 143–144. New York: WH Freeman. (Problem 17–142)

- MacNicol A, Muslin AJ & Williams LT (1993) Raf-1 kinase is essential for early *Xenopus* development and mediates the induction of mesoderm by FGF. *Cell* 73, 571–583. (Problem 8–124)
- Madhuri HD & Fink GR (1998) The control of filamentous differentiation and virulence in fungi. *Trends Cell Biol.* 8, 348–353. (Problem 15–162)
- Madison-Antenucci S, Grams J & Hajduk SL (2002) Editing machines: the complexities of *Trypanosome* RNA editing. *Cell* 108, 435–438. (Problem 7–106)
- Maizia D, Harris PJ & Bibring T (1960) The multiplicity of mitotic centers and the time-course of their duplication and separation. *J. Biophys. Biochem. Cytol.* 7, 1–20. (Problem 17–91)
- Mallavarapu A & Mitchison TJ (1999) Regulated actin cytoskeleton assembly at filopodium tips controls their extension and retraction. *J. Cell Biol.* 146, 1097–1106. (Problem 16–111)
- Mann C & Davis RW (1983) Instability of dicentric plasmids in yeast. *Proc. Natl Acad. Sci. U.S.A.* 80, 228–232. (Problem 17–93)
- Manoil C & Beckwith J (1986) A genetic approach to analyzing membrane protein topology. *Science* 233, 1403–1408. (Problem 12–132)
- Manson MD, Blank V, Brade G & Higgins CF (1986) Peptide chemotaxis in *E. coli* involves the Tap signal transducer and the dipeptide permease. *Nature* 321, 253–258. (Problem 15–132)
- Manson MD, Tedesco P, Berg HC, Harold FM & van der Drift C (1977) A protonmotive force drives bacteria flagella. *Proc. Natl Acad. Sci. U.S.A.* 74, 3060–3064. (Problem 14–64)
- Marks B, Stowell MHB, Vallis Y, Mills IG, Gibson A, Hopkins CR & McMahon HT (2001) GTPase activity of dynamin and resulting conformation changes are essential for endocytosis. *Nature* 410, 231–235. (Problem 13–22)
- Masaie T, Mitome N, Noji H, Muneyuki E, Yasuda R, Kinoshita K & Yoshida M (2000) Rotation of F₁-ATPase and the hinge residues of the β subunit. *J. Exp. Biol.* 203, 1–8. (Problem 14–31)
- Masutani C, Araki M, Yamada A, Kusumoto R, Nogimori T, Maekawa T, Iwai S & Hanaoka F (1999) Xeroderma pigmentosum variant (XP-V) correcting protein from HeLa cells has a thymine dimer bypass DNA polymerase activity. *EMBO J.* 18, 3491–3501. (Problem 5–82)
- Matteoli M, Takei K, Perin MS, Südhof TC & DeCamilli P (1992) Exo-endocytotic recycling of synaptic vesicles in developing processes of cultured hippocampal neurons. *J. Cell Biol.* 117, 849–861. (Problem 13–118)
- McClintock B (1939) The behavior of successive nuclear divisions of a chromosome broken at meiosis. *Proc. Natl Acad. Sci. U.S.A.* 25, 405–416. (Problem 20–58)
- McKeon FD, Kirschner MW & Caput D (1986) Homologies in both primary and secondary structure between nuclear envelope and intermediate filament proteins. *Nature* 31, 463–468. (Problem 3–34)
- McKnight SL & Kingsbury R (1982) Transcriptional control signals of a eukaryotic protein-coding gene. *Science* 217, 316–324. (Problem 6–38)
- Meikrantz W, Bergom MA, Memisoglu A & Samson L (1998) O⁶-Alkylguanine DNA lesions trigger apoptosis. *Carcinogenesis* 19, 369–372. (Problems 5–85 and 18–28)
- Meselson M & Stahl FW (1958) The replication of DNA in *Escherichia coli*. *Proc. Natl Acad. Sci. U.S.A.* 44, 671–682. (Problem 8–23)
- Meuse CW, Krueger S, Majkrzak CF, Dura JA, Fu J, Connor JT & Plant AL (1998) Hybrid bilayer membranes in air and water: infrared spectroscopy and neutron reflectivity studies. *Biophys. J.* 74, 1388–1398. (Problem 13–28)
- Meyer CA, Jacobs HW, Datar SA, Du W, Edgar BA & Lehner CF (2000) *Drosophila* Cdk4 is required for normal growth and is dispensable for cell cycle progression. *EMBO J.* 19, 4533–4542. (Problems 17–146 and 17–147)
- Michaelis C, Ciosk R & Nasmyth K (1997) Cohesins: chromosomal proteins that prevent premature separation of sister chromatids. *Cell* 91, 35–45. (Problem 17–49)
- Miller JH (1985) Mutagenic specificity of ultraviolet light. *J. Mol. Biol.* 182, 45–65. (Problem 5–81)
- Milton RC, Milton SC & Kent SB (1992) Total chemical synthesis of a D₂ enzyme: the enantiomers of HIV-1 protease show reciprocal chiral substrate specificity. *Science* 256, 1445–1448. (Problem 3–72)
- Minakami S, Suzuki C, Saito T & Yoshikawa H (1965) Studies on erythrocyte glycolysis. I. Determination of the glycolytic intermediates in human erythrocytes. *J. Biochem. (Tokyo)* 58, 543–550. (Problem 2–97)
- Mitchell MB & Mitchell HK (1952) A case of “maternal” inheritance in *Neurospora crassa*. *Proc. Natl Acad. Sci. U.S.A.* 38, 442–449. (Problem 14–115)
- Mitchell MB, Mitchell HK & Tissieres A (1953) Mendelian and non-Mendelian factors affecting the cytochrome system in *Neurospora crassa*. *Proc. Natl Acad. Sci. U.S.A.* 39, 605–613. (Problem 14–115)
- Mitchison TJ (1993) Localization of an exchangeable GTP binding site at the plus end of microtubules. *Science* 261, 1044–1047. (Problem 16–32)
- Mitchison TJ (2001) Psychosine, cytokinesis, and orphan receptors: Unexpected connections. *J. Cell Biol.* 153, F1–F3. (Problem 17–117)
- Mitchison TJ & Kirschner MW (1984) Microtubule assembly nucleated by isolated centrosomes. *Nature* 312, 232–237. (Problem 16–59)
- Mitchison TJ & Kirschner MW (1985) Properties of the kinetochore *in vitro*. I. Microtubule nucleation and tubulin binding. *J. Cell Biol.* 101, 755–765. (Problem 16–61)
- Mitchison TJ & Kirschner MW (1985) Properties of the kinetochore *in vitro*. II. Microtubule capture and ATP-dependent translocation. *J. Cell Biol.* 101, 766–777. (Problem 17–92)
- Miyawaki A, Llopis J, Heim R, McCafferty JM, Adams JA, Ikura M & Tsien RY (1997) Fluorescent indicators for Ca²⁺ based on green fluorescent protein and calmodulin. *Nature* 388, 882–887. (Problem 9–34)
- Mlynarczyk SK & Panning B (2000) X inactivation: *Tsix* and *Xist* as Yin and Yang. *Curr. Biol.* 10, R899–R903. (Problem 7–96)
- Molecular Probes Handbook, 1999 (www.probes.com/handbook). (Problem 11–42)
- Monod J (1947) The phenomenon of enzymatic adaptation. Growth Symposium XI:223–289. [Reprinted in Selected Papers in Molecular Biology by Jacques Monod (A Lwoff, A Ullmann, eds), pp 68–134. New York: Academic Press, 1947.] (Problem 7–60)
- Montoya J, Ojala D & Attardi G (1981) Distinctive features of the 5'-terminal sequences of the human mitochondrial mRNAs. *Nature* 290, 465–470. (Problem 14–114)
- Moore MS & Blobel G (1993) The GTP-binding protein Ran/TC4 is required for protein import into the nucleus. *Nature* 365, 661–663. (Problem 12–54)
- Moore MS & Blobel G (1994) Purification of a Ran-interacting protein that is required for protein import into the nucleus. *Proc. Natl Acad. Sci. U.S.A.* 91, 10212–10216. (Problem 12–54)
- Moore T & Haig D (1991) Genomic imprinting in mammalian development: a parental tug of war. *Trends Genet.* 7, 45–49. (Problem 7–84)
- Morand OH, Allen LA, Zoeller RA & Raetz CR (1990) A rapid selection for animal cell mutants with defective peroxisomes. *Biochim. Biophys. Acta* 1034, 132–141. (Problem 12–93)
- Moriyoshi K, Masu M, Ishii T, Shigemoto R, Mizuno N & Nakanishi S (1991) Molecular cloning and characterization of the rat NMDA receptor. *Nature* 354, 31–37. (Problem 11–93)
- Mowry KL & Steitz JA (1987) Identification of human U7 snRNP as one of several factors involved in the 3'-end maturation of histone premessenger RNAs. *Science* 238, 1682–1687. (Problem 6–47)
- Mueller-Sturm HP, Sogo JM & Schaffner W (1989) An enhancer stimulates transcription in trans when attached to the promoter via a protein bridge. *Cell* 58, 767–777. (Problem 7–52)
- Munro S & Pelham HR (1987) A C-terminal signal prevents secretion of luminal ER proteins. *Cell* 48, 899–907. (Problem 13–50)
- Murray A & Hunt T (1993) The Cell Cycle: An Introduction, pp 143–144. New York: WH Freeman. (Problem 17–142)

- MacNicol A, Muslin AJ & Williams LT (1993) Raf-1 kinase is essential for early *Xenopus* development and mediates the induction of mesoderm by FGF. *Cell* 73, 571–583. (Problem 8–124)
- Madhuri HD & Fink GR (1998) The control of filamentous differentiation and virulence in fungi. *Trends Cell Biol.* 8, 348–353. (Problem 15–162)
- Madison-Antenucci S, Grams J & Hajduk SL (2002) Editing machines: the complexities of *Trypanosome* RNA editing. *Cell* 108, 435–438. (Problem 7–106)
- Maizia D, Harris PJ & Bibring T (1960) The multiplicity of mitotic centers and the time-course of their duplication and separation. *J. Biophys. Biochem. Cytol.* 7, 1–20. (Problem 17–91)
- Mallavarapu A & Mitchison TJ (1999) Regulated actin cytoskeleton assembly at filopodium tips controls their extension and retraction. *J. Cell Biol.* 146, 1097–1106. (Problem 16–111)
- Mann C & Davis RW (1983) Instability of dicentric plasmids in yeast. *Proc. Natl Acad. Sci. U.S.A.* 80, 228–232. (Problem 17–93)
- Manoil C & Beckwith J (1986) A genetic approach to analyzing membrane protein topology. *Science* 233, 1403–1408. (Problem 12–132)
- Manson MD, Blank V, Brade G & Higgins CF (1986) Peptide chemotaxis in *E. coli* involves the Tap signal transducer and the dipeptide permease. *Nature* 321, 253–258. (Problem 15–132)
- Manson MD, Tedesco P, Berg HC, Harold FM & van der Drift C (1977) A protonmotive force drives bacteria flagella. *Proc. Natl Acad. Sci. U.S.A.* 74, 3060–3064. (Problem 14–64)
- Marks B, Stowell MHB, Vallis Y, Mills IG, Gibson A, Hopkins CR & McMahon HT (2001) GTPase activity of dynamin and resulting conformation changes are essential for endocytosis. *Nature* 410, 231–235. (Problem 13–22)
- Masaie T, Mitome N, Noji H, Muneyuki E, Yasuda R, Kinoshita K & Yoshida M (2000) Rotation of F₁-ATPase and the hinge residues of the β subunit. *J. Exp. Biol.* 203, 1–8. (Problem 14–31)
- Masutani C, Araki M, Yamada A, Kusumoto R, Nogimori T, Maekawa T, Iwai S & Hanaoka F (1999) Xeroderma pigmentosum variant (XP-V) correcting protein from HeLa cells has a thymine dimer bypass DNA polymerase activity. *EMBO J.* 18, 3491–3501. (Problem 5–82)
- Matteoli M, Takei K, Perin MS, Südhof TC & DeCamilli P (1992) Exo-endocytotic recycling of synaptic vesicles in developing processes of cultured hippocampal neurons. *J. Cell Biol.* 117, 849–861. (Problem 13–118)
- McClintock B (1939) The behavior of successive nuclear divisions of a chromosome broken at meiosis. *Proc. Natl Acad. Sci. U.S.A.* 25, 405–416. (Problem 20–58)
- McKeon FD, Kirschner MW & Caput D (1986) Homologies in both primary and secondary structure between nuclear envelope and intermediate filament proteins. *Nature* 31, 463–468. (Problem 3–34)
- McKnight SL & Kingsbury R (1982) Transcriptional control signals of a eukaryotic protein-coding gene. *Science* 217, 316–324. (Problem 6–38)
- Meikrantz W, Bergom MA, Memisoglu A & Samson L (1998) O⁶-Alkylguanine DNA lesions trigger apoptosis. *Carcinogenesis* 19, 369–372. (Problems 5–85 and 18–28)
- Meselson M & Stahl FW (1958) The replication of DNA in *Escherichia coli*. *Proc. Natl Acad. Sci. U.S.A.* 44, 671–682. (Problem 8–23)
- Meuse CW, Krueger S, Majkrzak CF, Dura JA, Fu J, Connor JT & Plant AL (1998) Hybrid bilayer membranes in air and water: infrared spectroscopy and neutron reflectivity studies. *Biophys. J.* 74, 1388–1398. (Problem 13–28)
- Meyer CA, Jacobs HW, Datar SA, Du W, Edgar BA & Lehner CF (2000) *Drosophila* Cdk4 is required for normal growth and is dispensable for cell cycle progression. *EMBO J.* 19, 4533–4542. (Problems 17–146 and 17–147)
- Michaelis C, Ciosk R & Nasmyth K (1997) Cohesins: chromosomal proteins that prevent premature separation of sister chromatids. *Cell* 91, 35–45. (Problem 17–49)
- Miller JH (1985) Mutagenic specificity of ultraviolet light. *J. Mol. Biol.* 182, 45–65. (Problem 5–81)
- Milton RC, Milton SC & Kent SB (1992) Total chemical synthesis of a D-enzyme: the enantiomers of HIV-1 protease show reciprocal chiral substrate specificity. *Science* 256, 1445–1448. (Problem 3–72)
- Minakami S, Suzuki C, Saito T & Yoshikawa H (1965) Studies on erythrocyte glycolysis. I. Determination of the glycolytic intermediates in human erythrocytes. *J. Biochem. (Tokyo)* 58, 543–550. (Problem 2–97)
- Mitchell MB & Mitchell HK (1952) A case of “maternal” inheritance in *Neurospora crassa*. *Proc. Natl Acad. Sci. U.S.A.* 38, 442–449. (Problem 14–115)
- Mitchell MB, Mitchell HK & Tissieres A (1953) Mendelian and non-Mendelian factors affecting the cytochrome system in *Neurospora crassa*. *Proc. Natl Acad. Sci. U.S.A.* 39, 605–613. (Problem 14–115)
- Mitchison TJ (1993) Localization of an exchangeable GTP binding site at the plus end of microtubules. *Science* 261, 1044–1047. (Problem 16–32)
- Mitchison TJ (2001) Psychosine, cytokinesis, and orphan receptors: Unexpected connections. *J. Cell Biol.* 153, F1–F3. (Problem 17–117)
- Mitchison TJ & Kirschner MW (1984) Microtubule assembly nucleated by isolated centrosomes. *Nature* 312, 232–237. (Problem 16–59)
- Mitchison TJ & Kirschner MW (1985) Properties of the kinetochore *in vitro*. I. Microtubule nucleation and tubulin binding. *J. Cell Biol.* 101, 755–765. (Problem 16–61)
- Mitchison TJ & Kirschner MW (1985) Properties of the kinetochore *in vitro*. II. Microtubule capture and ATP-dependent translocation. *J. Cell Biol.* 101, 766–777. (Problem 17–92)
- Miyawaki A, Llopis J, Heim R, McCafferty JM, Adams JA, Ikura M & Tsien RY (1997) Fluorescent indicators for Ca²⁺ based on green fluorescent protein and calmodulin. *Nature* 388, 882–887. (Problem 9–34)
- Mlynarczyk SK & Panning B (2000) X inactivation: *Tsix* and *Xist* as yin and yang. *Curr. Biol.* 10, R899–R903. (Problem 7–96)
- Molecular Probes Handbook, 1999 (www.probes.com/handbook). (Problem 11–42)
- Monod J (1947) The phenomenon of enzymatic adaptation. Growth Symposium XI:223–289. [Reprinted in Selected Papers in Molecular Biology by Jacques Monod (A Lwoff, A Ullmann, eds), pp 68–134. New York: Academic Press, 1947.] (Problem 7–60)
- Montoya J, Ojala D & Attardi G (1981) Distinctive features of the 5'-terminal sequences of the human mitochondrial mRNAs. *Nature* 290, 465–470. (Problem 14–114)
- Moore MS & Blobel G (1993) The GTP-binding protein Ran/TC4 is required for protein import into the nucleus. *Nature* 365, 661–663. (Problem 12–54)
- Moore MS & Blobel G (1994) Purification of a Ran-interacting protein that is required for protein import into the nucleus. *Proc. Natl Acad. Sci. U.S.A.* 91, 10212–10216. (Problem 12–54)
- Moore T & Haig D (1991) Genomic imprinting in mammalian development: a parental tug of war. *Trends Genet.* 7, 45–49. (Problem 7–84)
- Morand OH, Allen LA, Zoeller RA & Raetz CR (1990) A rapid selection for animal cell mutants with defective peroxisomes. *Biochim. Biophys. Acta* 1034, 132–141. (Problem 12–93)
- Moriyoshi K, Masu M, Ishii T, Shigemoto R, Mizuno N & Nakanishi S (1991) Molecular cloning and characterization of the rat NMDA receptor. *Nature* 354, 31–37. (Problem 11–93)
- Mowry KL & Steitz JA (1987) Identification of human U7 snRNP as one of several factors involved in the 3'-end maturation of histone premessenger RNAs. *Science* 238, 1682–1687. (Problem 6–47)
- Mueller-Sturm HP, Sogo JM & Schaffner W (1989) An enhancer stimulates transcription in trans when attached to the promoter via a protein bridge. *Cell* 58, 767–777. (Problem 7–52)
- Munro S & Pelham HR (1987) A C-terminal signal prevents secretion of luminal ER proteins. *Cell* 48, 899–907. (Problem 13–50)
- Murray A & Hunt T (1993) The Cell Cycle: An Introduction, pp 143–144. New York: WH Freeman. (Problem 17–142)

- Murray A & Szostak JW (1982) Pedigree analysis of plasmid segregation in yeast. *Cell* 34, 961–970. (Problem 17–94)
- Murray EJ & Grosfeld F (1987) Site-specific demethylation in the promoter of human γ -globin gene does not alleviate methylation mediated suppression. *EMBO J.* 6, 2329–2335. (Problem 7–91)
- Nachury MV & Weis K (1999) The direction of transport through the nuclear pore can be inverted. *Proc. Natl Acad. Sci. U.S.A.* 96, 9622–9627. (Problems 12–48, 12–49, and 12–50)
- Nagafuchi A, Shirayoshi Y, Okazaki K, Yasuda K & Takeichi M (1987) Transformation of cell adhesion properties by exogenously introduced E-cadherin cDNA. *Nature* 329, 341–343. (Problem 19–14)
- Nagai T, Yamada S, Tominaga T, Ichikkawa M & Miyawaki A (2004) Expanded dynamic range of fluorescent indicators for Ca^{2+} by circularly permuted yellow fluorescent proteins. *Proc. Natl Acad. Sci. U.S.A.* 101, 10554–10559. (Problem 9–34)
- Nagata K & Handa H (2000) Real-Time Analysis of Biomolecular Interactions: Applications of BIACORE. Tokyo, Japan: Springer. (Problem 8–51)
- Nagata Y, Muro Y & Todokoro K (1997) Thrombopoietin-induced polyploidization of bone marrow megakaryocytes is due to a unique regulatory mechanism in late mitosis. *J. Cell Biol.* 139, 449–457. (Problem 17–118)
- Nakamura TM, Morin GB, Chapman KB, Weinrich SL, Andrews WH, Lingner J, Harley CB & Cech TR (1997) Telomerase catalytic subunit homologs from fission yeast and human. *Science* 277, 955–959. (Problem 5–66)
- Nathans J, Piantanida TP, Eddy RL, Shows TB & Hogness DS (1986) Molecular genetics of inherited variation in human color vision. *Science* 232, 203–210. (Problem 4–52)
- Nathans J, Thomas D & Hogness DS (1986) Molecular genetics of human color vision: the genes encoding blue, green, and red pigments. *Science* 232, 193–202. (Problem 4–52)
- Neupert W (1997) Protein import into mitochondria. *Annu. Rev. Biochem.* 66, 863–917. (Problem 12–83)
- Newman M, Lunnen K, Wilson G, Greci J, Schildkraut I & Phillips SEV (1998) Crystal structure of restriction endonuclease BglI bound to its interrupted DNA recognition sequence. *EMBO J.* 17, 5466–5476. (Problem 8–70)
- Nicholls DG & Ferguson SJ (1992) Bioenergetics 2. London: Academic Press. (Problems 14–34, 14–35, 14–61, and 14–63)
- Nichols BJ, Undermann C, Pelham HRB, Wickner WT & Haas A (1997) Homotypic vacuolar fusion mediated by t- and v-SNAREs. *Nature* 387, 199–202. (Problems 13–31 and 13–48)
- Ninfa AJ, Reitzer LJ & Magasanik B (1987) Initiation of transcription at the bacterial *glnAp2* promoter by purified *E. coli* components is facilitated by enhancers. *Cell* 50, 1039–1046. (Problem 7–61)
- Nishizuka Y (1983) Calcium, phospholipid turnover and transmembrane signaling. *Phil. Trans. R. Soc. Lond. Biol.* 302, 101–112. (Problem 15–95)
- Nogales E, Whittaker M, Milligan RA & Downing KH (1999) High-resolution model of the microtubule. *Cell* 96, 79–88. (Problem 16–32)
- Noji H, Yasuda R, Yoshida M & Kinosita K (1997) Direct observation of the rotation of F_1 -ATPase. *Nature* 386, 299–302. (Problem 14–32)
- Norby JG (2000) The origin and the meaning of the little p in pH. *Trends Biochem. Sci.* 25, 36–37. (Problem 2–25)
- Norman C, Runswick M, Pollock R & Treisman R (1988) Isolation and properties of cDNA clones encoding SRF, a transcription factor that binds to the *c-fos* serum response element. *Cell* 55, 989–1003. (Problem 7–35)
- Nudler E, Mustaev A, Lukhtanov E & Goldfarb A (1997) The RNA–DNA hybrid maintains the register of transcription by preventing backtracking of RNA polymerase. *Cell* 89, 33–41. (Problem 6–42)
- Nugent JM & Palmer JD (1991) RNA-mediated transfer of the gene *coxII* from the mitochondrion to the nucleus during flowering plant evolution. *Cell* 66, 473–481. (Problem 1–48)
- Nurse P (1975) Genetic control of cell size at cell division in yeast. *Nature* 256, 547–551. (Problems 17–38 and 17–145)
- Nurse P & Thuriaux P (1980) Regulatory genes controlling mitosis in the fission yeast *Schizosaccharomyces pombe*. *Genetics* 96, 627–637. (Problem 17–38)
- Nusse R & Varmus HE (1982) Many tumors induced by the mouse mammary tumor virus contain a provirus integrated in the same region of the host genome. *Cell* 31, 99–109. (Problem 20–54)
- O'Connell KE, Caron C, Kopish KR, Hurd DD, Kempthues KJ, Li Y & White JG (2001) The *C. elegans zyg-1* gene encodes a regulator of centrosome duplication with distinct maternal and paternal roles in the embryo. *Cell* 105, 547–558. (Problem 17–90)
- O'Keefe EJ & Pledger WJ (1983) A model of cell-cycle control: sequential events regulated by growth factors. *Mol. Cell. Endocrinol.* 31, 167–186. (Problem 17–138)
- O'Toole TE, Mandelman D, Forsyth J, Shattil SJ, Plow EF & Ginsberg MH (1991) Modulation of the affinity of integrin $\alpha_{IIb}\beta_3$ (GPIIb-IIIa) by the cytoplasmic domain of α_{IIb} . *Science* 254, 845–847. (Problem 19–67)
- Oeller PW, Min-Wong L, Taylor LP, Pike DA, Theologis A (1991) Reversible inhibition of tomato fruit senescence by antisense RNA. *Science* 254, 437–439. (Problem 15–164)
- Ojala D, Montoya J & Attardi G (1981) tRNA punctuation model of RNA processing in human mitochondria. *Nature* 290, 470–474. (Problem 14–114)
- Oka Y & Czech MP (1984) Photoaffinity labeling of insulin-sensitive hexose transporters in intact rat adipocytes: direct evidence that latent transporters become exposed to the extracellular space in response to insulin. *J. Biol. Chem.* 259, 8125–8133. (Problem 11–18)
- Oosawa F (2001) A historical perspective of actin assembly and its interactions. *Res. Prob. Cell Diff.* 32, 9–21. (Problem 16–31)
- Orci L, Glick BS & Rothman JE (1986) A new type of coated vesicular carrier that appears not to contain clathrin: its possible role in protein transport within the Golgi stack. *Cell* 46, 171–184. (Problem 13–115)
- Orkin RW, Gehron P, McGoodwin EB, Martin GR, Valentine T & Swarm R (1977) A murine tumor producing a matrix of basement membrane. *J. Exp. Med.* 145, 204–220. (Problem 19–58)
- Orr-Weaver TL & Spradling AD (1986) *Drosophila* chorion gene amplification requires an upstream region regulating *s18* transcription. *Mol. Cell. Biol.* 6, 4624–4633. (Problem 5–62)
- Osinga KA, Swinkels BW, Gibson WC, Borst P, Veeneman GH, Van Boom JH, Michels PAM & Opperdoes FR (1985) Topogenesis of microbody enzymes: sequence comparison of the genes for the glycosomal (microbody) and cytosolic phosphoglycerate kinases of *Trypanosoma brucei*. *EMBO J.* 4, 3811–3817. (Problem 12–95)
- Otero LJ, Devaux A & Standart N (2001) A 250-nucleotide UA-rich element in the 3' untranslated region of *Xenopus laevis* Vg1 mRNA represses translation both *in vivo* and *in vitro*. *RNA* 7, 1753–1767. (Problem 7–109)
- Ottaviano Y & Gerace L (1985) Phosphorylation of the nuclear lamins during interphase and mitosis. *J. Biol. Chem.* 260, 624–632. (Problem 16–39)
- Ovchinnikov IV, Gotherstrom A, Romanova GP, Kharitonov VM, Liden K & Goodwin W (2000) Molecular analysis of Neanderthal DNA from the northern Caucasus. *Nature* 404, 490–493. (Problem 4–100)
- Ozawa M, Ringwald M & Kemler R (1990) Uvomorulin-catenin complex formation is regulated by a specific domain in the cytoplasmic region of the cell adhesion molecule. *Proc. Natl Acad. Sci. U.S.A.* 87, 4246–4250. (Problem 19–20)
- Pace NR (2001) The universal nature of biochemistry. *Proc. Natl Acad. Sci. U.S.A.* 98, 805–808. (Problem 1–11)
- Paigen K (2003) One hundred years of mouse genetics: An intellectual history. I. The classical period (1902–1980). *Genetics* 163, 1–7. (Problem 20–29)
- Park H-O, Chant J & Herskowitz I (1993) *BUD2* encodes a GTPase-activating protein for Bud1/Rsr1 necessary for proper bud-site selection in yeast. *Nature* 365, 269–274. (Problem 16–112)
- Paschen SA, Rothbauer U, Kaldi K, Bauer MF, Neupert W & Brunner M (2000) The role of the TIM8-13 complex in the import of Tim23 into mitochondria. *EMBO J.* 19, 6392–6400. (Problem 12–86)

- Patel LR, Curran T & Kerppola TK (1994) Energy transfer analysis of Fos-Jun dimerization and DNA binding. *Proc. Natl Acad. Sci. U.S.A.* 91, 7360–7364. (Problem 7–34)
- Pauling L (1948) Chemical achievement and hope for the future. *Am. Sci.* 36, 50–58. (Problem 3–73)
- Payvar F, DeFranco D, Firestone GL, Edgar B, Wrange O, Okret S, Gustafsson J-A & Yamamoto KR (1983) Sequence-specific binding of glucocorticoid receptor to MMTV DNA at sites within and upstream of the transcribed region. *Cell* 35, 381–392. (Problem 15–48)
- Pearse A-M & Swift K (2006) Transmission of devil facial-tumour disease. *Nature* 439, 549. (Problem 20–28)
- Pearse BMF, Smith CJ & Owen DJ (2000) Clathrin coat construction in endocytosis. *Curr. Opin. Struct. Biol.* 10, 220–228. (Problems 13–18 and 13–20)
- Pelham HRB & Rothman JE (2000) The debate about transport in the Golgi—two sides of the same coin? *Cell* 102, 713–719. (Problem 13–55)
- Penny GD, Kay GF, Sheardown SA, Rastan S & Brockdorff N (1996) Requirement for *Xist* in X chromosome inactivation. *Nature* 379, 131–137. (Problem 7–94)
- Perara E, Rothman RE & Lingappa VR (1986) Uncoupling translocation from translation: implications for transport of proteins across membranes. *Science* 232, 348–352. (Problem 12–130)
- Peter M, Nakagawa J, Dorée M, Labbé JC & Nigg EA (1990) *In vitro* disassembly of the nuclear lamina and M phase-specific phosphorylation of lamins by cdc2 kinase. *Cell* 61, 591–602. (Problem 16–39)
- Peto R, Darby S, Deo H, Silcocks P, Whitely E & Doll R (2000) Smoking, smoking cessation, and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. *Br. Med. J.* 321, 323–329. (Problem 20–21)
- Pettit J, Wood WB & Plasterk RHA (1996) *cdh-3*, a gene encoding a member of the cadherin superfamily, functions in epithelial cell morphogenesis in *Caenorhabditis elegans*. *Development* 122, 4149–4157. (Problem 19–16)
- Pierschbacher MD & Ruoslahti E (1984) Cell attachment activity of fibronectin can be duplicated by small synthetic fragments of the molecule. *Nature* 309, 30–33. (Problem 19–86)
- Pitti RM, Marsters SA, Lawrence DA, Roy M, Kischkel FC, Dowd P, Huang A, Donahue CJ, Sherwood SW, Baldwin DT, Godowski PJ, Wood WI, Gurney AL, Hillan KJ, Cohen RL, Goddard AD, Botstein D & Ashkenazi A (1998) Genomic amplification of a decoy receptor for Fas ligand in lung and colon cancer. *Nature* 396, 699–703. (Problem 18–16)
- Pollard TD (1986) Rate constants for the reactions of ATP- and ADP-actin with the ends of actin filaments. *J. Cell Biol.* 103, 2747–2754. (Problem 16–34)
- Pollard TD, Blanchoin L & Mullins RD (2000) Molecular mechanisms controlling actin filament dynamics in nonmuscle cells. *Annu. Rev. Biophys. Biomol. Struct.* 29, 545–576. (Problems 16–31 and 16–34)
- Pollock R & Treisman R (1990) A sensitive method for the determination of protein–DNA binding specificities. *Nucleic Acids Res.* 18, 6197–6204. (Problems 7–30 and 7–36)
- Ponticelli AS, Schultz DW, Taylor AF & Smith GR (1985) Chi-dependent DNA strand cleavage by RecBCD enzyme. *Cell* 41, 145–151. (Problem 5–100)
- Porter JA, von Kessler DP, Ekker SC, Young KE, Lee JJ, Moses K & Beachy PA (1995) The product of *hedgehog* autoproteolytic cleavage active in local and long-range signaling. *Nature* 374, 363–366. (Problems 15–150, 15–151, and 15–152)
- Potter H & Dressler D (1976) On the mechanism of genetic recombination: electron microscopic observation of recombination intermediates. *Proc. Natl Acad. Sci. U.S.A.* 73, 3000–3004. (Problem 5–95)
- Powell LM, Wallis SC, Pease RJ, Edwards YH, Knott TJ & Scott J (1987) A novel form of tissue-specific RNA processing produces apolipoprotein-B48 in intestine. *Cell* 50, 831–840. (Problem 7–115)
- Prescott DM (1975) *Reproduction of Eucaryotic Cells*, pp 85–86. New York: Academic Press. (Problem 17–10)
- Prober DA & Edgar BA (2001) Growth regulation by oncogenes—new insights from model organisms. *Curr. Opin. Genet. Dev.* 11, 19–26. (Problem 17–143)
- Prunell A, Kornberg RD, Lutter L, Klug A, Levitt M & Crick FH (1979) Periodicity of deoxyribonuclease I digestion of chromatin. *Science* 204, 855–858. (Problem 4–54)
- Ptashne M & Gann A (2002) *Genes & Signals*, pp 75–76. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press. (Problem 7–54)
- Ptashne M (1986) *A Genetic Switch: Gene Control and Phage λ* , p 114. Oxford, UK: Blackwell Scientific Press. (Problem 7–25)
- Purdue PE, Allsop J, Isaya G, Rosenberg LE & Danpure CJ (1991) Mistargeting of peroxisomal L-alanine:glyoxylate aminotransferase to mitochondria in primary hyperoxaluria patients depends upon activation of a cryptic mitochondrial targeting sequence caused by a point mutation. *Proc. Natl Acad. Sci. U.S.A.* 88, 10900–10904. (Problem 12–91)
- Pytela R, Pierschbacher MD & Ruoslahti E (1985) Identification and isolation of a 140 kd cell surface glycoprotein with properties expected of a fibronectin receptor. *Cell* 40, 191–198. (Problem 19–86)
- Quelle DE, Zindy F, Ashmun RA & Sherr CJ (1995) Alternative reading frames of the *INK4a* tumor suppressor gene encode two unrelated proteins capable of inducing cell cycle arrest. *Cell* 83, 993–1000. (Problem 20–56)
- Racker E & Stoerkenius W (1974) Reconstitution of purple membrane vesicles catalyzing light-driven proton uptake and adenosine triphosphate formation. *J. Biol. Chem.* 249, 662–663. (Problem 14–21)
- Rao PN & Johnson RT (1970) Mammalian cell fusion: I. Studies on the regulation of DNA synthesis and mitosis. *Nature* 225, 159–164. (Problem 17–14)
- Rappaport R (1986) Establishment of the mechanism of cytokinesis in animal cells. *Int. Rev. Cytol.* 105, 245–281. (Problem 17–115)
- Rash JE, Yasumura T, Hudson CS, Agre P & Nielsen S (1998) Direct immunogold labeling of aquaporin-4 in square arrays of astrocyte and ependymocyte plasma membranes in rat brain and spinal cord. *Proc. Natl Acad. Sci. U.S.A.* 95, 11981–11986. (Problem 9–48)
- Rasko JEJ, Battini J-L, Kruglyak L, Cox DR & Miller AD (2000) Precise gene localization by phenotypic assay of radiation hybrid cells. *Proc. Natl Acad. Sci. U.S.A.* 97, 7388–7392. (Problem 8–12)
- Ren R, Mayer BJ, Cicchetti P & Baltimore D (1993) Identification of a ten-amino-acid proline-rich SH3 binding site. *Science* 259, 1157–1161. (Problem 15–119)
- Reuveny E, Slesinger PA, Inglese J, Morales JM, Iniguez-Lluhi JA, Lefkowitz RJ, Bourne HR, Jan YN & Jan LY (1994) Activation of the cloned muscarinic potassium channel by G protein β subunits. *Nature* 370, 143–146. (Problem 15–97)
- Ribbeck K, Lipowsky G, Kent HM, Stewart M & Görlich D (1998) NTF2 mediates nuclear import of Ran. *EMBO J.* 17, 6587–6598. (Problem 12–55)
- Richardson HE, Wittenberg C, Cross F & Reed SI (1989) An essential G_1 function for cyclin-like proteins in yeast. *Cell* 59, 1127–1133. (Problem 17–37)
- Rief M, Gutel M, Oesterhelt F, Fernandez JM & Gaub HE (1997) Reversible folding of individual titin immunoglobulin domains by AFM. *Science* 276, 1109–1112. (Problem 3–43)
- Roeder RG (1974) Multiple forms of deoxyribonucleic acid-dependent ribonucleic acid polymerase in *Xenopus laevis*. Isolation and partial characterization. *J. Biol. Chem.* 249, 241–248. (Problem 6–40)
- Roger AJ, Svard SG, Tovar J, Clark CG, Smith MW, Gillin FD & Sogin ML (1998) A mitochondrial-like chaperonin 60 gene in *Giardia lamblia*: Evidence that diplomonads once harbored an endosymbiont related to the progenitor of mitochondria. *Proc. Natl Acad. Sci. U.S.A.* 95, 229–234. (Problem 1–45)
- Rohatgi R, Ma L, Miki H, Lopez M, Kirchhausen T, Takenawa T & Kirschner MW (1999) The interaction between N-WASP and the Arp2/3 complex links Cdc42-dependent signals to actin assembly. *Cell* 97, 221–231. (Problems 16–113 and 16–114)
- Roth DB, Porter TN & Wilson JH (1985) Mechanisms of nonhomologous recombination in mammalian cells. *Mol. Cell. Biol.* 5, 2599–2607. (Problem 5–86)
- Rothman JE & Dawidowicz EA (1975) Asymmetric exchange of vesicle phospholipids catalyzed by the phosphatidylcholine exchange protein. Measurement of inside–outside transitions. *Biochemistry* 14, 2809–2816. (Problem 12–133)

- Rothman JE, Miller RL & Urbani LJ (1984) Intercompartmental transport in the Golgi complex is a dissociative process: facile transfer of membrane protein between two Golgi populations. *J. Cell Biol.* 99, 260–271. (Problem 13–59)
- Rousselet A, Guthmann C, Matricon J, Bienvenue A & Devaux PF (1976) Study of the transverse diffusion of spin labeled phospholipids in biological membranes: 1. Human red blood cells. *Biochim. Biophys. Acta* 426, 357–371. (Problem 10–28, Problem 10–32)
- Royzman I, Austin RJ, Bosco G, Bell SP & Orr-Weaver TL (1999) ORC localization in *Drosophila* follicle cells and the effects of mutations in *dE2F* and *dDP*. *Genes Dev.* 13, 827–840. (Problem 5–62)
- Ruffner DE, Sprung CN, Minghetti PP, Gibbs PEM & Dugaiczky A (1987) Invasion of the human albumin- α -fetoprotein gene family by *Alu*, *Kpn*, and two novel repetitive DNA elements. *Mol. Biol. Evol.* 4, 1–9. (Problem 4–101)
- Ruoslahti E & Pierschbacher MD (1986) Arg-Gly-Asp: a versatile cell recognition signal. *Cell* 44, 517–518. (Problem 19–86)
- Russo AF & Koshland DE (1983) Separation of signal transduction and adaptation functions of the aspartate receptor in bacterial sensing. *Science* 220, 1016–1020. (Problem 15–133)
- Sack RL, Brandes RW, Kendall AR & Lewy AJ (2000) Entrainment of free-running circadian rhythms by melatonin in blind people. *N. Engl. J. Med.* 343, 1114–1116. (Problem 7–80)
- Sadowski HB, Shuai K, Darnell JE & Gilman MZ (1993) A common nuclear signal transduction pathway activated by growth factor and cytokine receptors. *Science* 261, 1739–1744. (Problem 15–131)
- Safer B, Kemper W & Jagus R (1978) Identification of a 48S preinitiation complex in reticulocyte lysate. *J. Biol. Chem.* 253, 3384–3386. (Problem 6–80)
- Sakmann B (1992) Elementary steps in synaptic transmission revealed by currents through single ion channels. *Science* 256, 503–512. (Problems 11–88 and 11–92)
- Sanes JR (2003) The basement membrane/basal lamina of skeletal muscle. *J. Biol. Chem.* 278, 12601–12604. (Problems 19–51 and 19–54)
- Sasaki H, Matsui C, Furuse K, Mimori-Kiyosue Y, Furuse M, & Tsukita S (2003) Dynamic behavior of paired claudin strands within apposing plasma membranes. *Proc. Natl Acad. Sci. U.S.A.* 100, 3971–3976. (Problem 19–35)
- Sasaki T, Fassler R & Hohenester E (2004) Laminin: the crux of basement membrane assembly. *J. Cell Biol.* 164, 959–963. (Problem 19–56)
- Satir P & Matsuoka T (1989) Splitting the ciliary axoneme: implications for a “switch-point” model of dynein arm activity in ciliary motion. *Cell Motil. Cytoskel.* 14, 345–358. (Problem 16–94)
- Sawadogo M & Roeder RG (1985) Factors involved in specific transcription by human RNA polymerase II: analysis by a rapid and quantitative *in vitro* assay. *Proc. Natl Acad. Sci. U.S.A.* 82, 4394–4398. (Problems 6–35 and Problem 6–39)
- Sawadogo M & Roeder RG (1985) Interaction of a gene-specific transcription factor with the adenovirus major late promoter upstream of the TATA box region. *Cell* 43, 165–175. (Problem 7–63)
- Scheidereit C, Geisse S, Westphal HM & Beato M (1983) The glucocorticoid receptor binds to defined nucleotide sequences near the promoter of mouse mammary tumor virus. *Nature* 304, 749–752. (Problem 15–48)
- Schibler U (2000) Heartfelt enlightenment. *Nature* 404, 25–28. (Problem 7–89)
- Schleif RF (1986) Genetics and Molecular Biology, Chap. 13. Reading, MA: Addison Wesley. (Problem 7–59)
- Schubert U, Antón LC, Gibbs J, Norbury CC, Yewdell JW & Binnik JR (2000) Rapid degradation of a large fraction of newly synthesized proteins by proteasomes. *Nature* 404, 770–774. (Problem 6–97)
- Schwoebel ED, Talcott B, Cushman I & Moore MS (1998) Ran-dependent signal-mediated nuclear import does not require GTP hydrolysis by Ran. *J. Biol. Chem.* 273, 35170–35175. (Problem 12–56)
- Service RF (2004) Immune cells speed the evolution of novel proteins. *Science* 306, 1457. (Problem 9–26)
- Shah R, Cosstick R & West SC (1997) The RuvC protein dimer resolves Holliday junctions by a dual incision mechanism that involves base-specific contacts. *EMBO J.* 16, 1464–1472. (Problem 5–101)
- Shapiro SD, Endicott SK, Province MA, Pierce JA & Campbell EJ (1991) Marked longevity of human lung parenchymal elastic fibers deduced from prevalence of D-aspartate and nuclear weapons-related radiocarbon. *J. Clin. Invest.* 87, 1828–1834. (Problem 19–82)
- Shea TB & Yabe J (2000) Occam's razor slices through the mysteries of neurofilament axonal transport: Can it really be so simple? *Traffic* 1, 522–523. (Problem 16–110)
- Shibahara K & Stillman B (1999) Replication-dependent marking of DNA by PCNA facilitates CAF-1-coupled inheritance of chromatin. *Cell* 96, 575–585. (Problem 5–65)
- Shimamoto N (1999) One-dimensional diffusion of proteins along DNA. *J. Biol. Chem.* 274, 15293–15296. (Problem 7–32)
- Shtilerman M, Lorimer GH & Englander SW (1999) Chaperonin function: Folding by forced unfolding. *Science* 284, 822–825. (Problem 6–96)
- Sickles DW, Pearson JK, Beall A & Testino A (1994) Toxic axonal degeneration occurs independent of neurofilament accumulation. *J. Neurosci. Res.* 39, 347–354. (Problem 16–28)
- Siegel RM, Chan FK-M, Chun HJ & Lenardo MJ (2000) The multifaceted role of Fas signaling in immune cell homeostasis and autoimmunity. *Nat. Immunol.* 1, 469–474. (Problem 18–22)
- Sinn E, Muller W, Pattengale P, Tepler I, Wallace R & Leder P (1987) Coexpression of MMTV/*v-Ha-ras* and MMTV/*c-myc* genes in transgenic mice: synergistic action of oncogenes *in vivo*. *Cell* 49, 465–475. (Problem 20–57)
- Sjoblom T et al. (2006) The consensus coding sequences of human breast and colorectal cancers. *Science* 314, 268–274. (Problem 20–44)
- Skibbens RV, Corson LB, Koshland D & Hieter P (1999) Ctf7 is essential for sister chromatid cohesion and links mitotic chromosome structure to the DNA replication machinery. *Genes Dev.* 13, 307–319. (Problem 17–50)
- Skop AR, Bergmann D, Mohler WA & White JG (2001) Completion of cytokinesis in *C. elegans* requires a brefeldin A-sensitive membrane accumulation at the cleavage furrow apex. *Curr. Biol.* 11, 735–746. (Problem 17–116)
- Sloboda RD, Dentler WL & Rosenbaum JL (1976) Microtubule-associated proteins and the stimulation of tubulin assembly *in vitro*. *Biochemistry* 15, 4497–4505. (Problem 16–36)
- Sluder G & Rieder CL (1985) Centriole number and the reproductive capacity of spindle poles. *J. Cell Biol.* 100, 887–896. (Problem 17–91)
- Smeekens S, Bauerle C, Hageman J, Keegstra K & Weisbeek P (1986) The role of the transit peptide in the routing of precursors toward different chloroplast compartments. *Cell* 46, 365–375. (Problem 12–87)
- Smith HT, Ahmed AJ & Millet F (1981) Electrostatic interaction of cytochrome *c* with cytochrome *c*₁ and cytochrome oxidase. *J. Biol. Chem.* 256, 4984–4990. (Problem 14–62)
- Söllner T, Whiteheart SW, Brunner M, Erdjument-Bromage H, Geromanos S, Tompsett P & Rothman JE (1993) SNAP receptors implicated in vesicle targeting and fusion. *Nature* 362, 318–324. (Problem 13–34)
- Sonoda N, Furuse M, Sasaki H, Yonemura S, Katahira J, Horiguchi Y & Tsukita S (1999) *Clostridium perfringens* enterotoxin fragment removes specific claudins from tight junction strands: evidence for direct involvement of claudins in tight junction barrier. *J. Cell Biol.* 147, 195–204. (Problem 19–34)
- Spierer A & Spierer P (1984) Similar levels of polyteny in bands and interbands of *Drosophila* giant chromosomes. *Nature* 307, 176–178. (Problem 4–83)
- Stanners CP & Till JE (1960) DNA synthesis in individual L-strain mouse cells. *Biochim. Biophys. Acta* 37, 406–419. (Problem 17–20)
- Stanojevic D, Small S & Levine M (1991) Regulation of a segmentation stripe by overlapping activators and repressors in the *Drosophila* embryo. *Science* 254, 1385–1387. (Problem 7–67)
- Stare FJ & Baumann CA (1936) The effect of fumarate on respiration. *Proc. R. Soc. Lond.* B121, 338–357. (Problem 2–126)

- Ogelstein B & Kinzler KW (2004) Cancer genes and the pathways they control. *Nat. Med.* 10, 789–798. (Problem 20–39)
- Poljtek AB, Hollenberg SM & Cooper JA (1993) Mammalian Ras interacts directly with the serine/threonine kinase Raf. *Cell* 74, 205–214. (Problems 8–47, 8–48, and 8–49)
- Vollrath D, Nathans J & Davis RW (1988) Tandem array of human visual pigment genes at Xq28. *Science* 240, 1669–1671. (Problem 4–52)
- Wahl GM, Padgett RA & Stark GR (1979) Gene amplification causes overproduction of the first three enzymes of UMP synthesis in *N*-(phosphonacetyl)-L-aspartate (PALA)-resistant hamster cells. *J. Biol. Chem.* 254, 8679–8689. (Problem 3–97)
- Walker RA, Inoué S & Salmon ED (1989) Asymmetric behavior of severed microtubule ends after ultraviolet-microbeam irradiation of individual microtubules *in vitro*. *J. Cell Biol.* 108, 931–937. (Problem 16–19)
- Walworth NC, Goud B, Kabcenell AK & Novick PJ (1989) Mutational analysis of *SEC4* suggests a cyclical mechanism for the regulation of vesicular traffic. *EMBO J.* 8, 1685–1693. (Problem 13–35)
- Wang L, Cunningham JM, Winters JL, Guenther JC, French AJ, Boardman LA, Burgart LJ, McDonnell SK, Schaid DJ & Thibodeau SN (2003) *B-Raf* mutations in colon cancer are not likely attributable to defective DNA mismatch repair. *Cancer Res.* 63, 5209–5212. (Problem 20–53)
- Wang YH & Griffith J (1995) Expanded CTG triplet repeat blocks from the myotonic dystrophy gene create the strongest known natural nucleosome positioning elements. *Genomics* 25, 570–573. (Problem 4–43)
- Ward GE & Kirschner MW (1990) Identification of cell cycle-related phosphorylation sites on nuclear lamin C. *Cell* 61, 561–577. (Problem 16–39)
- Warrell RP Jr, de The H, Wand ZY & Degos (1993) Acute promyelocytic leukemia. *N. Engl. J. Med.* 329, 177–189. (Problem 20–66)
- Wasserman WJ & Masui Y (1975) Effects of cycloheximide on a cytoplasmic factor initiating meiotic maturation in *Xenopus* oocytes. *Exp. Cell Res.* 91, 381–388. (Problem 17–34)
- Watson CJ, Rowland M & Warhurst G (2001) Functional modeling of tight junctions in intestinal cell monolayers using polyethylene glycol oligomers. *Am. J. Physiol. Cell Physiol.* 281, C388–C397. (Problem 19–31)
- Webb MR, Grubmeyer C, Penefsky HS & Trentham DR (1980) The stereochemical course of phosphoric residue transfer catalyzed by beef heart mitochondrial ATPase. *J. Biol. Chem.* 255, 11637–11639. (Problem 14–30)
- Wei MC, Zong W-X, Cheng EH-Y, Lindsten T, Panoutsakopoulou V, Ross AJ, Roth KA, MacGregor GR, Thompson CB & Korsmeyer SJ (2001) Proapoptotic BAX and BAK: A requisite gateway to mitochondrial dysfunction and death. *Science* 292, 727–730. (Problems 18–19, 18–25, and 18–26)
- Weinberg RA (2006) *The Biology of Cancer*, p726. New York: Garland Science. (Problem 20–65)
- Weinert TA & Hartwell LH (1988) The *rad9* gene controls the cell cycle response to DNA damage in *Saccharomyces cerevisiae*. *Science* 241, 317–322. (Problem 17–141)
- Weinrich SL, Pruzan R, Ma L, Ouellette M, Tesmer VM, Holt SE, Bodnar AG, Lichtsteiner S, Kim NW, Trager JB, Taylor RD, Carlos R, Andrews WH, Wright WE, Shay JW, Harley CB & Morin GB (1997) Reconstitution of human telomerase with the template RNA component hTR and the catalytic protein subunit hTERT. *Nat. Genet.* 17, 498–502. (Problem 17–136)
- Weintraub H & Groudine M (1976) Chromosomal subunits in active genes have an altered conformation. *Science* 193, 848–856. (Problem 4–68)
- Welch MD, Rosenblatt J, Skoble J, Portnoy DA & Mitchison TJ (1998) Interaction of human Arp2/3 complex and the *Listeria monocytogenes* ActA protein in actin filament nucleation. *Science* 281, 105–108. (Problem 16–65)
- Whitehouse I, Flaus A, Cairns BR, White MF, Workman JL & Owen-Hughes T (1999) Nucleosome mobilization catalysed by the yeast SWI/SNF complex. *Nature* 400, 784–787. (Problem 4–57)
- Whitmore D, Foulkes NS & Sassone-Corsi P (2000) Light acts directly on organs and cells in culture to set the vertebrate circadian clock. *Nature* 404, 87–91. (Problem 7–90)
- Wickens M, Goodwin EB, Kimble J, Strickland S & Hentze M (2000) Translational control of developmental decisions. In *Translational Control of Gene Expression* (N Sonenberg, JWB Hershey, MB Mathews eds), pp 295–370. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press. (Problem 7–118)
- Wilmut I, Schnieke AE, McWhir J, Kind AJ & Campbell KHS (1997) Viable offspring derived from fetal and adult mammalian cells. *Nature* 385, 810–813. (Problem 7–11)
- Wilson SM, Yip R, Swing DA, O'Sullivan TN, Zhang Y, Novak EK, Swank RT, Russell LB, Copeland NG & Jenkins NA (2000) A mutation in *Rab27* causes the vesicle transport defects observed in *ashen* mice. *Proc. Natl Acad. Sci. U.S.A.* 97, 7933–7938. (Problem 13–75)
- Wilson T & Treisman R (1988) Removal of poly(A) and consequent degradation of *c-fos* mRNA facilitated by 3' AU-rich sequences. *Nature* 336, 396–399. (Problem 7–117)
- Winter CG, Wang B, Ballew A, Royou A, Karess R, Axelrod JD & Luo L (2001) *Drosophila* Rho-associated kinase (Drok) links Frizzled-mediated planar cell polarity signaling to the actin cytoskeleton. *Cell* 105, 81–91. (Problem 15–145)
- Witke W, Schleicher M & Noegel AA (1992) Redundancy in the microfilament system: abnormal development of *Dictyostelium* cells lacking two F-actin cross-linking proteins. *Cell* 68, 53–62. (Problem 16–67)
- Wolf S, Deom CM, Beachy RN & Lucas WJ (1989) Movement protein of tobacco mosaic virus modifies plasmodesmal size exclusion limit. *Science* 246, 377–379. (Problem 19–45)
- Wolff B, Sanglier J-J & Wang Y (1997) Leptomycin B is an inhibitor of nuclear export: inhibition of nucleocytoplasmic translocation of the human immunodeficiency virus type 1 (HIV-1) Rev protein and Rev-dependent mRNA. *Chem. Biol.* 4, 139–147. (Problem 12–57)
- Wolffe AP & Brown DD (1986) DNA replication *in vitro* erases a *Xenopus* 5S RNA gene transcription complex. *Cell* 47, 217–227. (Problem 7–91)
- Workman JL & Roeder RG (1987) Binding of transcription factor TFIID to the major late promoter during *in vitro* nucleosome assembly potentiates subsequent initiation by RNA polymerase II. *Cell* 51, 613–622. (Problem 7–65)
- Wyrick JJ, Holstege FC, Jennings EG, Causton HC, Shore D, Grunstein M, Lander ES & Young RA (1999) Chromosomal landscape of nucleosome-dependent gene expression and silencing in yeast. *Nature* 402, 418–421. (Problem 4–72)
- Xeros N (1962) Deoxyriboside control and synchronization of mitosis. *Nature* 194, 682–683. (Problem 17–14)
- Xu T, Ashery U, Burgoyne RD & Neher E (1999) Early requirement for a-SNAP and NSF in the secretory cascade in chromaffin cells. *EMBO J.* 18, 3293–3304. (Problem 13–119)
- Yabe JT, Pimenta A & Shea TB (1999) Kinesin-mediated transport of neurofilament protein oligomers in growing axons. *J. Cell Sci.* 112, 3799–3814. (Problem 16–110)
- Yalow RS (1978) Radioimmunoassay: a probe for the fine structure of biological systems. *Science* 200, 1236–1245. (Problem 15–42)
- Yamano H, Tsurumi C, Gannon J & Hunt T (1998) The role of the destruction box and its neighbouring lysine residues in cyclin B for anaphase ubiquitin-dependent proteolysis in fission yeast: defining the D-box receptor. *EMBO J.* 17, 5670–5678. (Problem 6–98)
- Yanofsky C (2001) Advancing our knowledge in biochemistry, genetics, and microbiology through studies on tryptophan metabolism. *Annu. Rev. Biochem.* 70, 1–37. (Problem 2–127)
- Yao M-C, Zhu S-G & Yao C-H (1985) Gene amplification in *Tetrahymena thermophila*: formation of extrachromosomal palindromic gene coding for rRNA. *Mol. Cell. Biol.* 5, 1260–1267. (Problem 8–92)
- Ybe JA, Brodsky FM, Hofmann K, Lin K, Liu SH, Chen L, Earnest TN, Fletterick RJ & Hwang RK (1999) Clathrin self-assembly is mediated by a tandemly repeated superhelix. *Nature* 399, 371–375. (Problem 13–19)
- Yen TJ, Machlin PS & Cleveland DW (1988) Autoregulated instability of β -tubulin mRNAs by recognition of the nascent amino terminus of β -tubulin. *Nature* 334, 580–585. (Problem 7–116)
- Yoon M, Moir RD, Prahlad V & Goldman RD (1998) Motile properties of vimentin intermediate filament networks in living cells. *J. Cell Biol.* 143, 147–157. (Problem 16–38)

- Yoshida H, Kong Y-Y, Yoshida R, Elia AJ, Hakem A, Hakem R, Penninger JM & Mak TW (1998) Apaf1 is required for mitochondrial pathways of apoptosis and brain development. *Cell* 94, 739-750. (Problem 18-20)
- Zagotta WN, Hoshi T & Aldrich RW (1990) Restoration of inactivation in mutants of *shaker* potassium channels by a peptide derived from ShB. *Science* 250, 568-570. (Problem 11-82)
- Zagouras P & Rose JK (1989) Carboxy-terminal SEKDEL sequences retard but do not retain two secretory proteins in the endoplasmic reticulum. *J. Cell Biol.* 109, 2633-2640. (Problem 13-52)
- Zahringer J, Baliga BS & Munro HN (1976) Novel mechanism for translational control in regulation of ferritin synthesis by iron. *Proc. Natl Acad. Sci. U.S.A.* 73, 857-861. (Problem 7-111)
- Zecca M, Basler K & Struhl G (1995) Sequential organizing activities of engrailed, hedgehog and decapentaplegic in the *Drosophila* wing. *Development* 121, 2265-2278. (Problem 17-143)
- Zerangue N, Malan MJ, Fried SR, Dazin PE, Jan YN, Jan LY & Schwappach B (2001) Analysis of endoplasmic reticulum trafficking signals by combinatorial screening in mammalian cells. *Proc. Natl Acad. Sci. U.S.A.* 98, 2431-2436. (Problem 13-49)
- Zhang X-F, Settleman J, Kyriakis JM, Takenchi-Suzuki E, Elledge SJ, Marshall MS, Bruder JT, Rapp UR & Avruch J (1993) Normal and oncogenic p21^{ras} proteins bind to the amino-terminal domain of c-Raf-1. *Nature* 364, 308-313. (Problems 8-48 and 8-49)
- Zhao C, Takita J, Tanaka Y, Setou M, Nakagawa T, Takeda S, Yang HW, Terada S, Nakata T, Takei Y, Saito M, Tsuji S, Hayashi Y & Hirokawa N (2001) Charcot-Marie-Tooth disease type 2A caused by mutation in a microtubule motor KIF1Bβ. *Cell* 105, 587-597. (Problem 16-101)
- Zhen L, Jiang S, Feng L, Bright NA, Peden AA, Seymour AB, Novak EK, Elliott R, Gorin MB, Robinson MS & Swank RT (1999) Abnormal expression and subcellular distribution of subunit proteins of the AP-3 adaptor complex lead to platelet storage pool deficiency in the *pearl* mouse. *Blood* 94, 146-155. (Problem 13-71)
- Zheng Y, Wong ML, Alberts B & Mitchison TJ (1995) Nucleation of microtubule assembly by a γ -tubulin-containing ring complex. *Nature* 378, 578-583. (Problem 16-63)
- Zhuang Y & Weiner AM (1986) A compensatory base change in U1 snRNA suppresses a 5' splice site mutation. *Cell* 46, 827-835. (Problem 6-44)
- Zieg J, Silverman M, Hilmen M & Simon M (1977) Recombinational switch for gene expression. *Science* 196, 170-172. (Problem 7-87)
- Zimmet J & Ravid K (2000) Polyploidy: occurrence in nature, mechanisms, and significance for the megakaryocyte-platelet system. *Exp. Hematol.* 28, 3-16. (Problem 17-118)
- Zindy F, Williams RT, Baudino TA, Reh JE, Skapek SX, Cleveland JL, Roussel MF & Sherr CJ (2003) *Arf* tumor suppressor promoter monitors latent oncogenic signals *in vivo*. *Proc. Natl Acad. Sci. U.S.A.* 100, 15930-15935. (Problem 20-56)
- Zinkel SS & Crothers DM (1987) DNA bend direction by phase sensitive detection. *Nature* 328, 178-181. (Problem 7-33)