

# Sex Chromosomes Variant

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News

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*Big Steps Towards Plant Breeding's Holy Grail: Apomixis - Seed World*

**Can Rett syndrome occur in males? - Medical News Today**  
**Scientists Unveil the First Complete Sequence of the Y**

## **Chromosome - Singularity Hub**

Newly identified sex chromosomes in the Sphagnum (peat moss ... - Nature.com

*Fragile, unfaithful and persistent Ys—on how meiosis can shape sex ... - Nature.com*

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Why Biological Sex Is Not the Same as Gender - Psychology Today  
*A rat study on the PTEN expression in ovarian tissue in PCOS and ... - Nature.com*

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*Epigenetics and evolution: 'the significant biological puzzle' of sexual orientation - The Guardian*

*Assessing the recovery of Y chromosome microsatellites with ... - Nature.com*

Yale-led Team Creates Comprehensive Resource for Impact of ... - Yale School of Medicine

*Every base everywhere all at once: pangenomics comes of age - Nature.com*

A novel approach to risk exposure and epigenetics—the use of ... - BMC Medicine

*What is the inheritance pattern for hemophilia? - Medical News Today*

Proteins roll the dice to determine bee sex - Science Daily

Valuable insights into drivers of cancer risk - Science Daily

*Single-cell profiling of Anopheles gambiae spermatogenesis defines ... - Nature.com*

**Paralog transcriptional differentiation in the D. melanogaster-specific ... - Nature.com**

**Neanderthal introgression in SCN9A impacts mechanical pain ... - Nature.com**

**Dynamics of transposable element accumulation in the non ... - Nature.com**

*To Understand Sex, We Need to Ask the Right Questions - Scientific American*

Age-related loss of chromosome Y is associated with levels of sex ... - Science

A high-quality genome assembly highlights the evolutionary history ... - Nature.com

**Turner Syndrome With Isochromosome Structural Abnormalities: A ... - Cureus**

**Understanding the Sex Binary - City Journal**

**Biological and substitute parents in Beaker period adult-child ... - Nature.com**

Noncoding variants alter GATA2 expression in rhombomere 4 motor ... - Nature.com

*Comparative studies of X chromosomes in Cervidae family ... - Nature.com*

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**People with increased genetic risk of Alzheimer's may lose sense of ... - Science Daily**

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*Nuclear genetic control of mtDNA copy number and heteroplasmy in ... - Nature.com*

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**HerpSexDet: the herpetological database of sex determination and ... - Nature.com**

Rapid gene content turnover on the germline-restricted chromosome ... - Nature.com

A cryptic microdeletion del(12)(p11.21p11.23) within an unbalanced ... - Nature.com

XX Male: Early Detection With Prenatal Testing - Cureus

**Lipid Metabolism-Related Genes as diagnostic COPD indicators ... - Dove Medical Press**

**A polygenic explanation for Haldane's rule in butterflies ... - pnas.org**

**What are the causes of Rett syndrome? - Medical News Today**

**Robertsonian fusion triggers recombination suppression on sex ... - Nature.com**

*A complex genomic architecture underlies reproductive isolation in a ... - Nature.com*

**Commission welcomes passage of new ACT intersex laws - Australian Human Rights Commission**

**SG Reviews: Unfair Play: The Battle for Women's Sport by Sharron ... - Sports Gazette**

**Age-dependent sex differences in non-stenotic intracranial plaque of ... - Nature.com**

**A DBHS family member regulates male determination in the filariasis ... - Nature.com**

**UC Santa Cruz scientists contribute to release of first complete sequence of a human Y chromosome - Lookout Santa Cruz**

**Researchers develop new method for prenatal genetic testing - Science Daily**

**The Akron Legal News - Akron Legal News**

**Gene discovery sheds light on ovary development - News-Medical.Net**

Characterization of loss of chromosome Y in peripheral blood cells ... - BMC Psychiatry

*X-chromosome variants help explain autism's sex bias - Spectrum - Autism Research News*

**What Evolutionary Biology Can and Can't Tell Us About Sex, Gender ... - The MIT Press Reader**

**Chromosomal copy number variation predicts EGFR-TKI | PGPM - Dove Medical Press**

Accurate rare variant phasing of whole-genome and whole-exome ... - Nature.com

Deficiency of histone variant macroH2A1.1 is associated with ... - Nature.com

**Sex-linked gene traffic underlies the acquisition of sexually ... - pnas.org**

**Autosomal inheritance: Dominant vs. recessive disorders - Medical News Today**

Y chromosome discovery could advance personalised medicine - Drug Target Review

*Disproportionate percentage of females with unexplained infertility ... - Jagwire - Augusta*

*Whither Queer Biology? On Richard O. Prum's "Performance All the ... - lareviewofbooks*

**Plasma proteomic associations with genetics and health in the UK ... - Nature.com**

Evolution of a ZW sex chromosome system in willows - Nature.com

**Completed Y Chromosome Sequences Offer Look at Repeat ... - GenomeWeb**

**The Extra X: How the Sex Chromosome Affects Autoimmunity Risk - The Scientist**

Aneuploidy effects on human gene expression across three cell ... - pnas.org

Exome sequencing identifies breast cancer susceptibility genes and ... - Nature.com

Mosaic chromosomal alterations in blood across ancestries using ... - Nature.com

**Book excerpt: "Nobody Needs to Know," an intersex individual's memoir - CBS News**

**Tests for associations between sexual dimorphism and patterns of ... - Nature.com**

Evidence for involvement of the alcohol consumption WDPCP gene ... - Nature.com

Why put all your eggs in one basket? Evolutionary perspectives on ... - Nature.com

**The Y Chromosome Is Going To Disappear, Scientists Say - Newsweek**

**Shared and distinct genetic etiologies for different types of clonal ... - Nature.com**

Human subsistence and signatures of selection on chemosensory ... - Nature.com

A draft human pangenome reference - Nature.com

Dosage of the pseudoautosomal gene SLC25A6 is implicated in ... - Nature.com

**Y chromosome sequence and epigenomic reconstruction across ... - Nature.com**

**Sequence variants affecting the genome-wide rate of germline ... - Nature.com**

*Aneuploidy during development in facultative parthenogenetic ... - Nature.com*

**Genotyping, sequencing and analysis of 140,000 adults from Mexico ... - Nature.com**

**Y chromosome-linked variation affects locomotor activity in male ... - Nature.com**

*In vivo versus in silico assessment of potentially pathogenic ... - pnas.org*

Variants in SART3 cause a spliceosomopathy characterised by ... - Nature.com

**Identification and validation of candidate clinical signatures of ... - Nature.com**

**Sex Chromosomes** - Ursula  
Mittwoch 2014-06-28

Sex Chromosomes focuses on the study of sex chromosomes, including human chromosomal abnormalities, behavior and characteristics of

chromosomes, and cell division. The book first offers information on the chromosomal basis of sex determination, as well as development of the cell theory, mitosis, fertilization, meiosis,

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and discovery of sex chromosomes. The publication also ponders on the mitosis, meiosis, and formation of gametes. Discussions focus on the special characteristics of sex chromosomes, abnormalities of cell division, and sexual differentiation. The manuscript reviews sex chromosomes in plants, *Drosophila*, and *Lepidoptera*. The book also examines sex-chromosome mechanisms that differ the classic type; sex chromosomes in fishes, amphibia, reptiles, and birds; and sex chromosomes in man. Discussions focus on normal human sex chromosomes, Turner's syndrome, Klinefelter's syndrome, true hermaphrodites, testicular feminization, and pseudohermaphrodites. Sex chromosomes in mammals other than man, including monotremata, marsupialia, insectivora, rodentia, and carnivora, are discussed. The publication is a dependable reference for readers interested in the study of sex chromosomes.

The Evolution of Suppressed Recombination in the Sex Chromosomes of *Microbotryum*  
- Jessica Lee Abbate 2007

### **Mechanisms of Insertion and Deletion Mutations** -

Erika Marit Kvikstad 2009  
Despite substantial progress in understanding the molecular mechanisms of origin for nucleotide substitutions, at present we have only a rudimentary understanding of these processes for insertions and deletions. Such knowledge is important because almost a third of all mutations in the Human Gene Mutation Database (<http://www.hgmd.org/>) are insertions and deletions (indels). Here we use the tools of bioinformatics, statistics and comparative genomics to study indel mutagenesis in detail. We have established a novel computational pipeline to accurately detect insertions and deletions in whole-genome human-chimpanzee alignments using the macaque sequence as an outgroup. This platform has allowed us to address several

key questions pertaining to the formation of indels. In particular, this dissertation is organized around three specific questions: 1. What determines the variation in small insertion and deletion rates across the human genome? Genomic factors delineated here distinguish insertion vs. deletion mutagenesis. 2. What are the specific local contexts that contribute to rate differences in small insertions vs. deletions? Specific local sequences are hypothesized to facilitate indel mutations, and to differ between insertions and deletions. 3. What is the mechanism(s) contributing to the observed distribution of transposable elements (TEs) on primate sex chromosomes? Comparisons of sex chromosomes vs. autosomes (combining both their sequence features and retrotransposition history) serve to narrow the alternative scenarios for the evolution of the observed distribution. Results from this research directly contribute to understanding the biological basis for insertion and deletion

mutagenesis, with its implications for human genetic diseases. In addition, it aids in the development of improved gap modeling, which is crucial for improving alignment methodology and thus the accuracy of inferences regarding genome evolution. [Investigation of Genomic DNA Copy Number Variation on the Human Sex Chromosomes Associated with Genetic Pathologies](#) - Alexandra Karcianas 2008

**X Marks the Spot** - Jonathan Ryan Gibson 2000

*Genetics of Sex Differentiation* - Ursula Mittwoch 2012-12-02  
*Genetics of Sex Differentiation* intends to help readers understand the genetic basis of sex differentiation. The book focuses on explaining how the sex chromosomes affect the process of sex differentiation by influencing the rates at which cells divide. The book is composed of seven chapters. It provides overviews of classical genetics and structure of cells. It also explains the



chromosomal basis of sex determination and sex determination using *Drosophila*. Polygenetics and continuous and quasicontinuous variations are also discussed. The book also discusses sex factors, determination, and disorders. Moreover, it explains the heterochromatin, embryological basis of sex differentiation, and triploidy and autosomal effects. In addition, it discusses the relationship of genes, chromosomes, growth, and sex. The book is an excellent "bedside book" for students in biology, specifically in genetics and developmental biology. Lecturers and professionals in biology and genetics will also find this book invaluable for their practice.

**Splitting the Sexes** - Aivars Cirulis 2022

The evolution of gonochorism from hermaphroditism can be gradual by increasing investment in one sex role while decreasing in the other, or rapid through the fixation of sex-role sterility mutations,

eventually leading to the evolution of sex chromosomes. It is expected that the transition will involve a temporary state of gynodioecy or androdioecy as the mutations are not expected to take place at the same time. If the first mutation is a dominant female-sterility mutation, later accompanied by a recessive male sterility mutation, then an XY sex chromosome system evolves, while the opposite combination of mutations will result in a ZW system. Later on sexually antagonistic (SA) genes can be linked to the newly established sex-determining regions on the sex chromosomes. This is followed by recombination arrest in the region, so that the inheritance pattern is sex-limited for all these sex-specific genes. However, the lack of recombination leads to degeneration of the genetic content on the sexlimited chromosomes, since recombination is important for repairing mutations. Nevertheless, recombination arrest does not necessarily

mean a dead-end for the sex-limited chromosomes. As our understanding of the very early stages of sex chromosome evolution is mainly based on theory and comparative evidence, we developed a system which we hoped would make it possible to observe in real time what happens after the acquisition of a new sex-determining gene. We used a previously established green fluorescent protein (GFP) line of the simultaneous hermaphrodite *Macrostomum lignano*. We used the GFP locus as a dominant sterility mutation, which is inherited in a Mendelian fashion. By allowing the GFP allele to be inherited only through sperm, we created male-limited selection lines (resembling the early stages in XY chromosome evolution), and by allowing the GFP allele to be inherited only through egg cells, we created female-limited selection lines (resembling the early stages in ZW chromosome evolution). We also created control lines, where the inheritance pattern was equally mixed. After tens

of generations, we investigated how these lines have responded on the level of the genome, the transcriptome, and the phenotype. We sequenced genomes and analysed changes in SNP frequency and structural variant (SV) distribution in pairwise comparisons to see changes across the genome, but particularly on the scaffold where the GFP is located. We also sequenced transcriptomes and performed pairwise comparisons to detect differentially expressed genes, and analysed significant GO terms and KEGG pathways to see how the gene regulation has changed. Besides genomic analyses, we also looked at how mating behaviour (copulation frequency and duration, as well as probability of post-copulatory sucking behaviour) and sexual anatomy (gonad size and morphology of the male copulatory organ called stylet) has changed. We observed that the female-selected lines seemed to have responded the most at the genomic level. For example,

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the number of significantly differentially expressed transcripts was largest between the female-selected lines and the control lines. These changes seemed to involve downregulation of testes-biased genes. In addition, we observed the highest number of SVs in the female-selected lines, which could be related to changes in recombination rate. In contrast, the male-selected lines seemed to have responded the most at the phenotypic level, since we observed a decrease in the ovary size and body size in the male-selected lines, as well as behavioural changes that may be related to changes in the ejaculate. Both sex-specific selection regimes showed evidence of alterations in the shape of the stylet. Based on these results, we can conclude that our worms have indeed responded to the sex-limited selection in a way that is generally consistent with our expectations from other young sex chromosome systems. The evidence of a decrease in the

testes function in the female-selected lines resembles adaptation towards gynodioecy, and the evidence of a decrease in the ovary size in the male-selected lines resembles adaptation towards androdioecy.

*Population Cytogenetics* - Bernard John 1976

Some basic genetic principles; Stability and change in the chromosome system; Chromosome variation in natural populations; Chromosome variation in natural populations; Chromosome change and evolutionary change; Population genetics and population cytogenetics.

**Chromosomal Evolution in Plants** - Martin A. Lysak  
2021-09-28

**Methods and Models for the Analysis of Genetic Variation Across Species Using Large-scale Genomic Data** - Tanya Ngoc Phung 2018  
Understanding how different evolutionary processes shape genetic variation within and between species is an

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important question in population genetics. The advent of next generation sequencing has allowed for many theories and hypotheses to be tested explicitly with data. However, questions such as what evolutionary processes affect neutral divergence (DNA differences between species) or genetic variation in different regions of the genome (such as on autosomes versus sex chromosomes) or how many genetic variants contribute to complex traits are still outstanding. In this dissertation, I utilized different large-scale genomic datasets and developed statistical methods to determine the role of natural selection on genetic variation between species, sex-biased evolutionary processes on shaping patterns of genetic variation on the X chromosome and autosomes, and how population history, mutation, and natural selection interact to control complex traits. First, I used genome-wide divergence data between multiple pairs of species ranging in divergence time to show that natural

selection has reduced divergence at neutral sites that are linked to those under direct selection. To determine explicitly whether and to what extent linked selection and/or mutagenic recombination could account for the pattern of neutral divergence across the genome, I developed a statistical method and applied it to human-chimp neutral divergence dataset. I showed that a model including both linked selection and mutagenic recombination resulted in the best fit to the empirical data. However, the signal of mutagenic recombination could be coming from biased gene conversion. Comparing genetic diversity between the X chromosome and the autosomes could provide insights into whether and how sex-biased processes have affected genetic variation between different genomic regions. For example, X/A diversity ratio greater than neutral expectation could be due to more X chromosomes than expected and could be a result of mating practices such

as polygamy where there are more reproducing females than males. I next utilized whole-genome sequences from dogs and wolves and found that  $X/A$  diversity is lower than neutral expectation in both dogs and wolves in ancient time-scales, arguing for evolutionary processes resulting in more males reproducing compared to females. However, within breed dogs, patterns of population differentiation suggest that there have been more reproducing females, highlighting effects from breeding practices such as popular sire effect where one male can father many offspring with multiple females. In medical genetics, a complete understanding of the genetic architecture is essential to unravel the genetic basis of complex traits. While genome wide association studies (GWAS) have discovered thousands of trait-associated variants and thus have furthered our understanding of the genetic architecture, key parameters such as the number of causal variants and the

mutational target size are still under-studied. Further, the role of natural selection in shaping the genetic architecture is still not entirely understood. In the last chapter, I developed a computational method called InGeAr to infer the mutational target size and explore the role of natural selection on affecting the variant's effect on the trait. I found that the mutational target size differs from trait to trait and can be large, up to tens of megabases. In addition, purifying selection is coupled with the variant's effect on the trait. I discussed how these results support the omnigenic model of complex traits. In summary, in this dissertation, I utilized different types of large genomic dataset, from genome-wide divergence data to whole genome sequence data to GWAS data to develop models and statistical methods to study how different evolutionary processes have shaped patterns of genetic variation across the genome.

**The Genetics of Cancer** - B.A. Ponder 2012-12-06

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It has been recognized for almost 200 years that certain families seem to inherit cancer. It is only in the past decade, however, that molecular genetics and epidemiology have combined to define the role of inheritance in cancer more clearly, and to identify some of the genes involved. The causative genes can be tracked through cancer-prone families via genetic linkage and positional cloning. Several of the genes discovered have subsequently been proved to play critical roles in normal growth and development. There are also implications for the families themselves in terms of genetic testing with its attendant dilemmas, if it is not clear that useful action will result. The chapters in *The Genetics of Cancer* illustrate what has already been achieved and take a critical look at the future directions of this research and its potential clinical applications.

**The Human Genetic Mutant Cell Repository** - Institute for Medical Research (Camden, N.J.) 1979

**Chromosome Abnormalities and Genetic Counseling** - R.

J. McKinlay Gardner  
2003-08-28

Chromosomal abnormalities can cause disability in children, and reproductive difficulty in parents. Many parents and couples seek genetic counseling in order to learn why they, or a relative, may have had a child with a particular collection of medical problems and/or intellectual disability. There may have been a history of multiple miscarriage, or infertility. They may want to know the outlook for a pregnancy, and what the risks might be. These and other questions concerning chromosome abnormalities are addressed in this standard text, which will be of interest to genetic counselors, medical geneticists, pediatricians and obstetricians, infertility specialists, and laboratory cytogeneticists. This third edition has been thoroughly updated, and is richly illustrated and fully referenced. New chapters have been written on preimplantation

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diagnosis and on reproductive risks due to environmental agents. The practical applications of recent advances in molecular cytogenetics are noted. The book will give counselors the information that will enable them to help concerned parents accommodate to their particular "chromosomal situation", and to determine what may be, for them, the best course of action.

*Females Are Mosaics* - Barbara Migeon 2007-03-15

Women can be described as genetic mosaics because they have two distinctly different types of cells throughout their bodies. Unlike males, who have one X chromosome (inherited from their mother), females have two X chromosomes in every cell (one from each parent). The fathers copy works in some cells, while the mothers copy works in others. These two X chromosomes often function differently, especially if one carries a defective gene. Much has been written about the Y chromosome and its role in

inducing maleness. This will be the first book about the X chromosome as a key to female development and the role of X-related factors in the etiology of sex differences in human disease. Barbara Migeon, from the renowned McKusick-Nathan Institute at Johns Hopkins, is a major figure in clinical genetics and is eminently qualified to write this book, and she writes clearly and effectively. She describes both the underlying molecular mechanisms and the remarkable genetic consequences of X inactivation and its role in determining the biological concepts characteristic of women. *Females are Mosaics* will be valuable to geneticists, biologists, and all health professionals interested in women's health.

**Understanding Genetics** - Genetic Alliance 2009

The purpose of this manual is to provide an educational genetics resource for individuals, families, and health professionals in the New York - Mid-Atlantic region and

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increase awareness of specialty care in genetics. The manual begins with a basic introduction to genetics concepts, followed by a description of the different types and applications of genetic tests. It also provides information about diagnosis of genetic disease, family history, newborn screening, and genetic counseling. Resources are included to assist in patient care, patient and professional education, and identification of specialty genetics services within the New York - Mid-Atlantic region. At the end of each section, a list of references is provided for additional information. Appendices can be copied for reference and offered to patients. These take-home resources are critical to helping both providers and patients understand some of the basic concepts and applications of genetics and genomics.

**Molecular Variation and the Evolution of Newly Developing Sex Chromosomes of *Drosophila***

**Miranda** - Soojin Yi 2000

**Chromosome Abnormalities and Genetic Counseling** - R.J.

MKinlay Gardner 2011-11-11

Advances in cytogenetics continue to crop up in wonderful ways, and we know exponentially more about chromosomes now than mere decades ago. Likewise, the necessary skills in offering genetic counseling continue to evolve. This new edition of Chromosome Abnormalities in Genetic Counseling offers a practical, up-to-date guide for the genetic counselor to marshal cytogenetic data and analysis clearly and effectively to families.

Exploring the Biological Contributions to Human Health

- Institute of Medicine

2001-07-02

It's obvious why only men develop prostate cancer and why only women get ovarian cancer. But it is not obvious why women are more likely to recover language ability after a stroke than men or why women are more apt to develop autoimmune diseases such as



lupus. Sex differences in health throughout the lifespan have been documented. Exploring the Biological Contributions to Human Health begins to snap the pieces of the puzzle into place so that this knowledge can be used to improve health for both sexes. From behavior and cognition to metabolism and response to chemicals and infectious organisms, this book explores the health impact of sex (being male or female, according to reproductive organs and chromosomes) and gender (one's sense of self as male or female in society). Exploring the Biological Contributions to Human Health discusses basic biochemical differences in the cells of males and females and health variability between the sexes from conception throughout life. The book identifies key research needs and opportunities and addresses barriers to research. Exploring the Biological Contributions to Human Health will be important to health policy makers, basic, applied, and clinical researchers, educators,

providers, and journalists-while being very accessible to interested lay readers.

**Sex Chromosome Evolution in Blow Flies** - Anne Amarila Andere 2020

Chromosomal mechanisms of sex determination vary greatly in phylogenetically closely related species, indicative of rapid evolutionary rates. Sex chromosome karyotypes are generally conserved within families; however, many species have derived sex chromosome configurations. Insects display a plethora of sex chromosome systems due to rapid diversification caused by changes in evolutionary processes within and between species. A good example of such a system are insects in the blow fly family Calliphoridae. While cytogenetic studies observe that the karyotype in blow flies is highly conserved (five pairs of autosomal chromosomes and one pair sex chromosome), there is variation in sex determining mechanisms and sex chromosome structure within closely related species

in blow flies. The evolutionary history of sex chromosomes in blow fly species have not been fully explored. Therefore, the objective of this research was to characterize the sex chromosome structures in four species of blow flies and investigate the selective forces which have played a role in shaping the diverse sex chromosome system observed in blow flies. The blow fly species used in this study are *Phormia regina*, *Lucilia cuprina*, *Chrysomya rufifacies* and *Chrysomya albiceps*. *Phormia regina*, and *Lucilia cuprina* have a heteromorphic sex chromosome system and are amphogenic (females produce both male and female offspring in equal ratio). In contrast, *Chrysomya rufifacies* and *Chrysomya albiceps*, have a homomorphic sex chromosome system, are monogenic (females produce unisexual progeny), have two types of females (arrhenogenic females - male producers and thelygenic females - female producers), and sex of the offspring is determined by the

maternal genotype. To accomplish these tasks, a total of nine male and female individual draft genomes for each of the four species (including three individual draft genomes of *Chrysomya rufifacies* - male, and the two females) were sequenced and assembled providing genomic data to explore sex chromosome evolution in blow flies. Whole genome analysis was utilized to characterize and identify putative sex chromosomal sequences of the four blow fly species. Genomic evidence confirmed the presence of genetically differentiated sex chromosomes in *P. regina* and *L. cuprina*; and genetically undifferentiated sex chromosomes in *C. rufifacies* and *C. albiceps*. Furthermore, comparative analysis of the ancestral Dipteran sex chromosome (Muller element F in *Drosophila*) was determined to be X-linked in *P. regina* and *L. cuprina* contributing to sex chromosome differentiation but not sex-linked in *C. rufifacies* and *C. albiceps*. Evolutionary

pressures are often quantified by the ratio of substitution rates at non-synonymous (dN) and synonymous (dS) sites. Substitution rate ratio analysis (dN/dS) of homologous genes indicated a weaker purifying selection may have contributed to the loss of sex-linked genes in Muller element F genes of the undifferentiated sex chromosome as compared to the differentiated sex chromosome system. Overall, the results presented herein greatly expands our knowledge in sex chromosome evolution within blow flies and will reinforce the study of sex chromosome evolution in other species with diverse sex chromosome systems.

*Sex Determination in Vertebrates* - 2019-04-16  
Sex Determination, Volume 134, the latest release in the Current Topics in Developmental Biology series, contains current reviews in the

field of vertebrate sex determination. It covers molecular pathways of sex determination in genetic and environmental species and encompasses both sex determination of somatic lineages and commitment of germ cells to male or female fate. Chapters in this new release cover, amongst other topics, Mapping the Sox9 Enhancer Elements, Epigenetic Regulation of Sex Determination, Evolution and Management of Sex Chromosomes, Regulation of Germ Cell Sex Identity in Medaka, Control of Sex Determination in Zebrafish, Sexually Dimorphic Germ Cell Identity in Mammals, and more. Contains reviews written by leading experts in each field Includes informative figures that illustrate principle points that are useful for teaching Written in a style that is clear and simple

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