GENETIK:

KROMOSOM

DNA

& GEN

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Individens egenskaper

- Arvet
- Miljön

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Egenskaper man ärver

- Grop i hakan
- Smilgropar
- Rulla tungan
- Mörkt hår
- Kiharat hiukset
- V-formad hårfäste
- Hårvirvel medsols
- Skräddartumme
- Inåtvända lillfingrar
- Högerhänthet
- Fräknar
- Hängande öronsnibbar
- Krogig näsa
- Fylliga läppar

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Miljöfaktorer

- Näring
- Sömn
- Livserfarenheter
- Utbildning
- Bostadsort
- Relationer
- Förmögenhet
- Miljögifter
- Sjukdomar
- Skador
- Vård

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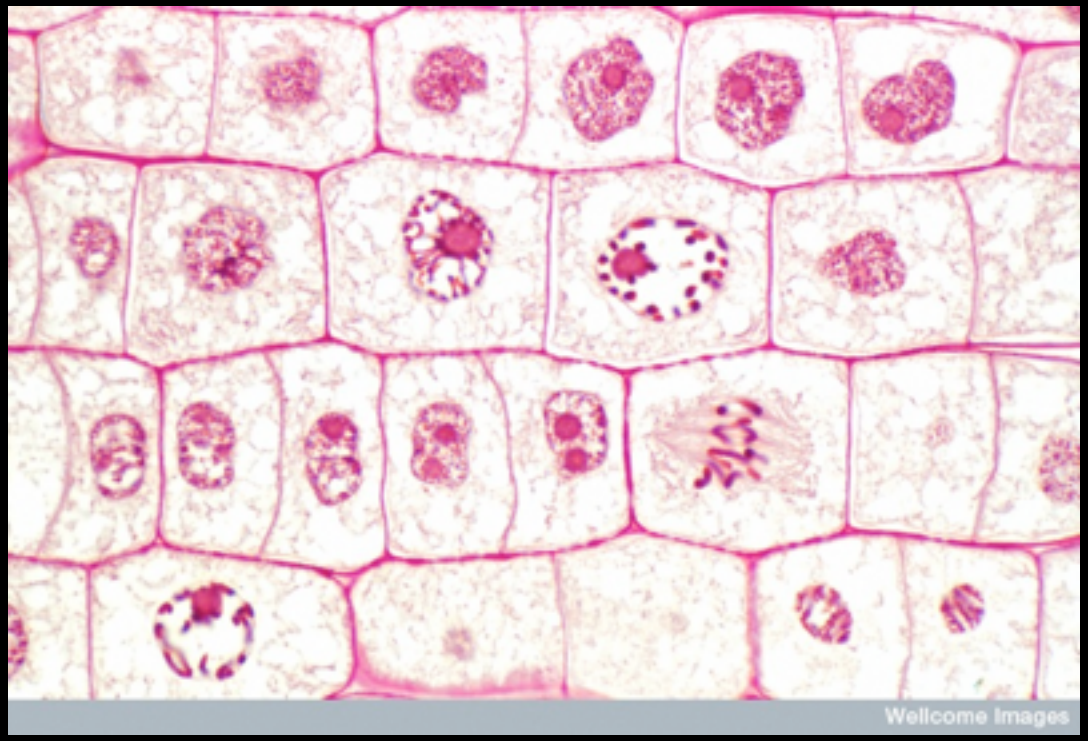
Arvsmassa

© Jaana Ohtonen/Manhemsskolan Kalix

Arvsmassan finns i varje cell, i cellkärnan.

Obs! Röda blodkroppar saknar cellkärna!



Celler i lökens rot.

Arvsmassan syns under celldelningen.

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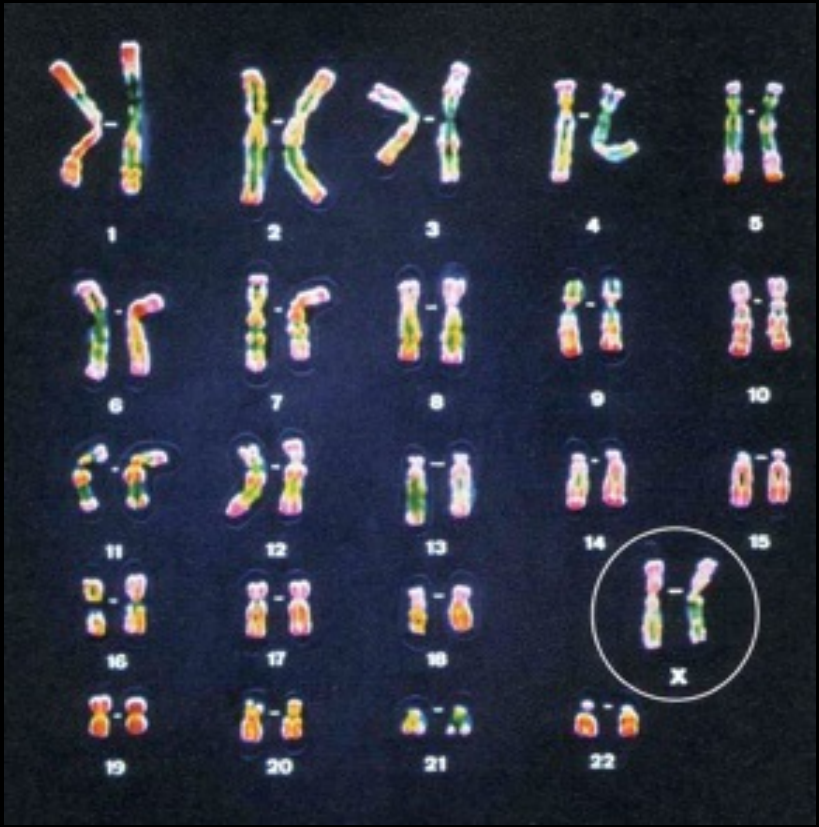
Människans arvsmassa är delad i 46 kromosomer.



Hälften av kromosomerna är från mamma, hälften från pappa. Mammas och pappas kromosomer

bildar 23 kromosompar.

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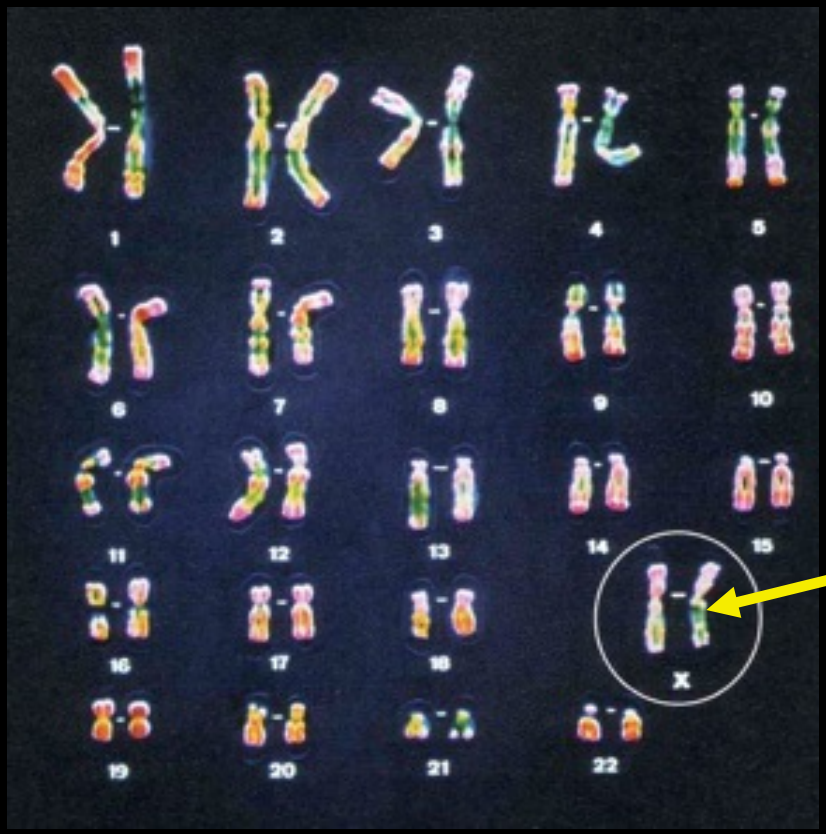
Varje kromosom innehåller ett stort antal gener.



Två av krosomomerna avgör könet.

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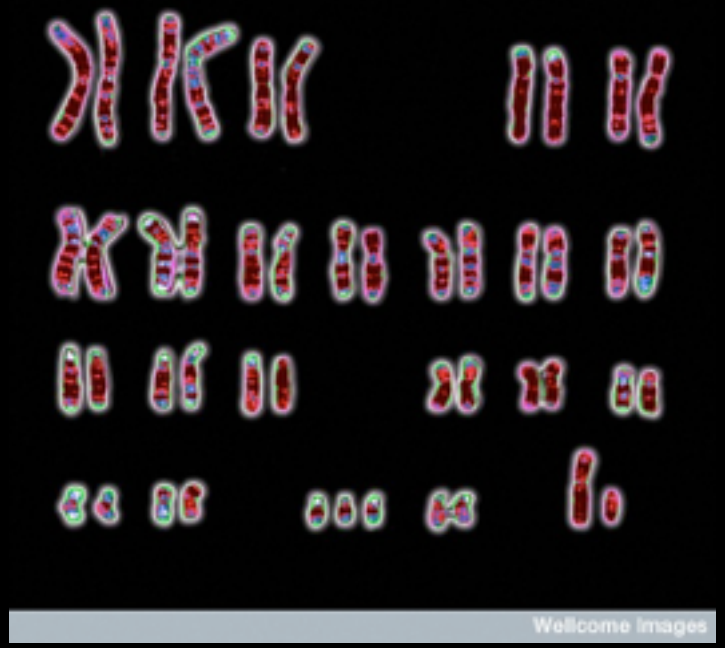
Extra krosomomer eller avsaknad av en kromosom orsakar syndrom med avvikelser.



På vilket sätt är kromosomuppsättningen annorlunda?

Det finns 3 st av kromosom 21 - Downis syndrom

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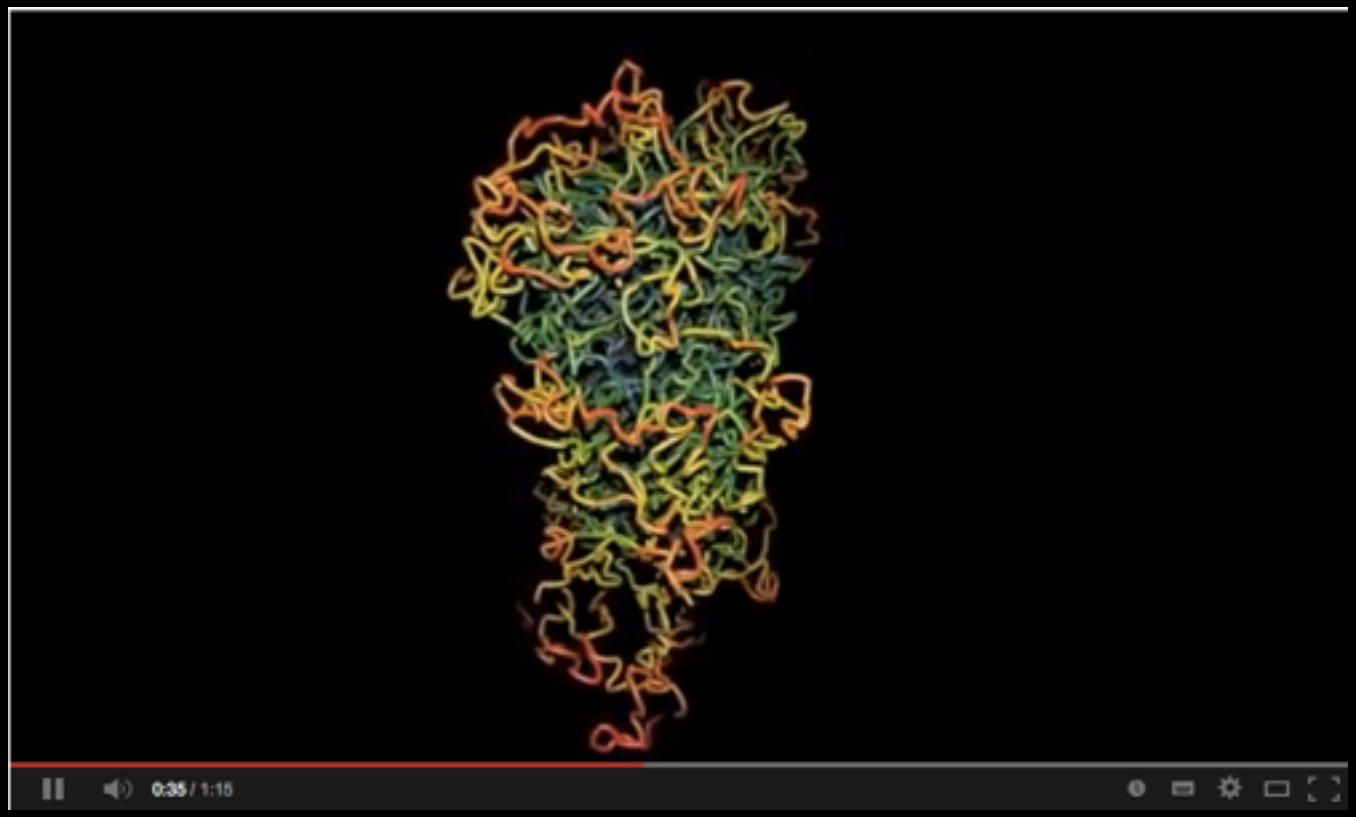
Den största delen av tiden är kromosomerna…



http://www.youtube.com/watch?v=gMYaMQxWMwU

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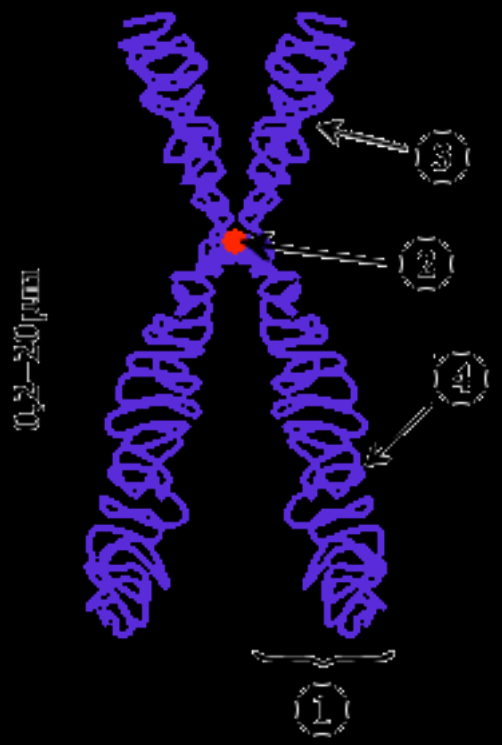

En kromosom består av en spiralpackad, mycket lång molekyl, DNA.

Kromosomerna är synliga i början av celldelningen som typiska X-formationer.

Kuva: http://upload.wikimedia.org/wikipedia/commons/7/78/Chromosome-upright.png?uselang=sv

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Cellkärna

Cell

Kromosom

http://upload.wikimedia.org/wikipedia/commons/thumb/0/02/Chromosome_zh.svg/656px-Chromosome_zh.svg.png?uselang=sv

DNA molekyl

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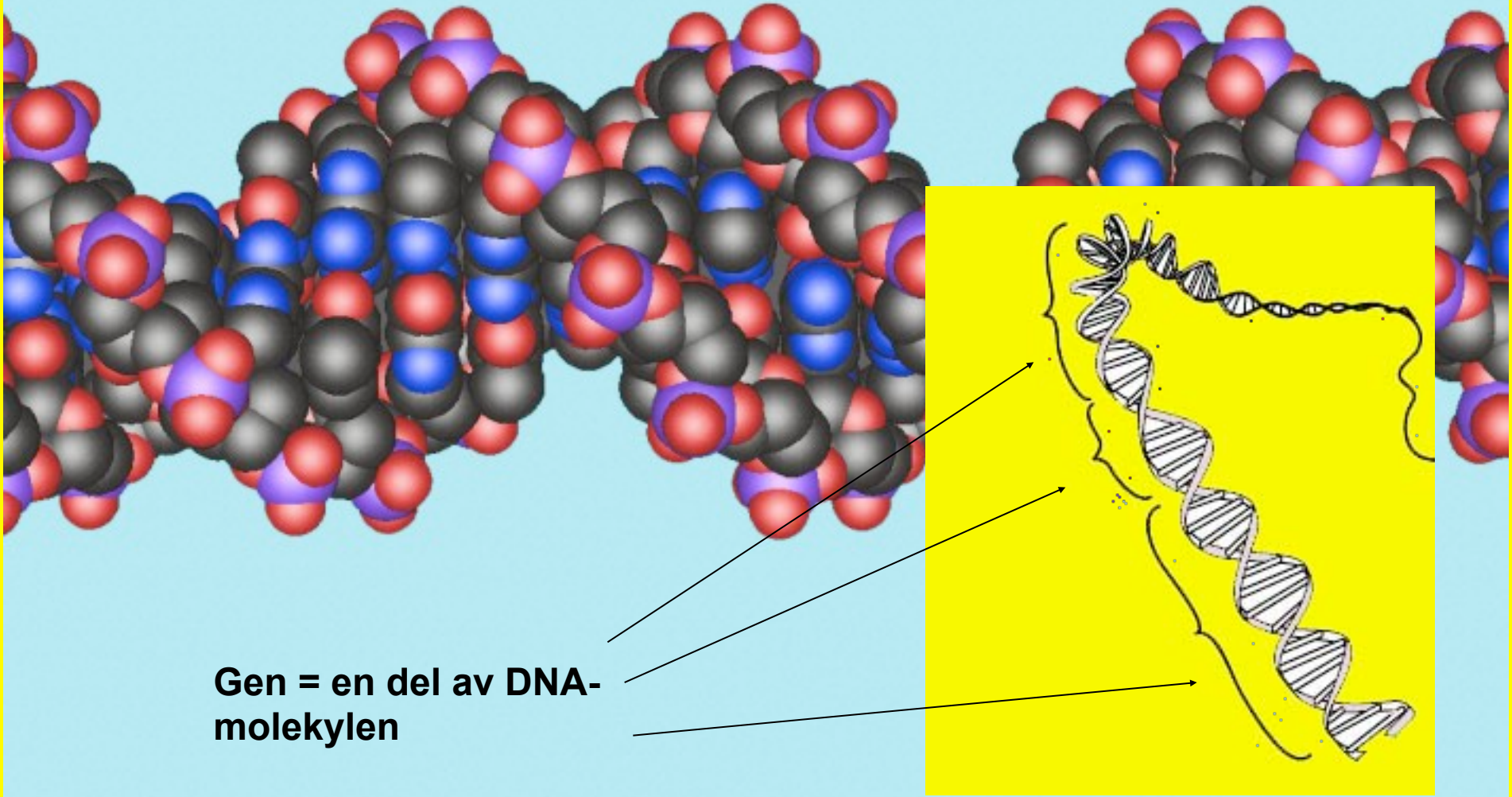
DNA molekyl



Gen = en del av DNA-molekylen

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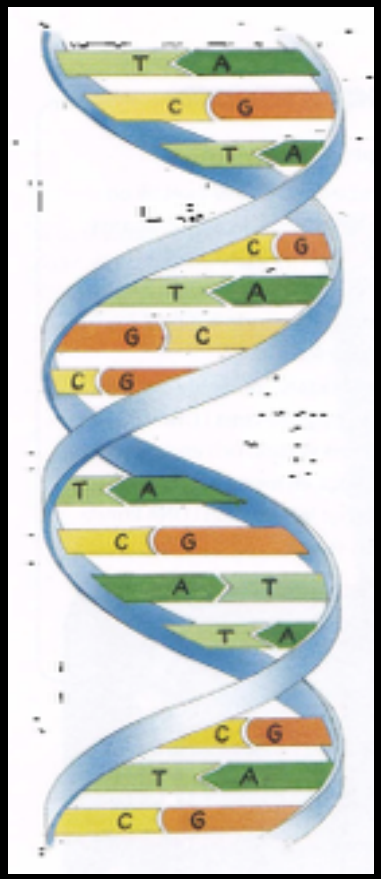
DNA

Molekyl med dubbelhelix



1. Två långa socker-fosfor-strängar

2. Strängarna hålls ihop av kvävebaser som bildar baspar.

Baser finns fyra olika

A = Adenin

C = Cytosin

G = Guanin

T = Tymin

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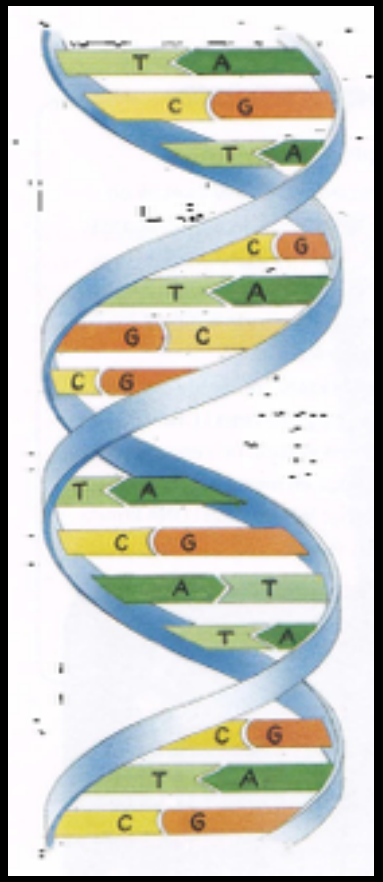
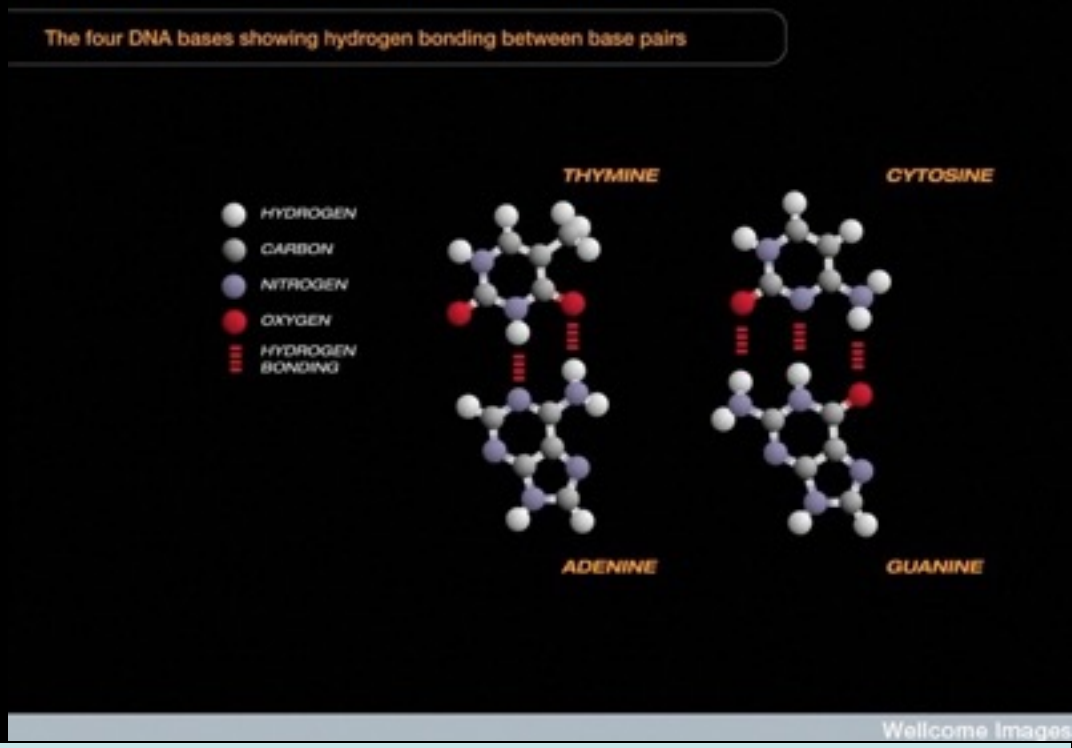
Baserna kan bilda endast följande par:



T och A

G och C



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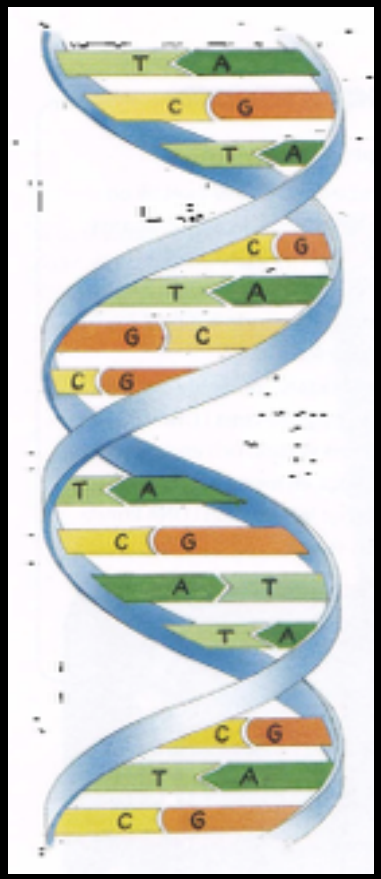

En gen (ett anlag) består av ca 10 000 baspar.

Ordningen av basparen är den genetiska koden.

Ordningen av basparen bestämmer genens funktion.

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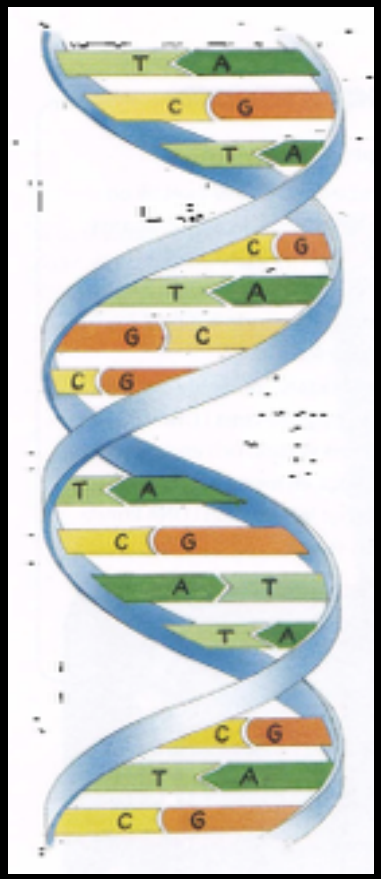
En gen är flera tusen baspar lång del av DNA.

En gen styr tillverkningen av en protein i cellen.



Tre baser formar en kod.

Koden motsvarar en viss aminosyra.

Protein består av många aminosyror efter varandra. Aminosyrornas ordning bestäms av den genetiska koden.

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Bröstcancergen BRCA2
(ENSG00000139618)

Kromosom 13
10 985 baspar

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TATTTTACAATCAACAAAATGGTCATCCAAACTCAAACTTGAGAAAATATCTTGCTTTCAAATTGGCACTG

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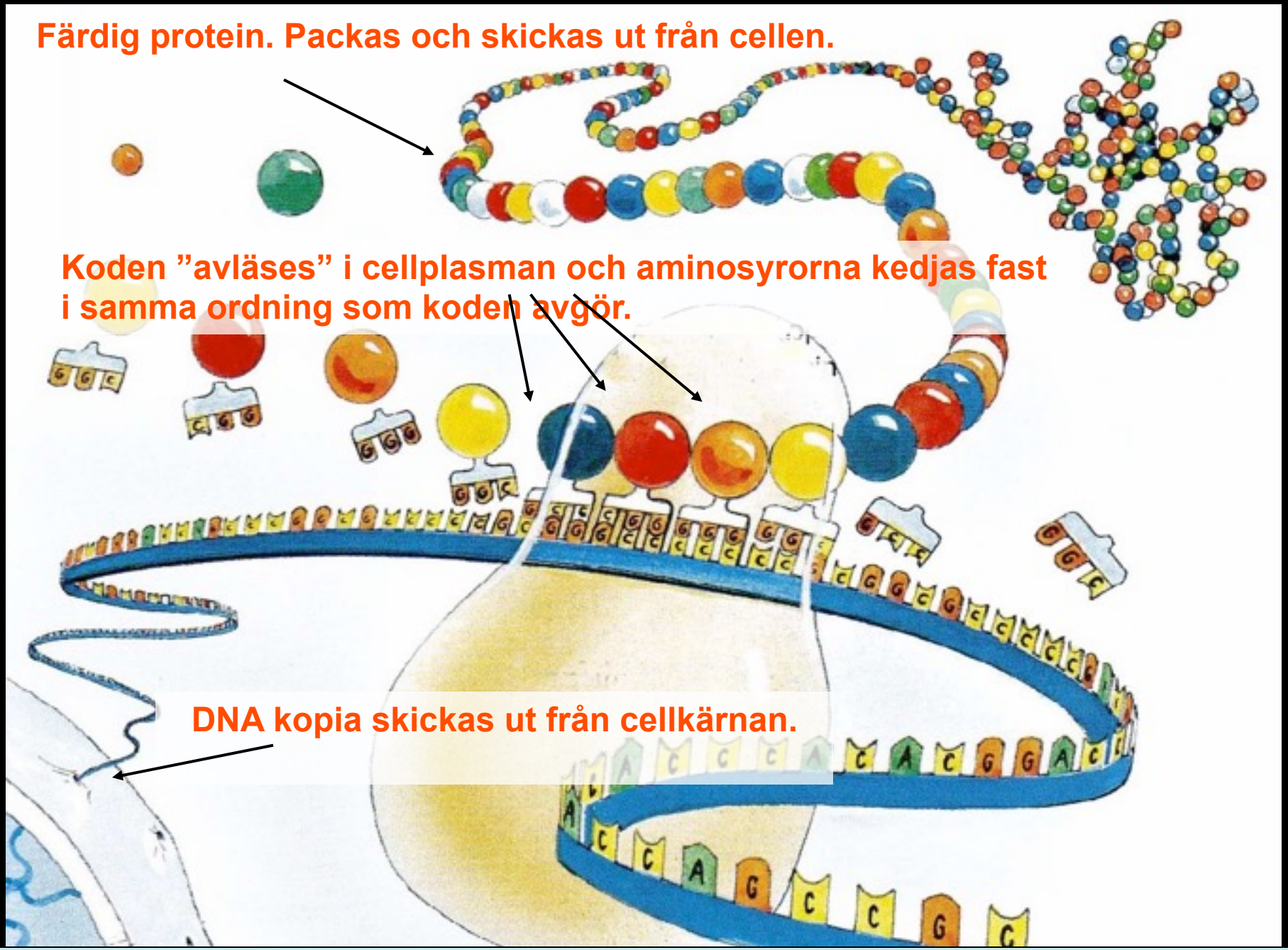

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Repetition!

En kromosom består av en lång bit av dubbla strängar av DNA

En gen är en del av DNA.

En gen är en recept på tillverkning av en protein.

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Antal gener varierar mellan arter

Wellcome Image

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