Appendix: Internet Links for Interphase Molecular Cytogeneticists

Abstract In the final chapter, "Appendix," we have provided a list of Internet sites that are highly useful for those working in the field of interphase molecular cytogenetics. The collection includes sites dedicated to cytogenetics (molecular cytogenetics), clinical aspects of diseases studied by molecular cytogenetic techniques, retrieving scientific (biomedical) literature, and bioinformatic analysis (including resources allowing gene prioritization and pathway analysis, genome browsers, and analyzing tools). The inclusion was performed according to our own experience and reported relevance to genome and chromosome research based on data acquired during molecular cytogenetic analyses. It is clearly impossible to list all the links that are of importance for a scientist whose activity is related to studying genome (chromosome) structure and behavior in interphase. In this instance, we encourage the readers to follow the links provided by the listed resources.

Introduction

To list Internet sites relevant to the field of interphase molecular cytogenetics, we preferred to subdivide the list according to the main modes of application. We also provide references to papers describing the resource (if applicable) and to journals that are publishing papers dedicated to interphase chromosome analyses. However, one has to keep in mind that the provided sites are not all specifically dedicated to interphase cytogenetics. On the other hand, these are almost indispensable to be addressed when a study of genome (chromosome) structure and behavior in interphase at a high technological level is performed. A brief example of the use of in silico (bioinformatic) methods in a study almost completely dedicated to interphase chromosome behavior and variations and its relevance to more general biological processes can be found in Iourov et al. (2009). Finally, these sites are included to the present chapter (Appendix) according to our own experience and reported relevance to genome and chromosome research based on data acquired during molecular cytogenetic analyses. All the links were tested in November 2012.

Y.B. Yurov et al. (eds.), *Human Interphase Chromosomes: Biomedical Aspects,*
DOI 10.1007/978-1-4614-6558-4, © Springer Science+Business Media, LLC 2013

Cytogenetics: Chromosome Abnormalities (Including Cancer Cytogenetic Databases)

arrayMap (genomic arrays for copy number profiling in human cancer) (Cai et al. 2012): http://www.arraymap.org/cgi-bin/amHome.cgi

Atlas of genetics and cytogenetics in oncology and haematology (Huret et al. 2012): http://atlasgeneticsoncology.org/

Chromosomal Variation in Man or Borgaonkar DS. Chromosomal Variation in Man: A Catalog of Chromosomal Variants and Anomalies: Online NLM Version. Bethesda (MD): National Center for Biotechnology Information (US); 1975: http://www.ncbi.nlm.nih.gov/books/NBK105441/ and http://www.wiley.com/legacy/products/subject/life/borgaonkar/access.html

Chromosome Anomaly Collection (managed by Dr John Barber): http://www.ngrl.org.uk/wessex/collection/

CyDAS (drawing derivative chromosomes online) (Hiller et al. 2005): http://www.cydas.org/OnlineAnalysis/

Cytogenetic Gallery (a scholar website for cytogeneticists): http://www.pathology.washington.edu/galleries/Cytogallery/

DECIPHER—database of unbalanced chromosome aberrations (Firth et al. 2009): http://decipher.sanger.ac.uk/

ECARUCA European Cytogeneticists Association Register of Unbalanced Chromosome Aberrations (Feenstra et al. 2006): http://umcecaruca01.extern.umcn.nl:8080/ecaruca/ecaruca.jsp

Mitelman Database of Chromosome Aberrations and Gene Fusions in Cancer: http://cgap.nci.nih.gov/Chromosomes/Mitelman

NCI and NCBI's SKY/M-FISH and CGH Database (2001): http://www.ncbi.nlm.nih.gov/sky/skyweb.cgi

Progenetix (database of cytogenetic abnormalities in cancer) (Baudis 2007): http://www.progenetix.de/progenetix/index.html

Small supernumerary marker chromosomes (sSMC) homepage (managed by Dr. T. Liehr): http://www.med.uni-jena.de/fish/sSMC/00START.htm

Clinical Databases

Autism Chromosome Rearrangement Database (Marshall et al. 2008): http://projects.tcag.ca/autism/

GeneReviews™ or Pagon RA, Bird TD, Dolan CR, et al., editors. GeneReviews™. Seattle, WA: University of Washington, Seattle; 1993: http://www.ncbi.nlm.nih.gov/books/NBK1116/

Genetics Home Reference (consumer-friendly information about the effects of genetic variations on human health): http://ghr.nlm.nih.gov/

MedGen (organizes information related to human medical genetics, such as attributes of conditions with a genetic contribution): http://www.ncbi.nlm.nih.gov/medgen/

OMIM (online Mendelian inheritance in man): http://www.omim.org/

ORPHANET (the portal for rare diseases and orphan drugs): http://www.orpha.net

The Phenotype-Genotype Integrator (PheGenI): http://www.ncbi.nlm.nih.gov/gap/PheGenI

SFARI Gene/AutDB (a publicly available, curated, web-based, searchable database for autism research) (Basu et al. 2009): http://www.mindspec.org/autdb.html

UNIQUE (rare chromosome disorder support group): http://www.rarechromo.org/html/home.asp

FISH and Array CHG-Based Techniques (Including Pages Containing Information About DNA Probes)

A general compilation of links to molecular cytogenetics resources and beyond (the last chapter of the *Fluorescence In Situ Hybridization (FISH): Application Guide*, Edited by Dr. T. Liehr): http://www.springer.com/life+sciences/cell+biology/book/978-3-540-70580-2

ArrayCyGHt (a web-based application tool for analysis and visualization of array-CGH data) (Kim et al. 2005): http://genomics.catholic.ac.kr/arrayCGH/

CHORI BACPAC resources (Children's Hospital & Research Center Oakland; Dr. P. De Jong): http://bacpac.chori.org/about.htm

CCAP BAC Clones (Cancer Genome Anatomy Project, NCI): http://cgap.nci.nih.gov/Chromosomes/CCAP_BAC_Clones

e-FISH (an in-silico FISH simulation tool): http://projects.tcag.ca/efish/

Genomic Clone Database (The Centre for Applied Genomics and The Hospital for Sick Children, Toronto): http://projects.tcag.ca/gcd

The International Standards for Cytogenomic Arrays (ISCA) Consortium: https://www.iscaconsortium.org/

Multicolor FISH database (managed by Dr. T. Liehr): http://www.fish.uniklinikum-jena.de/mFISH.html

NCBI Probe/Probe Database (a public registry of nucleic acid reagents designed for use in a wide variety of biomedical research applications, with information on reagent distributors, probe effectiveness, and computed sequence similarities): http://www.ncbi.nlm.nih.gov/probe

Resources for molecular cytogenetics: http://www.biologia.uniba.it/rmc/

Scitable by Nature Education—Cytogenetics—FISH: http://www.nature.com/scitable/topic/chromosomes-and-cytogenetics-7 http://www.nature.com/scitable/topicpage/fluorescence-in-situ-hybridization-fish-327

University of Kansas Medical Center compilation of links to cytogenetic (molecular cytogenetic) resources: http://www.kumc.edu/gec/prof/cytogene.html

Genome, Epigenome and Pathway Analyzing Tools (Including Genome Browsers, Bioinformatic Tools for Gene Prioritization and Pathway Analysis)

AmiGO browser (Gene Ontology project browser and search engine): http://amigo.geneontology.org/cgi-bin/amigo/go.cgi

BioGPS (a free extensible and customizable gene annotation portal, a complete resource for learning about gene and protein function; The Scripps Research Institute) (Wu et al. 2009): http://biogps.org

A Catalog of Published Genome-Wide Association Studies (NHGRI) (Hindorff et al. 2009): http://www.genome.gov/gwastudies/

ENDEAVOUR (a gene prioritization tool) (Tranchevent et al. 2008): http://homes.esat.kuleuven.be/~bioiuser/endeavour/tool/endeavourweb.php

Ensembl Genome Browser: http://www.ensembl.org/index.html

Gene Expression Omnibus (GEO): http://www.ncbi.nlm.nih.gov/geo/

The Gene Wiki (Wikipedia-based gene annotation portal) (Huss et al. 2010): http://en.wikipedia.org/wiki/Portal:Gene_Wiki

Gene Wanderer (a gene prioritization tool using interactome) (Köhler et al. 2008): http://compbio.charite.de/genewanderer/GeneWanderer

KEGG or Kyoto Encyclopedia of Genes and Genomes (source for understanding high-level functions and utilities of the biological system): http://www.genome.jp/kegg/
NCBI BioSystems Database (access to biological systems and their component genes, proteins, and small molecules, as well as literature describing those biosystems and other related data): http://www.ncbi.nlm.nih.gov/biosystems
NCBI Build 37.1/NCBI Map Viewer (*Homo sapiens*, Annotation Release 104): http://www.ncbi.nlm.nih.gov/projects/mapview/map_search.cgi?taxid=9606
NCBI Gene (a record may include nomenclature, RefSeqs, maps, pathways, variations, phenotypes, and links to genome-, phenotype-, and locus-specific resources worldwide): http://www.ncbi.nlm.nih.gov/gene/
Pathway Commons (maintained by Memorial Sloan-Kettering Cancer Center and the University of Toronto.): http://www.pathwaycommons.org/pc/
REACTOME (manually curated and peer-reviewed pathway database) (Vastrik et al. 2007): www.reactome.org/
UCSC Genome Browser: http://genome.ucsc.edu/
UniHI (interactome analysis tool) (Chaurasia et al. 2007): http://www.unihi.org/

Genomic Variation Databases

Database of Genomic Variants (hosted by the Centre for Applied Genomics): http://dgvbeta.tcag.ca/dgv/app/home?ref=GRCh37/hg19
Database of genomic structural variation (dbVar) http://www.ncbi.nlm.nih.gov/dbvar/
Human Genome Structural Variation Project (Structural Variation Database) (managed by Eichlerlab) http://humanparalogy.gs.washington.edu/structuralvariation/
Human Genome Variation Society: http://www.hgvs.org/dblist/dblist.html

Biomedical Literature (Including Websites Allowing Acquiring Scientific Information Through the Entire World Wide Web)

PubMed: http://www.ncbi.nlm.nih.gov/pubmed
ScienceDirect—Elsevier: (>11 million full-text journal articles and book chapters): http://www.sciencedirect.com/
SCIRUS (for scientific information only; searches more than 545 million science-specific web pages): http://scirus.com/
Scopus (easy and comprehensive resource to support the research needs in the scientific, technical, medical, and social sciences fields): http://www.scopus.com/home.url
Springer (contains nearly six million resources): http://link.springer.com/
Wiley onli ne library: http://onlinelibrary.wiley.com/
HighWire Stanford University: http://highwire.stanford.edu/
BioMed Central The Open Access Publisher: http://www.biomedcentral.com/
Web of Knowledge (Thompson Reuters/impact factor): http://apps.webofknowledge.com
Google Scholar: http://scholar.google.com/
To this end, we found pertinent to provide a list of journals that publish research in interphase molecular cytogenetics. The inclusion was made according to ratio of numbers of interphase cytogenetics papers to the overall number of papers. Journals are sorted by relevance; those journals that have ceased to publish are excluded.
Molecular Cytogenetics: http://www.molecularcytogenetics.org/

Chromosoma: http://link.springer.com/journal/412
Chromosome Research: http://link.springer.com/journal/10577
Journal of Cell Biology: http://jcb.rupress.org/
Journal of Cell Science: http://jcs.biologists.org/
Genes,ChromosomesandCancer:http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291098-2264;jsessionid=14F5A0A05993373860006F087881472C.d01t04
Experimental Cell Research: http://www.journals.elsevier.com/experimental-cell-research/
Molecular Biology of the Cell: http://www.molbiolcell.org/
Molecular and Cell Biology: http://mcb.asm.org/
Cytogenetic and Genome Research: http://content.karger.com/ProdukteDB/produkte.asp?Aktion=JournalHome&ProduktNr=224037
Journal of Histochemistry and Cytochemistry: http://jhc.sagepub.com/
Human Genetics: http://www.springer.com/biomed/human+genetics/journal/439
The American Journal of Human Genetics: http://www.cell.com/AJHG/
Human Molecular Genetics: http://hmg.oxfordjournals.org/
BioDiscovery: http://www.biodiscoveryjournal.co.uk/
Current Genomics: http://www.benthamscience.com/cg/
Methods in Molecular Biology: http://www.springer.com/series/7651
PLoS One: http://www.plosone.org/
Cell: http://www.cell.com/home
Nature Cell Biology: www.nature.com/ncb/
Prenatal Diagnosis: http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291097-0223
Mutation Research: http://www.elsevier.com/journals/mutation-research-full-set/FS00-0289
Journal of Cellular Physiology: http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291097-4652
Journal of Medical Genetics: http://jmg.bmj.com/
Genes & Development: http://genesdev.cshlp.org/
PNAS USA: http://www.pnas.org/
Cancer Research: http://cancerres.aacrjournals.org/

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Y.B. Yurov et al. (eds.), *Human Interphase Chromosomes: Biomedical Aspects,*
DOI 10.1007/978-1-4614-6558-4, © Springer Science+Business Media, LLC 2013