


Barless blue Het. barless silver T-pat silver Spread T-pat indigo
Harvey Addengast's Paul Tapia's Steve Shaw's

EMAIL PIGEON GENETICS NEWSLETTER DECEMBER 2013

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CINNAMON AND HONEY for health.
Make a paste of two tablespoons of honey and 1 teaspoon of cinnamon powder. Add to a glass of warm water and drink before breakfast every day. Or spread the paste on a slice of toast or muffin for breakfast. Reportedly has ability to cure most diseases and no side effects. Cures bladder infections, balances cholesterol, cough, upset stomach, etc

HOLY HUMOR:

A father was approached by his small son who told him proudly, "I know what the Bible means!" His father smiled and replied, "What do you mean, you 'know' what the Bible means?" His son replied, "I do know!" "Okay," said the father. "What does the Bible mean?" His son replied excitedly, "That's easy, daddy, it stands for: 'Basic Information Before Leaving Earth."

There was a very gracious lady who was mailing an old family Bible to her brother. The Postal Clerk asked, "Is there anything breakable in here?" "Only the ten commandments." answered the lady.

TERRY WARD WRITES:31oct'11

Jerry, since you are interested in Faded, I want to see what your opinion of these birds are. One photo is a pair of Reehani Dewlaps. Supposedly the factor is Faded and the cock in the rear is homozygous, the hen heterozygous. (see pages 107 & 108 in Levi's Encyclopedia of Pigeons.)

I managed to get a homo cock that looked like the one on page 108 which is labeled as hetero, but I think it is homo. The hetero cocks I raised from him looked more like the photo of the hen, maybe a bit lighter. The bird on pg 108 has darker flights, but does it look hetero to you? The cock I used was nearly white with a yellowish crop and you could see faint bars. It also had the darker bluish flights.

I wanted to make Rollers that color. Those Dewlaps are huge so I had to size down a step at a time, so I first crossed to a Homer hen, then moved the factor to Rollers.

Each step of the way I raised Faded blue looking birds, but they had a reddish crop and red bars. It did prove to be a sex linked dominant, and I kept moving it several generation until I eventually got the size and type down to a Roller size bird.

I began to wonder if this may be another yet undescribed allele of almond rather than Faded. It is similar to Faded but what is with the red bars and crop? Maybe it is Faded linked to some sex-linked bronze that keeps moving along with the factor? Then again, it just may be a new allele? I've seen plenty of blue Faded without the red bars and crop. Someone sent me some photos of Faded Racing Homers that do not have the reddish bars though. Maybe they are the same as what I'm playing with? I have been calling the factor "Rufus"

The bronze bars and crop are quite variable. Sometimes it was slight as a youngster, but molted in much redder. Mostly it was quite an intense red in the young.

When I finally started getting the type close, I decided to mate a couple together to make a homozygous cock, which I did, and he is shown in the photo. He looks similar in color to the original Reehani cock. He does have light flights.

I decided to test him with an Almond hen and then a Qualmond hen (or was it Faded Ash red hen, can't remember, have to dig up my records.) Either way, I eventually raised from both matings, nearly pure white cocks with a little flecking. Hmmm, just what I would expect an allele of the St series to do.

One of the photos shows one of the resulting white cocks.[Not included in the photos.] This was maybe 10 years ago, but I always kept a bird or two and started introducing the factor into my Norwich Croppers…..

Man on the street: "Why does anyone want to carry a gun?"

Reply 1: "I carry a gun because a cop is too big and heavy. Victims who shoot back live a lot longer."
Reply 2: "Cops are usually never there when bad things happen. My gun is always by my side and ready.

ALAN WRITES: 20nov'11

I would like to get to the bottom of this and I am sure you all can help. What is the formula for creating the best laced Andalusians?

JAMES WRITES:

Cross to wild type blue bars a couple of times and you will get them. Stay away from recessive red and bronzes.

ALAN WRITES:

Here is the controversy. What underlying pattern is best? I have always been told the lower patterns or bar are best. But now everyone around here is saying T-check is best, followed by Check. What to you say?

MURRAY GASKINS WRITES:

Bar.

EDITOR:

The best andalusian color in pigeons is achieved by having the formula – blue bar, spread, indigo. T-pattern usually will smudge up with bronze like the Indian Fantail depicted at the top of page one. The best laced is probably produced with the addition of Sooty.

EDITOR:

The Indian Fantail breeders are breeding a coloration which they call oyster. Lynn Kral has bred several and this is her formula for the coloration.

She says "I made several of them this year, all shapes, faults and sizes. This one, I am not sure if it is out of two oysters or out of an oyster hen and a brown son of an oyster hen from last year. Tim Kvidera agreed to work with these this summer so I took him four oysters and a brown son of one of the oysters. The son was mated to his oyster mother. They made a good pair and made about 50% oyster babies together and a chimera baby. This way Tim has enough oysters to mate several ways to figure out what is in them."

Dan Stiles “I made an oyster by mating an oyster to a milky blue bar.”

Lynn Kral, “I am guessing that Dan mated a blue bar to an oyster cock I have never had an oyster hen produce an oyster unless she was mated to an oyster or a brown out of an oyster hen.”

The oyster coloration. [evidently a sex-linked recessive coloration]

THE MIGHTY CUCUMBER:

Cucumbers contain most of the vitamins you need each day.
Cucumbers provide a quick pick-me-up when your tired.
Cucumbers cut and rubbed on a mirror will eliminate fogging.
Cucumbers sliced & placed in an aluminum pan chase slugs away.
Cucumbers eaten before going to bed eliminate hang-over and headache.
Cucumbers cut and rubbed on shoes will provide a quick and durable shine.
Cucumber juice can be used like WD 40 to eliminate squeaks in door hinges.
Cucumbers eliminate bad breath.
Cucumbers will clean tarnish and bring back shine on faucets.
Cucumbers can be used to remove ink when you want to erase.
Also works with crayon and markers when kids decorate walls.

SOME INTERESTING COLORATIONS:

Recessive red Andalusian (Lynn Kral)

Dom. opal check Fantasy (Steve Shaw)

Hetero barless Ice Pigeon

Sooty black (Jim Muckerman)

Rusty, rubella combination (Jim Muckerman)

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JERRY STERNADEL WRITES: 14nov'11

Let's go through this (revisiting Pencil) one more time, please humor me. If gazzi and Pencil are alleles, and they both express when they occur in the hetero state; then we can't have a bird that is gazzi and hetero Pencil without pencil expressing? Correct? In other words if both are combined in one bird, we should get an intermediate expression.

Following this logic, if we have a pair of gazzi (no pencil expressing) produce a penciled gazzi young what does that tell us. I still confused somewhat by the intermediate expression is supposed to look like. Penciled gazzi Hana Pouters clearly look gazzi and penciled, are they supposed to be an intermediate?

GENE HOCHLAN WRITES:

Jerry, the way it looks to me is that Paul Gibson is correct and gazzi and Pencilled are not alleles but there appears to be an indication of linkage between the two much like in recessive opal and the pattern locus. That would explain some of the confusion involved when trying to understand the relationship between the two mutations. What do you think, Paul?

EDITOR:

When I tried to get a non-gazzi Pencil from the Hana Pouters and from the Breast Pigeon crosses, I only bred one in all the years I worked with them. So, I would say yes, there is a linkage between them and a fairly tight one. I bred dozens of both and found the Hana breed to be homozygous gazzi. The Breast Pigeon was another story, since they are not distinctly gazzi pattern. They did breed homozygous gazzi though.

However, I worked with a couple breeds that only had head and tail markings that in test, bred pure gazzi also. Most people do not realize that the gazzi pattern is not just colored head, wings, and tail but also have colored feet. Of course this only shows if there are feathers on the feet. Thus the gazzi gene is affecting the non-body peripheral areas similar to that seen in the Siamese cat or Himalayan rabbit. Unlike these though, the coloration does not seem to be affected by temperature.

Teacher: Donald, what is the chemical formula for water?
Donald: H I J K L M N O.
Teacher: What are you talking about?
Donald: Yesterday you said it's H to O.

Teacher: Millie, give me a sentence starting with 'I'.
Millie: I is …
Teacher: No Millie…Always say 'I am'.
Millie: All right…'I am the ninth letter of the alphabet.'

Due to current conditions, the light at the end of the tunnel has been turned off!

For those of you of a scientific genetic inclination - from Wikipedia.
The next 4 pages are the latest on Chromosomal crossovers and Chiasma.

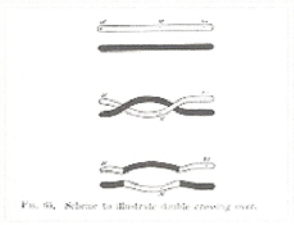
Chromosomal crossover

From Wikipedia, the free encyclopedia

Chromosomal crossover (or **crossing over**) is an exchange of genetic material between homologous chromosomes. It is one of the final phases of genetic recombination, which occurs during prophase I of meiosis (pachytene) in a process called synapsis. Synapsis begins before the synaptonemal complex develops, and is not completed until near the end of prophase I. Crossover usually occurs when matching regions on matching chromosomes break and then reconnect to the other chromosome.

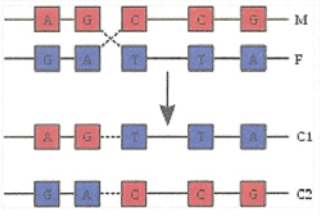
Thomas Hunt Morgan's illustration of crossing over (1916)

Crossing over was described, in theory, by Thomas Hunt Morgan. He relied on the discovery of the Belgian Professor Frans Alfons Janssens of the University of Leuven who described the phenomenon in 1909 and had called it 'chiasmatypie'. The term *chiasma* is linked if not identical to chromosomal crossover. Morgan immediately saw the great importance of Janssens' cytological interpretation of chiasmata to the experimental results of his research on the heredity of *Drosophila*. The physical basis of crossing over was first demonstrated by Harriet Creighton and Barbara McClintock in 1931.[1]



A double crossing over

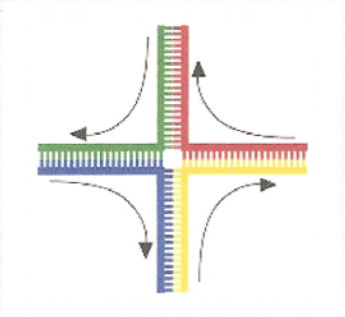
Contents



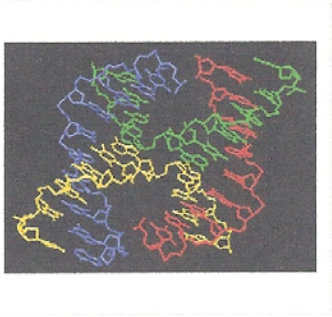
Recombination involves the breakage and rejoining of parental chromosomes

Chemistry

Meiotic recombination initiates with double-stranded breaks that are introduced into the DNA by the Spo11 protein.[2] One or more exonucleases then digest the 5' ends generated by the double-stranded breaks to produce 3' single-stranded DNA tails. The meiosis-specific recombinase Dmc1 and the general recombinase Rad51 coat the single-stranded DNA to form nucleoprotein filaments.[3] The recombinases catalyze invasion of the opposite chromatid by the single-stranded DNA from one end of the break. Next, the 3' end of the invading DNA primes DNA synthesis, causing displacement of the complementary strand, which subsequently anneals to the single-stranded DNA generated from the other end of the initial double-stranded break. The structure that results is a *cross-strand exchange*, also known as a Holliday junction. The contact between two chromatids that will soon undergo crossing-over is known as a *chiasma*. The Holliday junction is a tetrahedral structure which can be 'pulled' by other recombinases, moving it along the four-stranded structure.



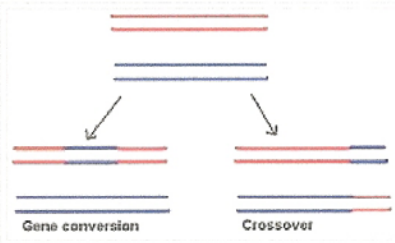
Holliday Junction



Molecular structure of a Holliday junction.

Consequences

In most eukaryotes, a cell carries two copies of each gene, each referred to as an allele. Each parent passes on one allele to each offspring. An individual gamete inherits a complete haploid complement of alleles on chromosomes that are independently selected from each pair of chromatids lined up on the metaphase plate. Without recombination, all alleles for those genes linked together on the same chromosome would be inherited together. Meiotic recombination allows a more independent selection between the two alleles that occupy the positions of single genes, as recombination shuffles the allele content between homologous chromosomes.



The difference between gene conversion and **chromosomal crossover**. Blue is the two chromatids of one chromosome and red is the two chromatids of another one.

Recombination results in a new arrangement of maternal and paternal alleles on the same chromosome. Although the same genes appear in the same order, the alleles are different. In this way, it is theoretically possible to have any combination of parental alleles in an offspring, and the fact that two alleles appear together in one offspring does not have any influence on the statistical probability that another offspring will have the same combination. This theory of "independent assortment" of alleles is fundamental to genetic inheritance[4].

However, the frequency of recombination is actually not the same for all gene combinations. This leads to the notion of "genetic distance", which is a measure of recombination frequency averaged over a (suitably large) sample of pedigrees. Loosely speaking, one may say that this is because recombination is greatly influenced by the proximity of one gene to another. If two genes are located close together on a chromosome, the likelihood that a recombination event will separate these two genes is less than if they were farther apart. Genetic linkage describes the tendency of genes to be inherited together as a result of their location on the same chromosome. Linkage disequilibrium describes a situation in which some combinations of genes or genetic markers occur more or less frequently in a population than woul be expected from their distances apart. This concept is applied when searching for a gene that may caus a particular disease. This is done by comparing the occurrence of a specific DNA sequence with the

appearance of a disease. When a high correlation between the two is found, it is likely that the appropriate gene sequence is really closer.[5]

Problems

Although crossovers typically occur between homologous regions of matching chromosomes, similarities in sequence can result in mismatched alignments. These processes are called unbalanced recombination. Unbalanced recombination is fairly rare compared to normal recombination, but severe problems can arise if a gamete containing unbalanced recombinants becomes part of a zygote. The result can be a local duplication of genes on one chromosome and a deletion of these on the other, a translocation of part of one chromosome onto a different one, or an inversion.

References

1. ^ Creighton H, McClintock B (1931). "A Correlation of Cytological and Genetical Crossing-Over in Zea Mays". *Proc Natl Acad Sci USA* **17** (8): 492–7. doi:10.1073/pnas.17.8.492. PMC 1076098. PMID 16587654. (Original paper)
2. ^ Keeney, S; Giroux, CN; Kleckner, N (1997). "Meiosis-Specific DNA Double-Strand Breaks Are Catalyzed by Spo11, a Member of a Widely Conserved Protein Family". *Cell* **88** (3): 375. doi:10.1016/S0092-8674(00)81876-0. PMID 9039264.
3. ^ Sauvageau, S; Stasiak, Az; Banville, I; Ploquin, M; Stasiak, A; Masson, Jy (Jun 2005). "Fission yeast rad51 and dmc1, two efficient DNA recombinases forming helical nucleoprotein filaments." (Free full text). *Molecular and cellular biology* **25** (11): 4377–87. doi:10.1128/MCB.25.11.4377-4387.2005. ISSN 0270-7306. PMC 1140613. PMID 15899844. http://mcb.asm.org/cgi/pmidlookup?view=long&pmid=15899844.
4. ^ http://www.daviddarling.info/encyclopedia/G/genetic_recombination.html
5. ^ http://www.daviddarling.info/encyclopedia/G/genetic_recombination.html

See also

- Unequal crossing over
- Coefficient of coincidence
- Genetic distance
- Independent assortment
- Mitotic crossover
- Recombinant frequency

Retrieved from "http://en.wikipedia.org/wiki/Chromosomal_crossover"
Categories: Cellular processes | Molecular genetics

Chiasma (genetics)

From Wikipedia, the free encyclopedia

A **chiasma** (plural: **chiasmata**), in genetics, is thought to be the point where two homologous non-sister chromatids exchange genetic material during chromosomal crossover during meiosis (sister chromatids also form chiasmata between each other, but because their genetic material is identical, it does not cause any change in the resulting daughter cells). The chiasmata become visible during the diplotene stage of prophase I of meiosis, but the actual "crossing-over" of genetic material is thought to occur during the previous pachytene stage. When each bivalent (tetrad), which is composed of two pairs of sister chromatids, begins to split, the only points of contact are at the chiasmata.

chiasma frequency = 2 x *recombination frequency*

where *recombination frequency* is:

recombination frequency = (*no. of recombinants*) / (*total no. of progeny*)

The phenomenon of genetic chiasmata (*chiasmatypie*) was discovered and described in 1909 by Frans Alfons Janssens, a Jesuit professor at the University of Leuven in Belgium. [1][2] A bivalent refers to the two homologous chromosomes (4 chromatids). The chiasmata refers to the actual break of the phosphodiester bond during crossing over. The larger the number of map units between the genes, the more crossing over occurs.

References

1. ^ Elof Axel Carlson, *Mendel's Legacy: The Origin of Classical Genetics*, CSHL Press, 2004, ISBN 0879696753, p.xvii
2. ^ In pursuit of the gene: from Darwin to DNA By James Schwartz Harvard University Press (2008), p. 182 ISBN 0674026705 Retrieved 19 March 2010.

See also

- chromosomal crossover

MERRY CHRISTMAS AND A HAPPY PROSPEROUS NEW YEAR!