

El color del vino, pimientos picantes y otras historias de supermercado: curso acelerado de Genética

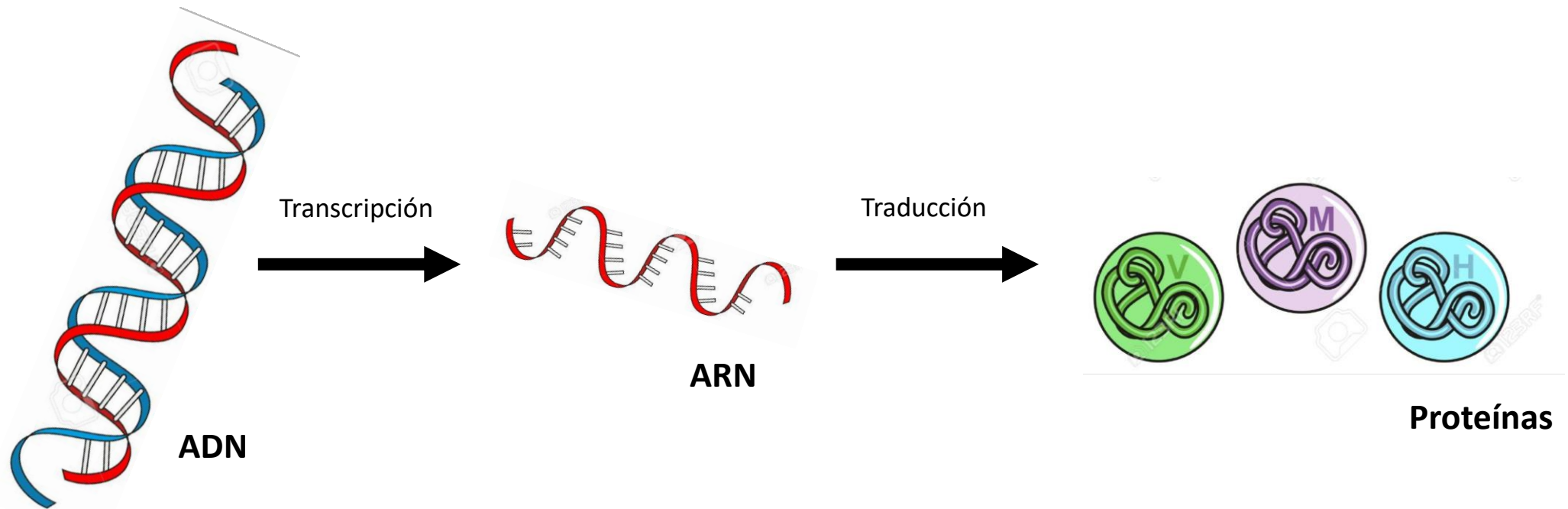
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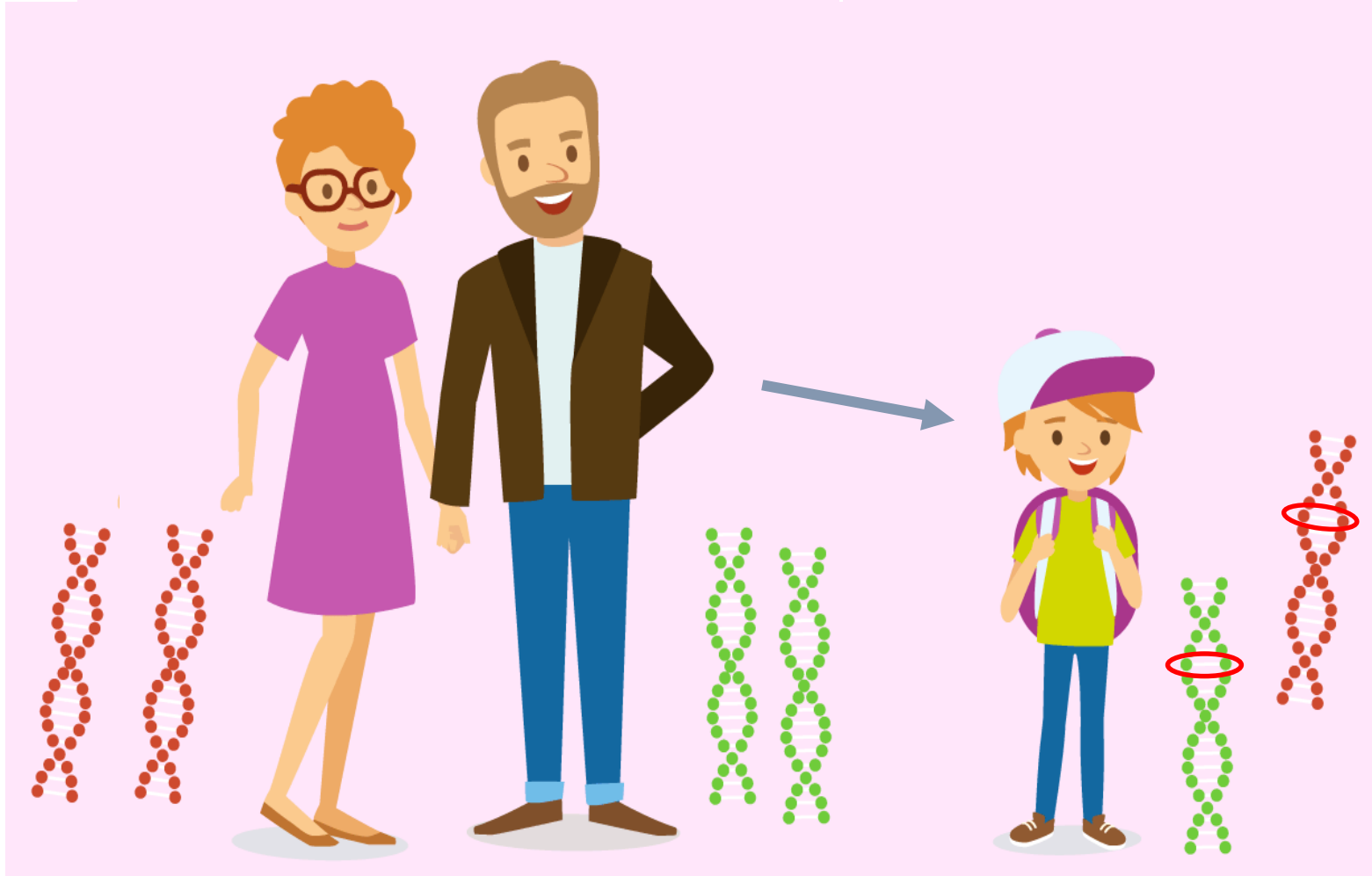
www.rafaelnavajas.eu | @r_navajas 

Café Curioso | Parque de las Ciencias de Granada | 14 febrero 2020

Dogma Central de la Biología



Bases de la Herencia



Un gen, una función...



Dominancia/Recesividad

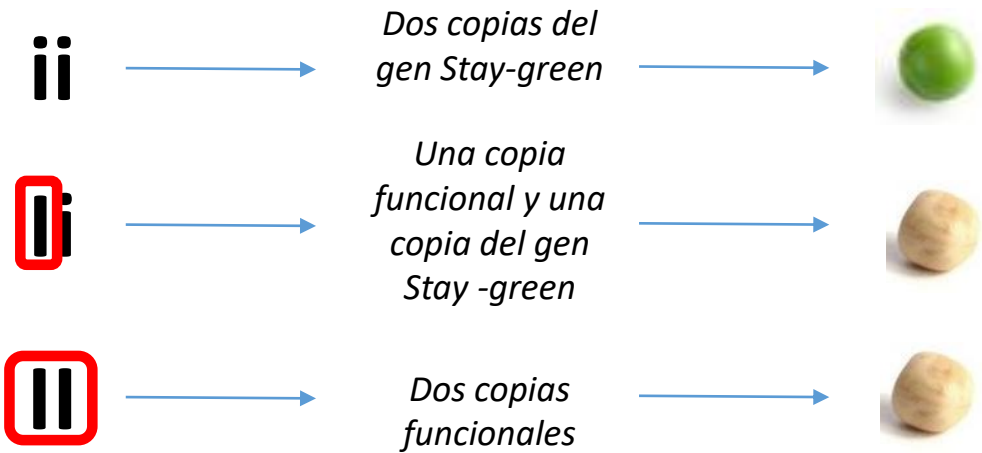
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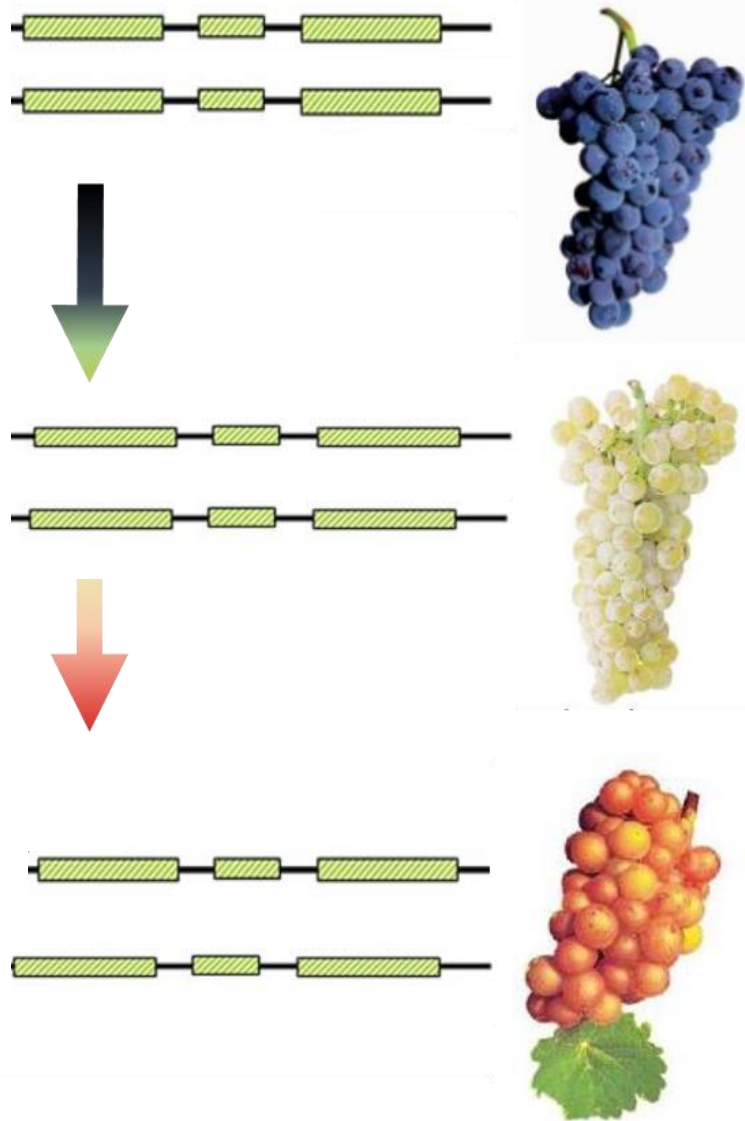
Table 1 Seven characters of *P. sativum* examined by Mendel and a summary of the genes, phenotypes, and presumed mutations involved

Trait	Dominant phenotype	Recessive phenotype	Symbol group	Linkage group	Cloned	Gene function	Molecular nature of mutation
Seed shape	Round	Wrinkled	<i>R</i>	V	Yes	Starch branching enzyme 1	0.8-kb insertion
Stem length	Tall	Dwarf	<i>LE</i>	III	Yes	GA 3-oxidase1	G-to-A substitution
Cotyledon color	Yellow	Green	<i>I</i>	I	Yes	Stay-green gene	6-bp insertion
Seed coat/flower color	Purple	White	<i>A</i>	II	Yes	bHLH transcription factor	G-to-A at splice site
Pod color	Green	Yellow	<i>GP</i>	V	No	Chloroplast structure in pod wall	Unknown
Pod form	Inflated	Constricted	<i>V?</i>	III	No	Sclerenchyma formation in pods	Unknown
Position of flowers	Axial	Terminal	<i>FA</i>	IV	No	Meristem function	Unknown

References are given in the text.



VvmybA1



*Dos copias
intactas del gen
VvmybA1*

V^+V^+

*Producción
normal de
antocianinas*

*Dos copias
mutadas del gen
VvmybA1*

VV

*Sin producción
de antocianinas*

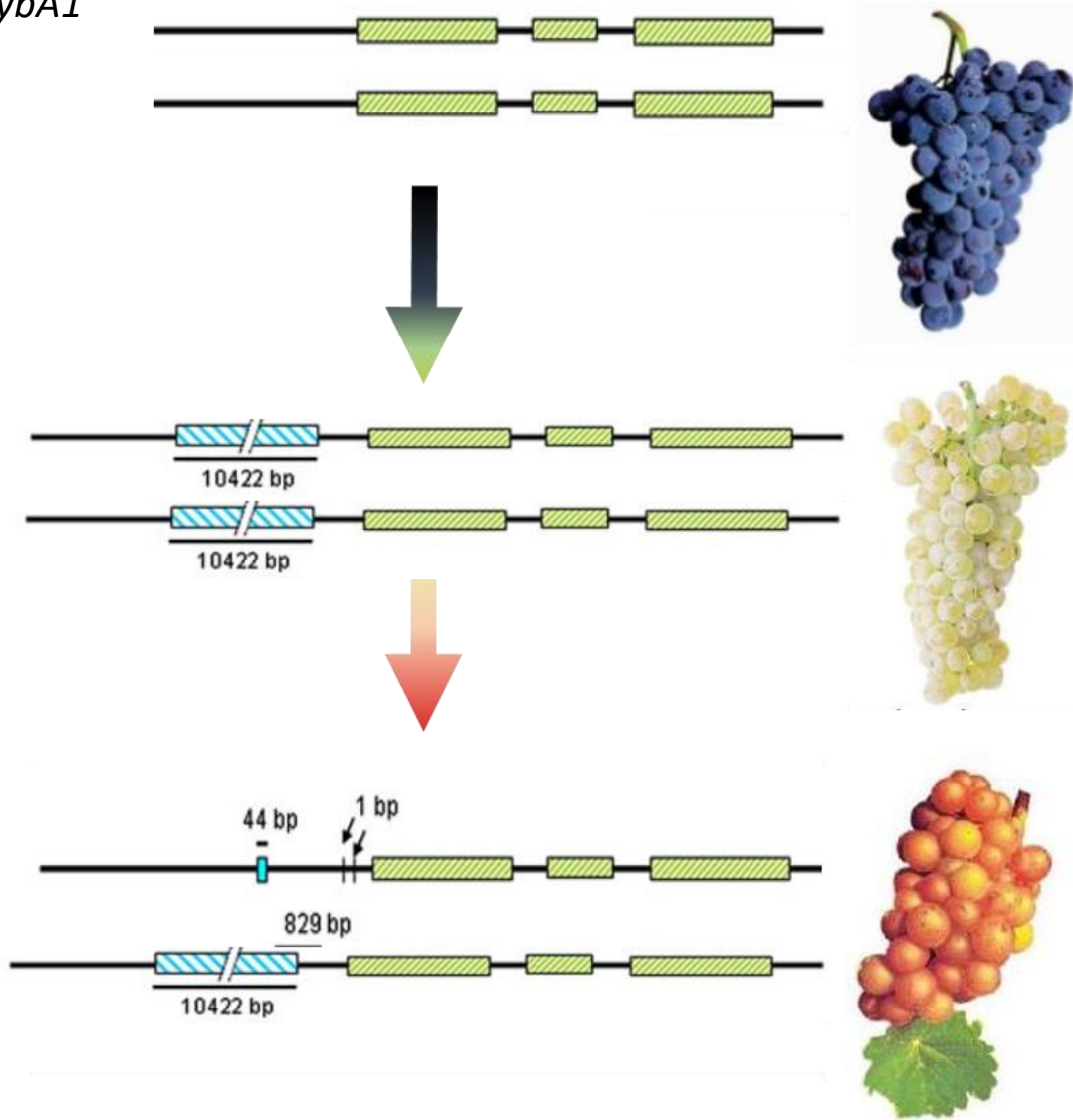
Herencia Intermedia

*Una copia
mutada y otra
funcional del
gen VvmybA1*

V^+V

*Se produce la
mitad de la
cantidad normal
de antocianinas*

VvmybA1



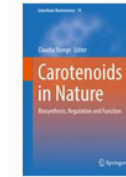
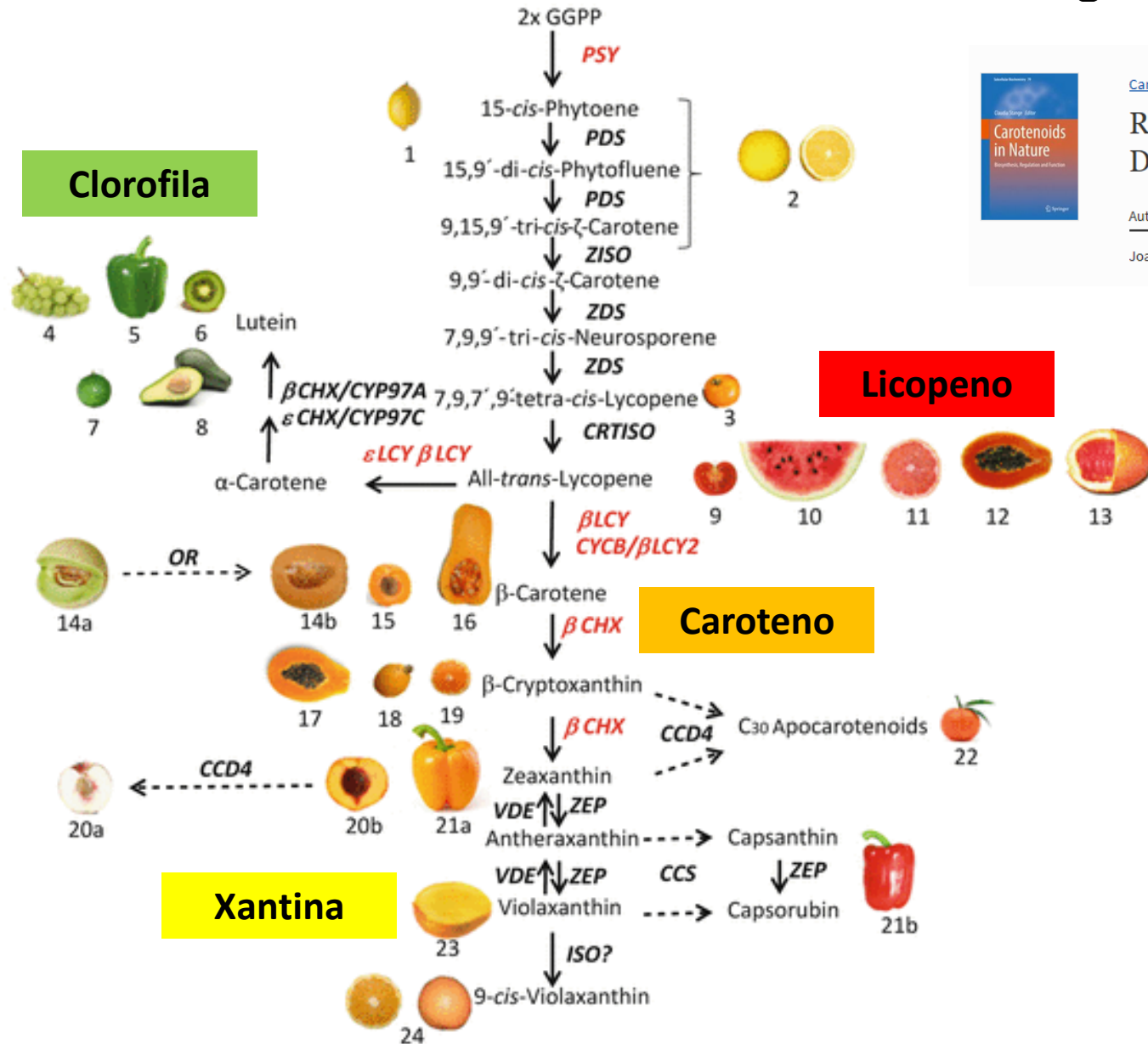
Un gen, una función... (II)

Wine grape (*Vitis vinifera* L.) color associates with allelic variation in the domestication gene *VvmybA1*

Patrice This · Thierry Lacombe ·
Molly Cadle-Davidson · Christopher L. Owens

Theor Appl Genet (2007) 114:723–730
DOI 10.1007/s00122-006-0472-2

**¡Fragmentos de
ADN “saltarines”!**



[Carotenoids in Nature](#) pp 161-198 | [Cite as](#)

Regulation of Carotenoid Biosynthesis During Fruit Development

Authors

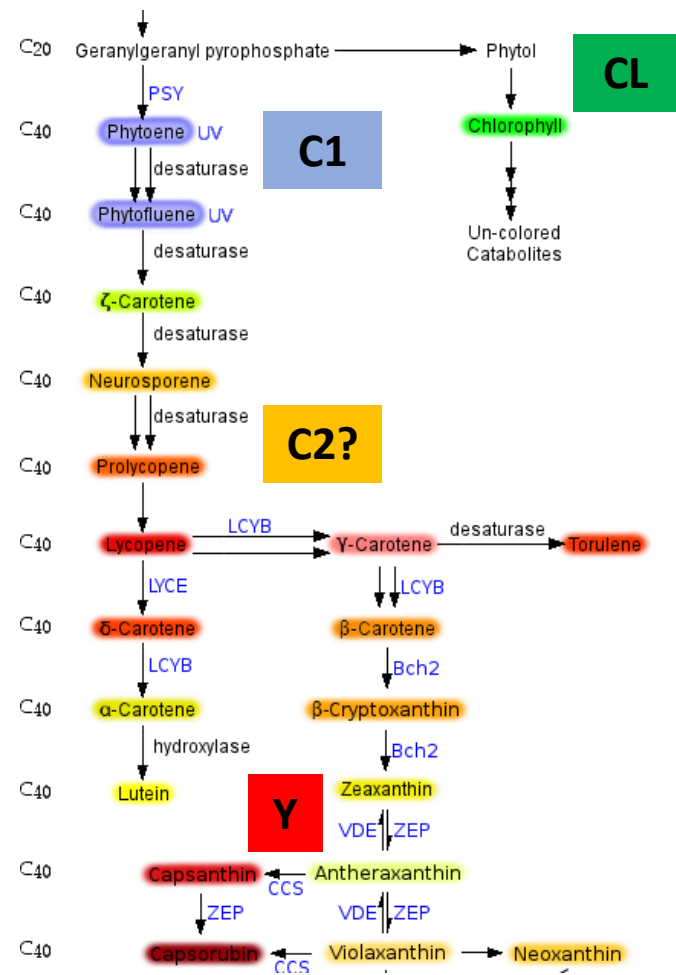
Authors and affiliations

Joanna Lado ✉, Lorenzo Zacarías, María Jesús Rodrigo



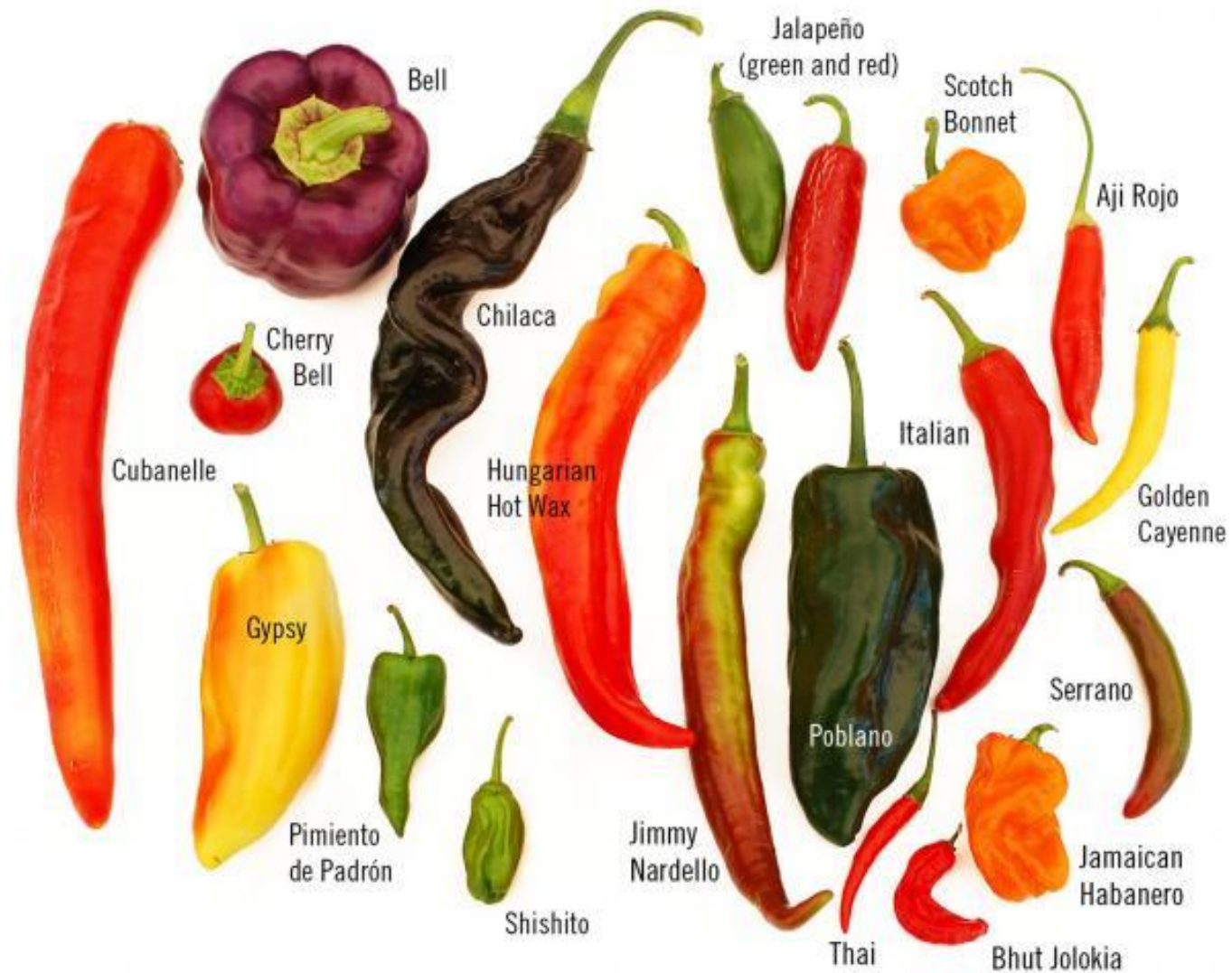
Curso acelerado de Genética:

Varios genes, una función... (Interacción génica)



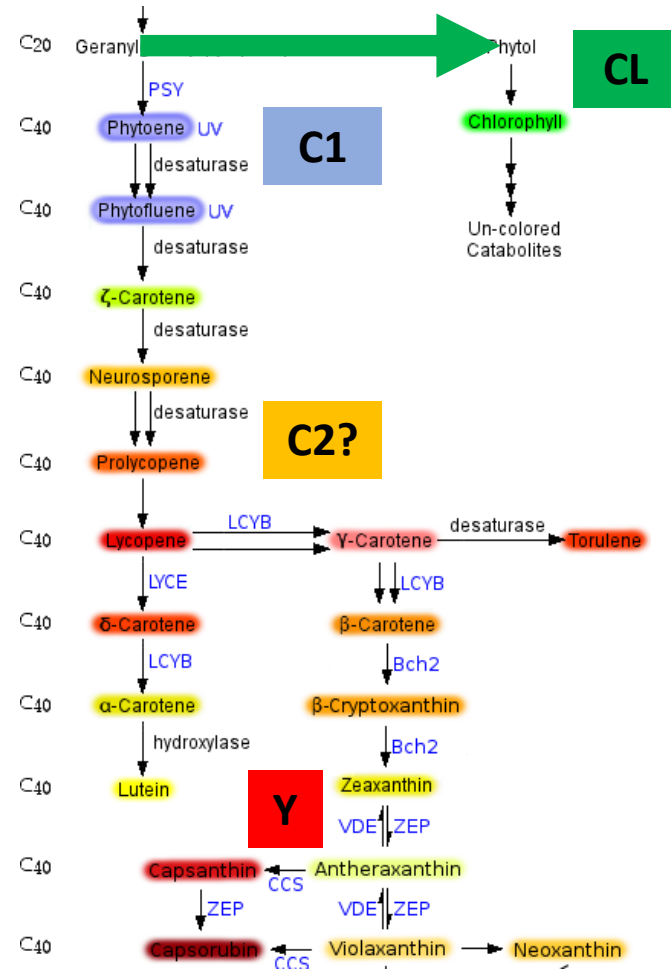
C1	C2	Y	ROJO
C1	C2	y	AMARILLO
C1	c2	Y	NARANJA
c1	c2	y	BLANCO

CUESA's GUIDE to SWEET AND HOT PEPPERS

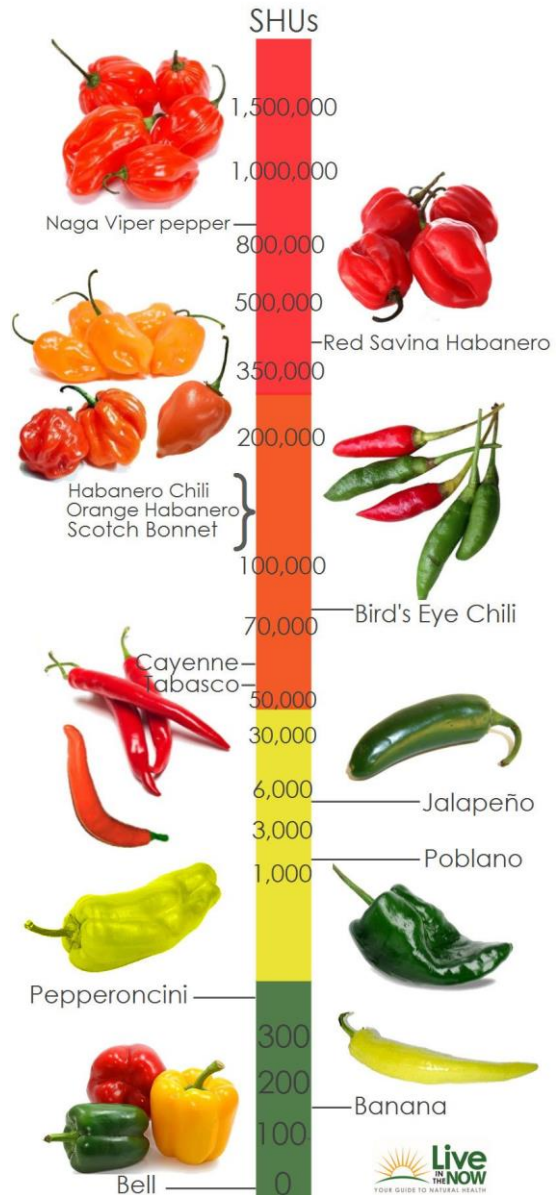


Curso acelerado de Genética:

Varios genes, una función... (Interacción génica)

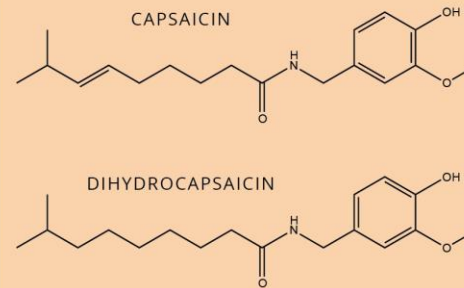


Pssst... Capsaicin benefits heart health! So,
HOW **SPICY** IS THAT
PEPPER?



THE CHEMISTRY OF A CHILLI

CAPSAICINOIDS

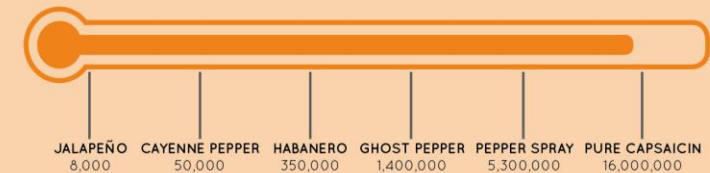


The spiciness of chillis is due to the presence of compounds called capsaicinoids. The two compounds above are the main capsaicinoids in chilli peppers. They cause a burning sensation when they come into contact with mucous membranes, due to their interaction with pain and heat sensing neurons.

Capsaicin is also used in some brands of pepper spray, and studies have shown it may be capable of killing prostate and lung cancer cells. It is toxic in large quantities.



THE SCOVILLE HEAT INDEX



The Scoville scale is a taste detection based method for rating the heat of chilli peppers. A measured amount of pepper extract has sugar added to it incrementally until the heat is undetectable through taste. Though it is an imprecise method, it has been estimated that 1 unit corresponds to 18µM.

2013 COMPOUND INTEREST - WWW.COMPOUNDCHEM.COM
PHOTO: <https://www.flickr.com/photos/mainephotonut/6978313338/>

Los genes pueden...

- Ser más o menos “mandones”: **DOMINANCIA vs HERENCIA INTERMEDIA**
- Ser inquietos: **ELEMENTOS MÓVILES (TRANSPOSONES)**
- Ser colaborativos (y picantes): **INTERACCIONES GÉNICAS**