

# BS2150: Applications Of Molecular Genetics In Biology

View Online



---

[1]

G. Rowe, M. Sweet, and T. J. C. Beebee, *An Introduction to Molecular Ecology*, 3rd Edition. Oxford: Oxford University Press, 2017.

[2]

T. A. Brown, *Genomes 3*, 3rd ed. New York: Garland Science, 2007.

[3]

T. A. Brown, *Genomes 4*, Fourth edition. New York: Garland Science, 2018.

[4]

D. S. T. Nicholl, *An Introduction to Genetic Engineering*, 3rd Edition. Cambridge: Cambridge University Press, 2008.

[5]

D. S. T. Nicholl, *An Introduction to Genetic Engineering*, 3rd Edition. Cambridge: Cambridge University Press, 2008 [Online]. Available:  
<https://www-dawsonera-com.ezproxy01.rhul.ac.uk/abstract/9780511568053>

[6]

S. B. Primrose and R. M. Twyman, *Principles of Gene Manipulation and Genomics*, 7th Edition. Malden, Massachusetts: Blackwell, 2006.

[7]

S. B. Primrose and R. Twyman, Principles of Gene Manipulation and Genomics, 7th Edition. Hoboken: Wiley, 2009 [Online]. Available: <https://www-dawsonera-com.ezproxy01.rhul.ac.uk/abstract/9781444309096>

[8]

T. Strachan, A. P. Read, and T. Strachan, Human Molecular Genetics, 4th Edition. New York: Garland Science, 2011.

[9]

'Human Genome Announcement at the White House'. 2000 [Online]. Available: <https://www.youtube.com/watch?v=sIRyGLmt3qc>

[10]

'UCSC Genome Browser Home'. [Online]. Available: <https://genome.ucsc.edu/>

[11]

'EMBL-EBI Gene Ensembl'. [Online]. Available: <http://www.ensembl.org/index.html>

[12]

'Home - Genome - NCBI'. [Online]. Available: <http://www.ncbi.nlm.nih.gov/genome/>

[13]

'OMIM - Online Mendelian Inheritance in Man'. [Online]. Available: <http://www.omim.org/>

[14]

'Erratum: Initial Sequencing and Analysis of the Human Genome', *Nature*, vol. 411, no. 6838, pp. 720–720, 2001, doi: 10.1038/35079657.

[15]

J. C. Venter, 'The Sequence of the Human Genome', *Science*, vol. 291, no. 5507, pp. 1304–1351, 2001, doi: 10.1126/science.1058040.

[16]

A. Grada and K. Weinbrecht, 'Next-Generation Sequencing: Methodology and Application', *Journal of Investigative Dermatology*, vol. 133, no. 8, pp. 1–4, 2013, doi: 10.1038/jid.2013.248. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0022202X15363831?via%3Dihub>

[17]

L. Koch, 'Genomics: Adding Another Dimension to Gene Regulation', *Nature Reviews Genetics*, vol. 16, no. 10, pp. 563–563, 2015, doi: 10.1038/nrg4007.

[18]

H. Chial, 'Human Genome Project: Sequencing the Human Genome | Learn Science at Scitable', *Nature Education*, vol. 1, no. 1, pp. 219–219, 2008 [Online]. Available: <http://www.nature.com/scitable/topicpage/dna-sequencing-technologies-key-to-the-human-828>

[19]

'Pyrosequencing Technology and Platform Overview - QIAGEN'. [Online]. Available: <https://www.qiagen.com/gb/resources/technologies/pyrosequencing-resource-center/technology-overview/>

[20]

'The Pyrosequencing Reaction Cascade System'. 2014 [Online]. Available: <https://www.youtube.com/watch?v=bNKEhOGvcal>

[21]

'International Service for the Acquisition of Agri-biotech Applications'. [Online]. Available: <http://www.isaaa.org/>

[22]

H. J. Schouten, F. A. Krens, and E. Jacobsen, 'Cisgenic Plants Are Similar to Traditionally Bred Plants: International Regulations for Genetically Modified Organisms Should Be Altered to Exempt Cisgenesis', *EMBO reports*, vol. 7, no. 8, pp. 750–753, 2006, doi: 10.1038/sj.embor.7400769.

[23]

C. Espinoza et al., 'Cisgenesis and Intragenesis: New Tools for Improving Crops', *Biological Research*, vol. 46, no. 4, pp. 323–331, 2013, doi: 10.4067/S0716-97602013000400003.

[24]

P. Ahmad et al., 'Role of Transgenic Plants in Agriculture and Biopharming', *Biotechnology Advances*, vol. 30, no. 3, pp. 524–540, 2012, doi: 10.1016/j.biotechadv.2011.09.006.

[25]

'Recent Debate on GMOs | Standard Media'. 2015 [Online]. Available: <http://www.standardmedia.co.ke/ktnhome/video/watch/2000097876/the-gmo-debate-continues>

[26]

C. James, 'ISAAA Report on Global Status of Biotech/GM Crops'. ISAAA International Service for the Acquisition Of Agri-biotech Applications (ISAAA) <http://www.isaaa.org>, 2014 [Online]. Available: <https://www.isaaa.org/resources/publications/briefs/49/pptslides/pdf/B49-Slides-English.pdf>

[27]

J. Napier and D. Tocher, 'Alpha & Omega: Making Omega-3 Fish Oils in GM Camelina Plants'.

[28]

W. Klümper and M. Qaim, 'A Meta-Analysis of the Impacts of Genetically Modified Crops', PLoS ONE, vol. 9, no. 11, 2014, doi: 10.1371/journal.pone.0111629.

[29]

'The Golden Rice Project'. [Online]. Available: <http://www.goldenrice.org/>

[30]

N. Gilbert, 'Case Studies: A Hard Look at GM Crops', Nature, vol. 497, no. 7447, pp. 24-26, 2013, doi: 10.1038/497024a.

[31]

'GMWatch Home'. [Online]. Available: <http://gmwatch.org/>

[32]

'Greenpeace UK'. [Online]. Available: <http://www.greenpeace.org.uk/>

[33]

'Soil Association'. [Online]. Available: <https://www.soilassociation.org/>

[34]

'Anti-GMO Groups - United States | GMO Awareness'. [Online]. Available: <https://gmo-awareness.com/resources/anti-gmo-groups-america/>

[35]

'Say NO to GM - Alliance for Natural Health International'. [Online]. Available: <http://anhinternational.org/campaign/say-no-to-gm/>

[36]

'The Future of Food'. [Online]. Available: <http://www.thefutureoffood.com/About.html>

[37]

H. J. Klee, Y. M. Muskopf, and C. S. Gasser, 'Cloning of an Arabidopsis Thaliana Gene Encoding 5-Enolpyruvylshikimate-3-Phosphate Synthase: Sequence Analysis and Manipulation to Obtain Glyphosate-Tolerant Plants', *MGG Molecular & General Genetics*, vol. 210, no. 3, pp. 437-442, 1987, doi: 10.1007/BF00327194.

[38]

R. L. Nussbaum, R. R. McInnes, and H. F. Willard, *Thompson & Thompson Genetics in Medicine*, 8th Edition. Philadelphia: Elsevier, 2016.

[39]

R. L. Nussbaum, R. R. McInnes, and H. F. Willard, *Thompson & Thompson Genetics in Medicine*. [Online]. Available: <https://ebookcentral.proquest.com/lib/rhul/detail.action?docID=2074362>

[40]

B. Kaltenboeck and C. Wang, 'Advances in Real-Time PCR: Application to Clinical Laboratory Diagnostics', *Advances in Clinical Chemistry*, vol. 40, pp. 219-259, 2005, doi: 10.1016/S0065-2423(05)40006-2.

[41]

M. M. Rahman, K. K. Wong, H. Alfizah, S. Hussin, and I. Isahak, 'Influenza and Respiratory Syncytial Viruses: Efficacy of Different Diagnostic Assays', *Pakistan Journal of Medical Sciences*, vol. 31, no. 4, pp. 791-794, 1969, doi: 10.12669/pjms.314.7003. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pubmed/26430404>

[42]

'Guidance for Clinicians on the Use of RT-PCR and Other Molecular Assays for Diagnosis of Influenza Virus Infection | Health Professionals | Seasonal Influenza (Flu)'. [Online]. Available: <http://www.cdc.gov/flu/professionals/diagnosis/molecular-assays.htm>

[43]

S. J. Williamson et al., 'Metagenomic Exploration of Viruses Throughout the Indian Ocean', PLoS ONE, vol. 7, no. 10, 2012, doi: 10.1371/journal.pone.0042047.

[44]

S. Istrail and G. G. Sutton, 'Whole-Genome Shotgun Assembly and Comparison of Human Genome Assemblies', Proceedings of the National Academy of Sciences of the United States of America, vol. 101, no. 7, pp. 1916–1921, 2004 [Online]. Available: [http://www.jstor.org/stable/3371370?seq=1#page\\_scan\\_tab\\_contents](http://www.jstor.org/stable/3371370?seq=1#page_scan_tab_contents)

[45]

'What Are Genome-Wide Association Studies? - Genetics Home Reference'. [Online]. Available: <https://ghr.nlm.nih.gov/primer/genomicresearch/gwastudies>

[46]

N. Cai, 'Sparse Whole-Genome Sequencing Identifies Two Loci for Major Depressive Disorder', Nature, vol. 523, no. 7562, pp. 588–591, 2015, doi: 10.1038/nature14659.

[47]

R. M. Durbin, 'A Map of Human Genome Variation From Population-Scale Sequencing', Nature, vol. 467, no. 7319, pp. 1061–1073, 2010, doi: 10.1038/nature09534.

[48]

T. A. Brown, 'Molecular Phylogenetics', in Genomes 3, 3rd Edition., New York: Garland Science, 2007, pp. 609–620.

[49]

Z. Wang, M. Gerstein, and M. Snyder, 'RNA-Seq: A Revolutionary Tool for Transcriptomics', *Nature Reviews Genetics*, vol. 10, no. 1, pp. 57–63, 2009, doi: 10.1038/nrg2484.

[50]

J. Tovar, A. Fischer, and C. G. Clark, 'The Mitosome, a Novel Organelle Related to Mitochondria in the Amitochondrial Parasite *Entamoeba Histolytica*', *Molecular Microbiology*, vol. 32, no. 5, pp. 1013–1021, 1999, doi: 10.1046/j.1365-2958.1999.01414.x.

[51]

A. Regoes, D. Zourmpanou, G. León-Avila, M. van der Giezen, J. Tovar, and A. B. Hehl, 'Protein Import, Replication, and Inheritance of a Vestigial Mitochondrion', *Journal of Biological Chemistry*, vol. 280, no. 34, pp. 30557–30563, 2005, doi: 10.1074/jbc.M500787200.

[52]

M. M. Leger et al., 'Organelles That Illuminate the Origins of *Trichomonas* Hydrogenosomes and *Giardia* Mitosomes', *Nature Ecology & Evolution*, vol. 1, no. 92, 2017, doi: 10.1038/s41559-017-0092.

[53]

H. C. Betts, M. N. Puttick, J. W. Clark, T. A. Williams, P. C. J. Donoghue, and D. Pisani, 'Integrated Genomic and Fossil Evidence Illuminates Life's Early Evolution and Eukaryote Origin', *Nature Ecology & Evolution*, vol. 2, no. 10, pp. 1556–1562, 2018, doi: 10.1038/s41559-018-0644-x.

[54]

P. L. Jedelský et al., 'The Minimal Proteome in the Reduced Mitochondrion of the Parasitic Protist *Giardia intestinalis*', *PLoS ONE*, vol. 6, no. 2, 2011, doi: 10.1371/journal.pone.0017285.

[55]



E. Martincová, 'Probing the Biology of Giardia intestinalis Mitosomes Using In Vivo Enzymatic Tagging [open access]', *Molecular and Cellular Biology*, vol. 35, no. 16, pp. 2864–2874, 2015 [Online]. Available: <https://mcb.asm.org/content/35/16/2864.long>

[56]

L. Voleman, 'Giardia Intestinalis Mitosomes Undergo Synchronized Fission but Not Fusion and Are Constitutively Associated With the Endoplasmic Reticulum', *BMC Biology*, vol. 15, no. 1, 2017, doi: 10.1186/s12915-017-0361-y.

[57]

G. Rowe, M. Sweet, and T. Beebee, 'Mutation Rates', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[58]

G. Rowe, M. Sweet, and T. Sweet, 'mtDNA and rRNA', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[59]

G. Rowe, M. Sweet, and T. Beebee, 'Microsatellites', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[60]

T. A. Brown, 'Replication Slippage', in *Genomes 3*, 3rd Edition., New York: Garland Science, 2007, pp. 511–511.

[61]

G. Rowe, M. Sweet, and T. Beebee, 'Identifying Relatives in Behavioural Ecology', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[62]

E. Leadbeater, J. M. Carruthers, J. P. Green, N. S. Rosser, and J. Field, 'Nest Inheritance Is the Missing Source of Direct Fitness in a Primitively Eusocial Insect', *Science*, vol. 333, no. 6044, pp. 874–876, 2011, doi: 10.1126/science.1205140.

[63]

G. Rowe, M. Sweet, and T. Beebee, 'Assignment Tests', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[64]

A. Gunn, 'DNA Profiling', in *Essential Forensic Biology*, 2nd Edition., Oxford: Wiley-Blackwell, 2008, pp. 88–91.

[65]

T. A. Brown, 'Microarrays', in *Genomes 3*, 3rd Edition., New York: Garland Science, 2007, pp. 169–175.

[66]

'The Genetics of Society | The Scientist Magazine'. [Online]. Available: <http://www.the-scientist.com/?articles.view/articleNo/41704/title/The-Genetics-of-Society/>

[67]

J. Tovar, S. Wilkinson, J. C. Mottram, and A. H. Fairlamb, 'Evidence That Trypanothione Reductase Is an Essential Enzyme in *Leishmania* by Targeted Replacement of the Trya Gene Locus', *Molecular Microbiology*, vol. 29, no. 2, pp. 653–660, 1998, doi: 10.1046/j.1365-2958.1998.00968.x.

[68]

S. Krieger, 'Trypanosomes Lacking Trypanothione Reductase Are Avirulent and Show Increased Sensitivity to Oxidative Stress', *Molecular Microbiology*, vol. 35, no. 3, pp. 542–552, 2002, doi: 10.1046/j.1365-2958.2000.01721.x.

[69]

N. G. Jones, C. M. C. Catta-Preta, A. P. C. A. Lima, and J. C. Mottram, 'Genetically Validated Drug Targets in Leishmania: Current Knowledge and Future Prospects', *ACS Infectious Diseases*, vol. 4, no. 4, pp. 467–477, 2018, doi: 10.1021/acsinfecdis.7b00244. [Online]. Available: <http://eprints.whiterose.ac.uk/129477/1/acsinfecdis.7b00244.pdf>

[70]

M. H. Wright, 'Validation of N-Myristoyltransferase as an Antimalarial Drug Target Using an Integrated Chemical Biology Approach', *Nature Chemistry*, vol. 6, no. 2, pp. 112–121, 2014, doi: 10.1038/nchem.1830.

[71]

A. C. Schlott, A. A. Holder, and E. W. Tate, 'Myristoylation as a Drug Target in Malaria: Exploring the Role of -Myristoyltransferase Substrates in the Inhibitor Mode of Action', *ACS Infectious Diseases*, vol. 4, no. 4, pp. 449–457, 2018, doi: 10.1021/acsinfecdis.7b00203. [Online]. Available: <https://pubs.acs.org/doi/abs/10.1021/acsinfecdis.7b00203>

[72]

Z. Wang, M. Gerstein, and M. Snyder, 'RNA-seq: A Revolutionary Tool for Transcriptomics', *Nature Reviews Genetics*, vol. 10, no. 1, pp. 57–63, 2009, doi: 10.1038/nrg2484.

[73]

G. Rowe, M. Sweet, and T. Beebee, 'DNA Barcoding', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[74]

G. Rowe, M. Sweet, and T. Beebee, 'Prey ID', in *An Introduction to Molecular Ecology*, Third edition., Oxford: Oxford University Press, 2017.

[75]

J. R. Freeland, H. Kirk, and S. Petersen, 'Predators and Prey', in *Molecular Ecology*, 2nd

Edition., Oxford: Wiley-Blackwell, 2011, pp. 309–313.

[76]

J. R. Freeland, H. Kirk, and S. Petersen, 'Predators and Prey', in *Molecular Ecology*, 2nd ed., 1st impression., Oxford: Wiley-Blackwell, 2011, pp. 309–313 [Online]. Available: <http://doi.wiley.com/10.1002/9780470979365.ch7>

[77]

R. Urwin and M. C. J. Maiden, 'Multi-Locus Sequence Typing: A Tool for Global Epidemiology', *Trends in Microbiology*, vol. 11, no. 10, pp. 479–487, 2003, doi: 10.1016/j.tim.2003.08.006.

[78]

T. Strachan, A. P. Read, and T. Strachan, 'Genetic Mapping of Mendelian Characters', in *Human Molecular Genetics*, 4th Edition., New York: Garland Science, 2011, pp. 441–467.

[79]

T. Strachan, A. P. Read, and T. Strachan, 'Mapping Genes Conferring Susceptibility to Complex Diseases', in *Human Molecular Genetics*, 4th Edition., New York: Garland Science, 2011, pp. 467–493.

[80]

T. Strachan, A. P. Read, and T. Strachan, 'Identifying Human Disease Genes and Susceptibility Factors', in *Human Molecular Genetics*, 4th Edition., New York: Garland Science, 2011, pp. 497–536.

[81]

M. Slatkin, 'Linkage Disequilibrium - Understanding the Evolutionary Past and Mapping the Medical Future', *Nature Reviews Genetics*, vol. 9, no. 6, pp. 477–485, 2008, doi: 10.1038/nrg2361.

[82]

E. S. Lander, 'Initial Impact of the Sequencing of the Human Genome', *Nature*, vol. 470, no. 7333, pp. 187–197, 2011, doi: 10.1038/nature09792.

[83]

T. Strachan, A. P. Read, and T. Strachan, 'Genetic Approaches to Treating Disease', in *Human Molecular Genetics*, 4th Edition., New York: Garland Science, 2011, pp. 677–718.

[84]

D. Escors and K. Breckpot, 'Lentiviral Vectors in Gene Therapy: Their Current Status and Future Potential', *Archivum Immunologiae et Therapiae Experimentalis*, vol. 58, no. 2, pp. 107–119, 2010, doi: 10.1007/s00005-010-0063-4.

[85]

E. P. Hoffman et al., 'Restoring Dystrophin Expression in Duchenne Muscular Dystrophy Muscle', *The American Journal of Pathology*, vol. 179, no. 1, pp. 12–22, 2011, doi: 10.1016/j.ajpath.2011.03.050. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3124804/>

[86]

Y. S. Chun, K. Byun, and B. Lee, 'Induced Pluripotent Stem Cells and Personalized Medicine: Current Progress and Future Perspectives', *Anatomy & Cell Biology*, vol. 44, no. 4, pp. 245–255, 2011, doi: 10.5115/acb.2011.44.4.245.

[87]

T. J. Kindt, B. A. Osborne, R. A. Goldsby, and J. Kuby, *Immunology*, 6th ed. New York: W. H. Freeman, 2007.

[88]

S. Sadanand, 'Vaccination: The Present and the Future', *Yale Journal Of Biology And Medicine*, 2011. [Online]. Available:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3238332/>

[89]

““Different Types of Vaccines” on History of Vaccines Website’. [Online]. Available: <http://www.historyofvaccines.org/content/articles/different-types-vaccines>

[90]

““Types of Vaccines” on History of Vaccines Website’. [Online]. Available: <http://www.historyofvaccines.org/content/types-vaccines>

[91]

““The Human Immune System and Infectious Disease” on History of Vaccines Website’. [Online]. Available: <http://www.historyofvaccines.org/content/articles/human-immune-system-and-infectious-disease>

[92]

““The Future of Immunization” on History of Vaccines Website’. [Online]. Available: <http://www.historyofvaccines.org/content/articles/future-immunization>

[93]

““The Development of HIV Vaccines” on History of Vaccines Website’. [Online]. Available: <http://www.historyofvaccines.org/content/articles/development-hiv-vaccines>

[94]

S. Boseley, ““First British volunteer injected with trial Ebola vaccine in Oxford” on The Guardian Website’, 2014. [Online]. Available: <https://www.theguardian.com/society/2014/sep/17/ruth-atkins-first-british-volunteer-injected-trial-ebola-vaccine-oxford>

[95]

H. Daniell, N. D. Singh, H. Mason, and S. J. Streatfield, 'Plant-Made Vaccine Antigens and Biopharmaceuticals', *Trends in Plant Science*, vol. 14, no. 12, pp. 669–679, 2009, doi: 10.1016/j.tplants.2009.09.009.

[96]

J. C. Small and H. C. J. Ertl, 'Viruses - From Pathogens to Vaccine Carriers', *Current Opinion in Virology*, vol. 1, no. 4, pp. 241–245, 2011, doi: 10.1016/j.coviro.2011.07.009.

[97]

D. Serruto and R. Rappuoli, 'Post-Genomic Vaccine Development', *FEBS Letters*, vol. 580, no. 12, pp. 2985–2992, 2006, doi: 10.1016/j.febslet.2006.04.084.

[98]

H. Daniell, N. D. Singh, H. Mason, and S. J. Streatfield, 'Plant-Made Vaccine Antigens and Biopharmaceuticals', *Trends in Plant Science*, vol. 14, no. 12, pp. 669–679, 2009, doi: 10.1016/j.tplants.2009.09.009.

[99]

J. C. Small and H. C. J. Ertl, 'Viruses From Pathogens to Vaccine Carriers', *Current Opinion in Virology*, vol. 1, no. 4, pp. 241–245, 2011, doi: 10.1016/j.coviro.2011.07.009.