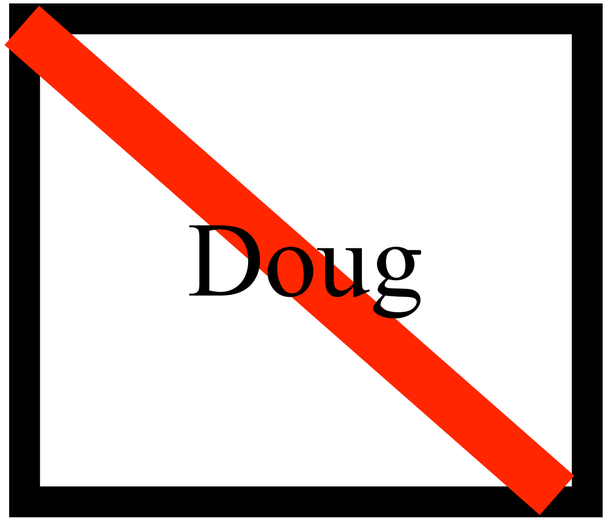
1. Clicker Attendance

- Launch your Top Hat app on your smart phone, or load the TopHat.com website, or text to the course phone number.

2. Sit with your group in lecture & lab

3. To Opt-OUT of being called upon

- Name Card with red stripe means you Opt-OUT (can Opt-OUT 3 times)



LB144-Pandemic *2022*

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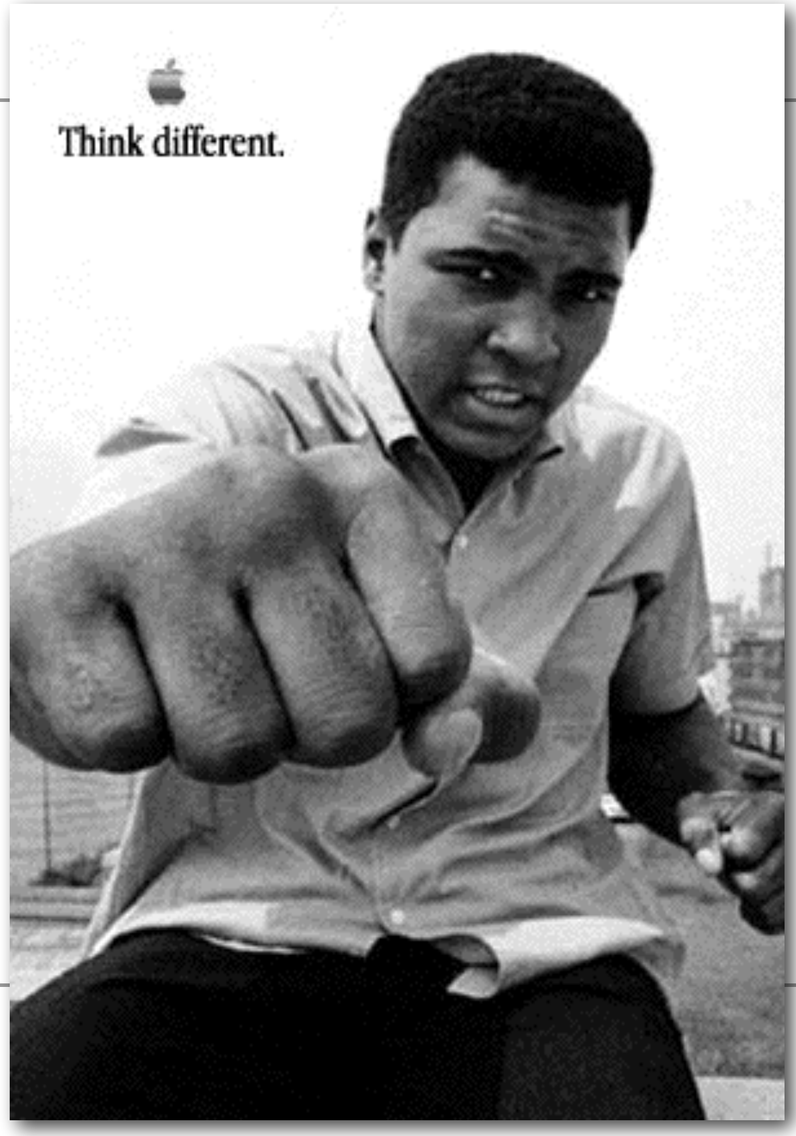

Announcements

(Week7)

- In the **Laboratory Course**: remaining… *Prof Interview* and *Final paper* (or do a *Film*)
- In the **Lecture Course**: remaining… *Exam II* (week 10) and *Final Exam* (week 16)
- This week's online lecturers were *us,* next week it's the author ***Malcolm Campbell***
- Oui, Sorbonne?

Random calling?

1:00

Which method would you prefer we use to gain answers from students in this course among: Volunteering (raise hand), random picking (deck of cards) or cold-calling (just ask someone).

All results

A	Pick only from volunteers (I know I will have the lowest learning if we do that, but I'm cool with that)		9
B	Pick names from the deck of cards (learning is MUCH higher and feels more fair that way)		18
C	Use Cold-calling (I want THE maximum learning, MSU charged us a lot of $ for this, and I really need to get high grades in my future biology classes)		11

Announcements

(Week7)

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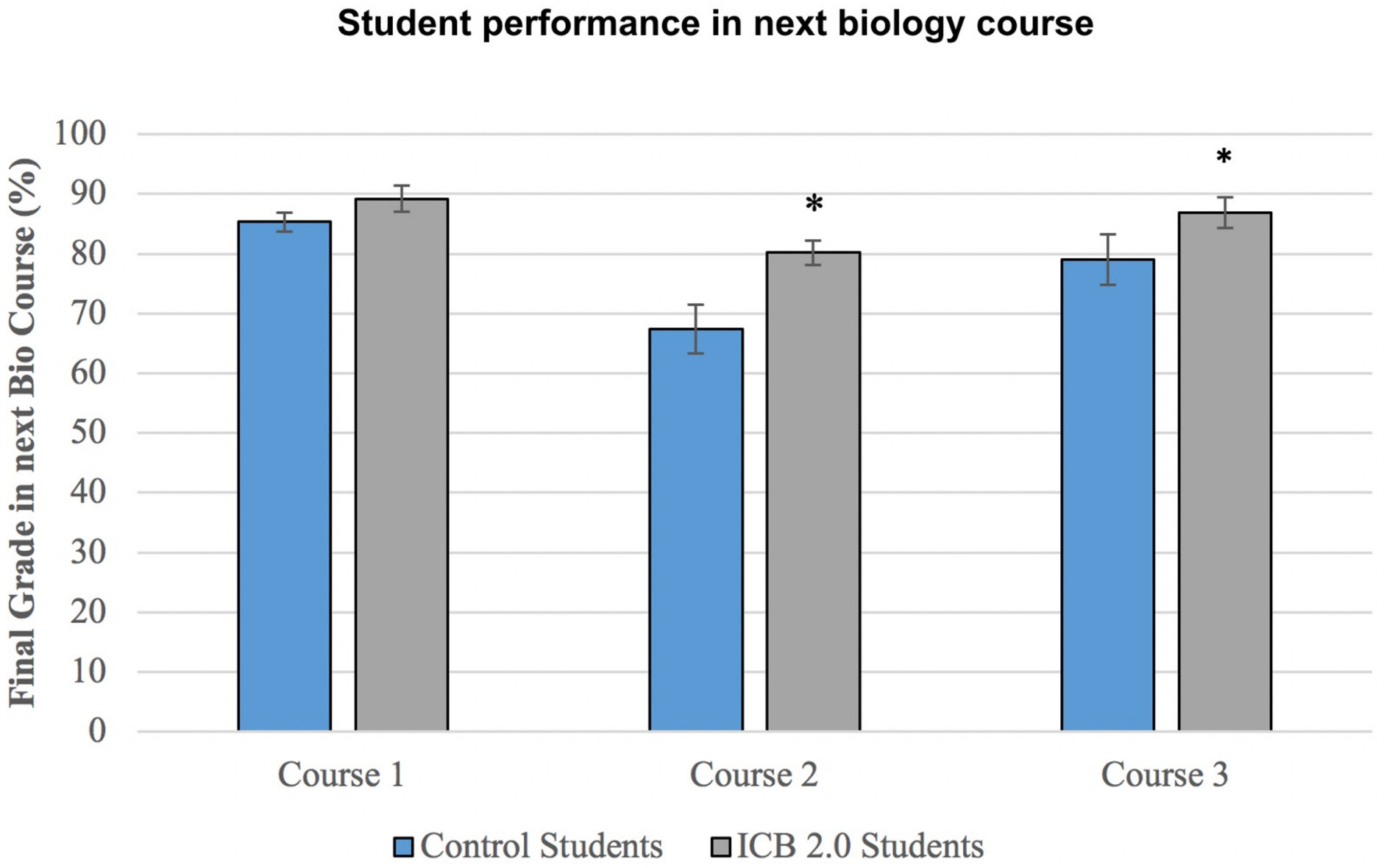
- This week's online lecturers were *us,* next week it's the author ***Malcolm Campbell***
- Oui, Sorbonne?
- Why is this class so **weird!?**, why not just be normal, *nobody makes students write manuscripts or do cell/molecular biology in any LB144 courses!?*



Trifecta?

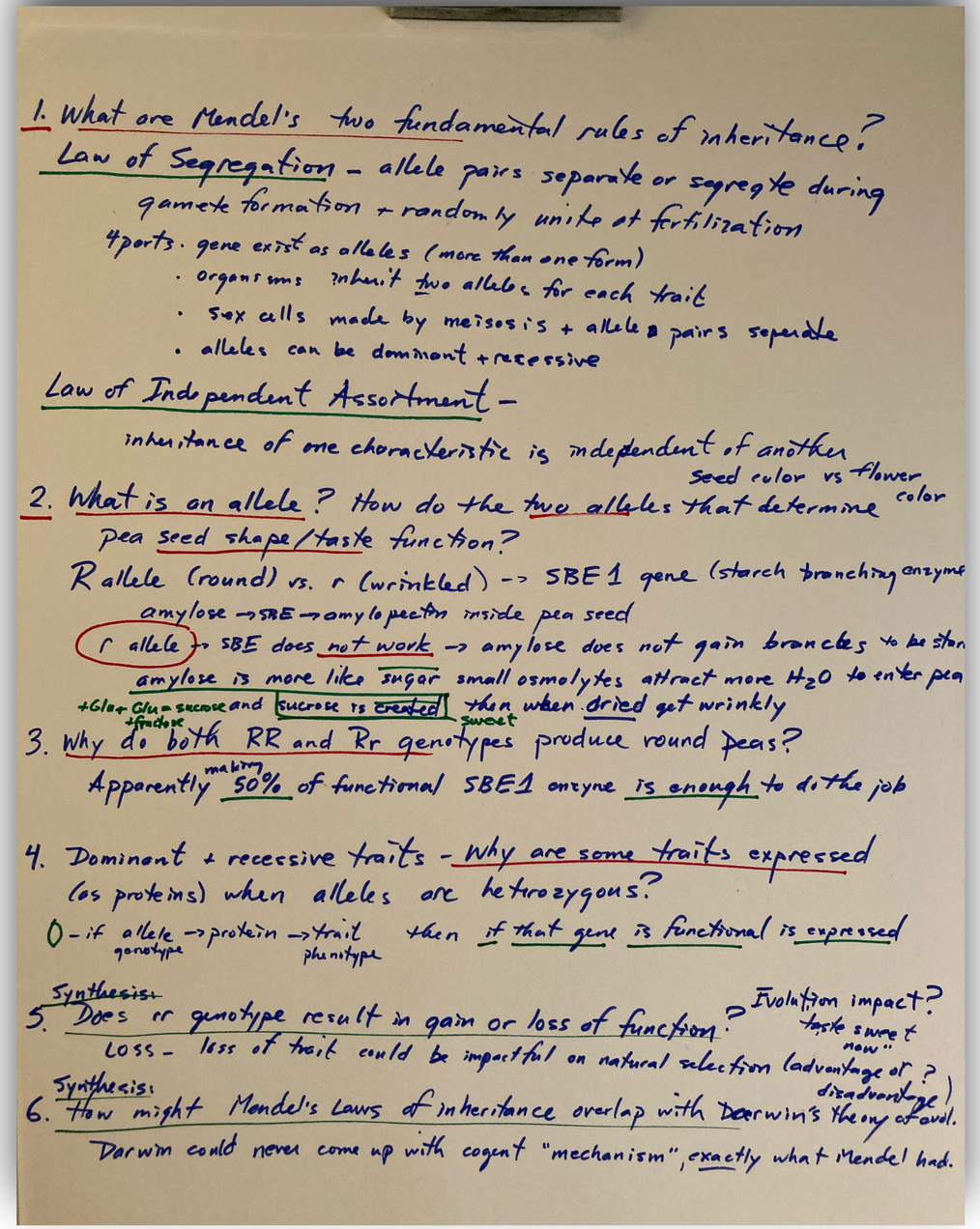
Figure 4: Longitudinal tracking of ICB students in second introductory biology courses following semester: ACT-normalized performance of ICB students versus peers in same course; final grade points totals obtained from instructors (error bars are SEM; *p<0.01).

Budgeting homework time (60 min): Read and prepare for a case study on the SBE1 gene (evo-ed.org).

SBE1 case:
Read and take notes from the http://evo-ed.com/ website in the "Pea Taste" sections: Mendel to Molecules, Cell Biol, Molecular Genet, Population Genetics. *Direct link*-> http://evo-ed.com/Pages/Peas/

Use that website as well as section 3.1 on Mendel in your textbook as resources to answer these questions. Write out your answers in your paper notebook so you can photograph and turn in one copy but keep the second one for class.

Integrating Questions
1. What are Mendel's two fundamental rules of inheritance?
2. What is an allele? How do the two alleles that determine pea seed shape/taste function?
3. Why do both the RR and Rr genotypes produce round peas?
4. We call some traits dominant and others recessive, and we relate this to their respective alleles. Explain, in terms of protein function, why some traits are expressed when alleles are heterozygous.
5. Synthesis question: Does the rr genotype result in a gain or loss of function? How could either a loss or gain of function be evolutionarily important?
6. Synthesis question: Mendel and Darwin were contemporaries, although they did not know one another. How might the principles of Mendel's laws of inheritance overlap with Darwin's theory of evolution?



Integrating Questions

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Why is R dominant over r?

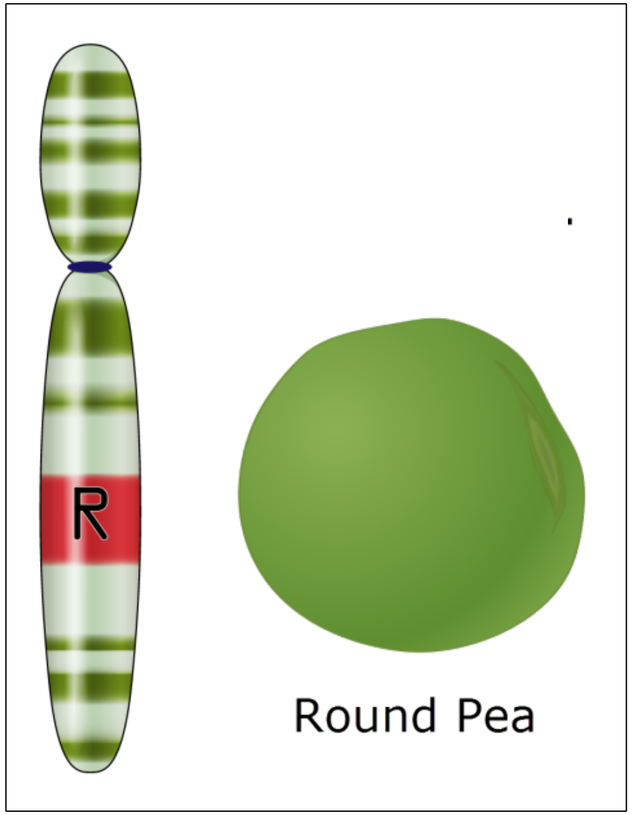
Why do both the RR and Rr genotypes produce round peas?

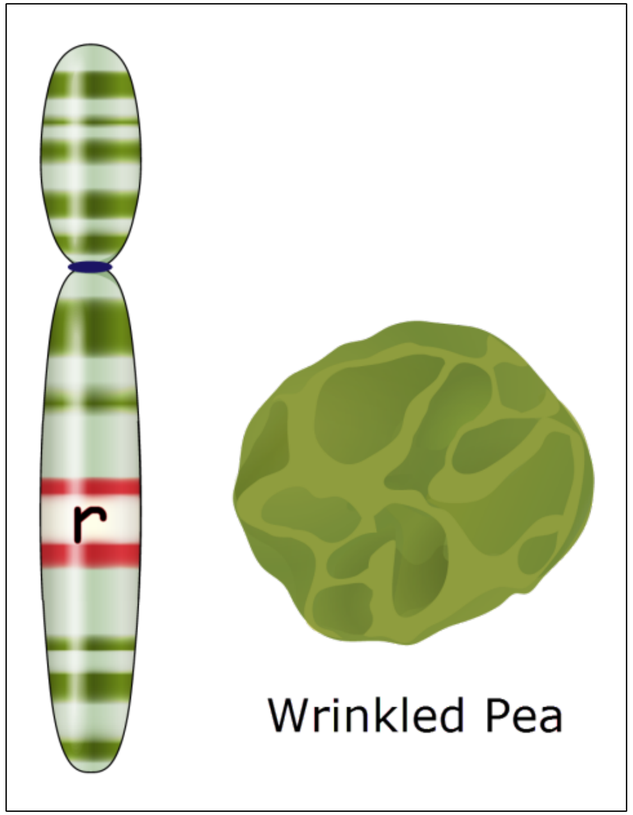
Discuss…

At the molecular level (DNA->RNA->protein) why is that pea wrinkled?

(what might a molecular biologist predict?)

?

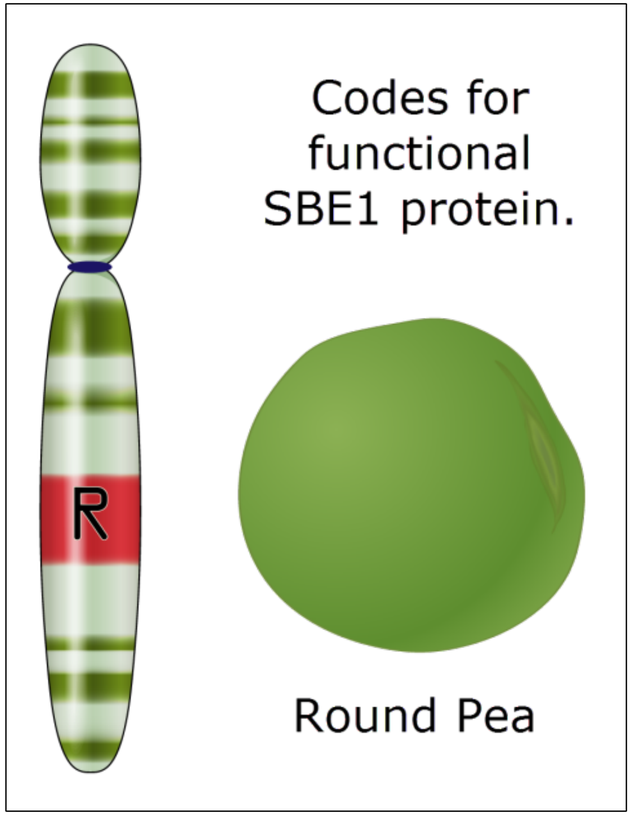


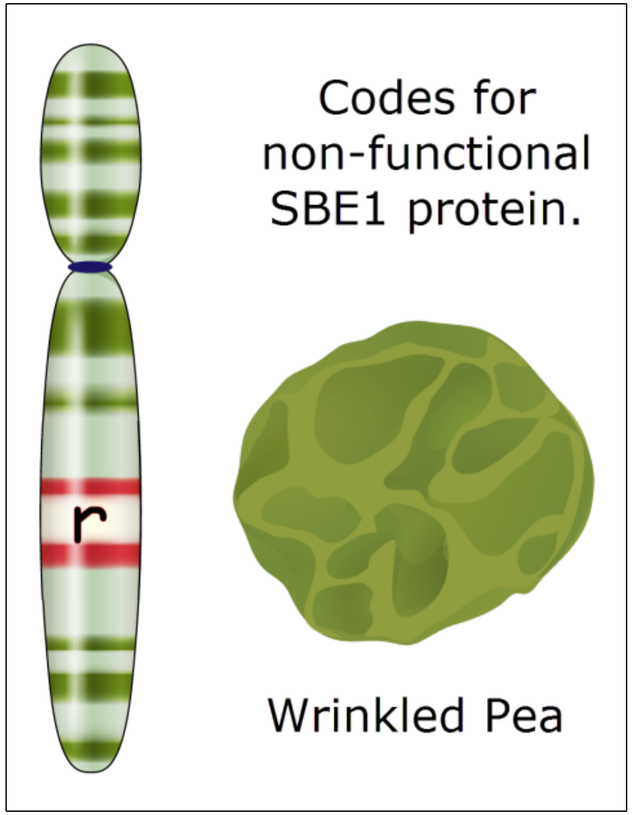


R= sbe1 gene

SBE= Starch Branching Enzyme

?

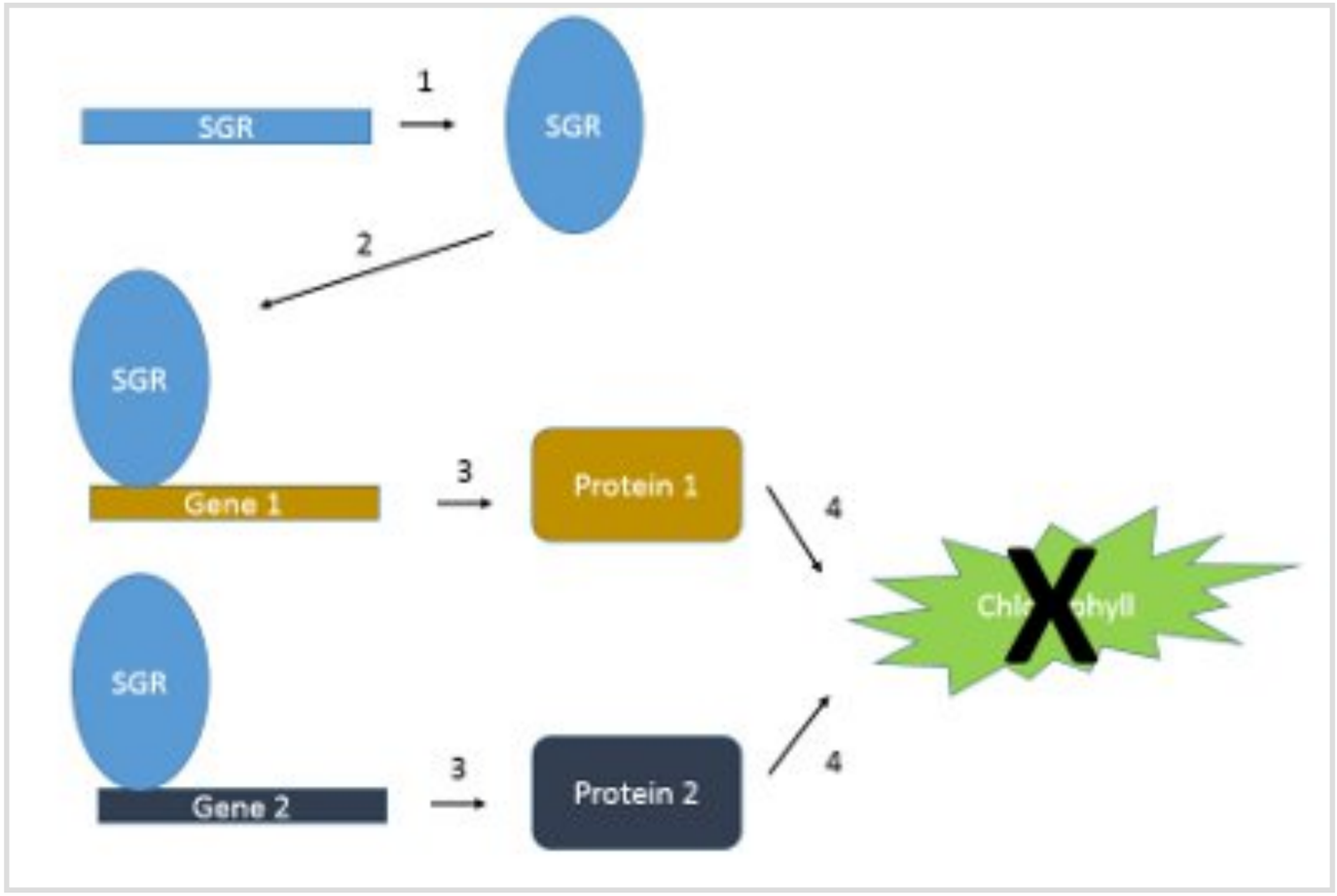


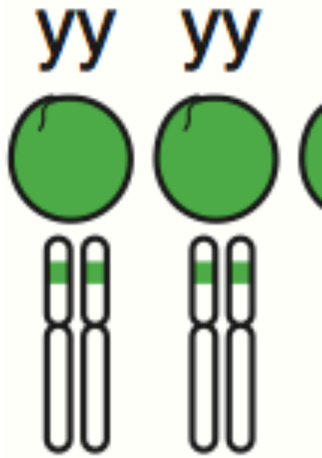


Y =SGR gene

SGR gene [blue rectangle] -makes-> SGR protein (blue oval)

?





Protein **Protein STAY-GREEN, chloroplastic**

Gene **SGR**

Organism *Pisum sativum (Garden pea)*

Status Reviewed - Annotation score: ●●●○○ - Experimental evidence at transcript level[i]

Function[i]

Probably involved in the disassembling mechanism of the intact light-harvesting complex of photosystem II (LHCII) in the thylakoid membranes. Required for the chlorophyll breakdown pathway. Acts independent and upstream of pheophorbide a oxygenase (PAO). 2 Publications

Miscellaneous

Corresponds to one of the seven genes studied by Gregor Mendel in 1866 (PubMed:17204643). The green cotyledon (i) line JI2775 used in the original work has a non-functional SGR protein (AC A7VLV2) due to the presence of a two amino acids insertion (PubMed:17709752 and PubMed:18301989). 1 Publication

Sequence[i]

Sequence status[i]: Complete.
Sequence processing[i]: The displayed sequence is further processed into a mature form.

A7VLV1-1 [UniParc] FASTA | Add to basket

« Hide

```
         10          20          30          40          50
MDTLTSAPLL TTKFKPSFSP QQKPCFPHRR RFENGKKNQS IVPVARLFGP
         60          70          80          90         100
AIFEASKLKV LFLGIDENKH PGNLPRTYTL THSDVTSKLT LAISQTINNS
        110         120         130         140         150
```

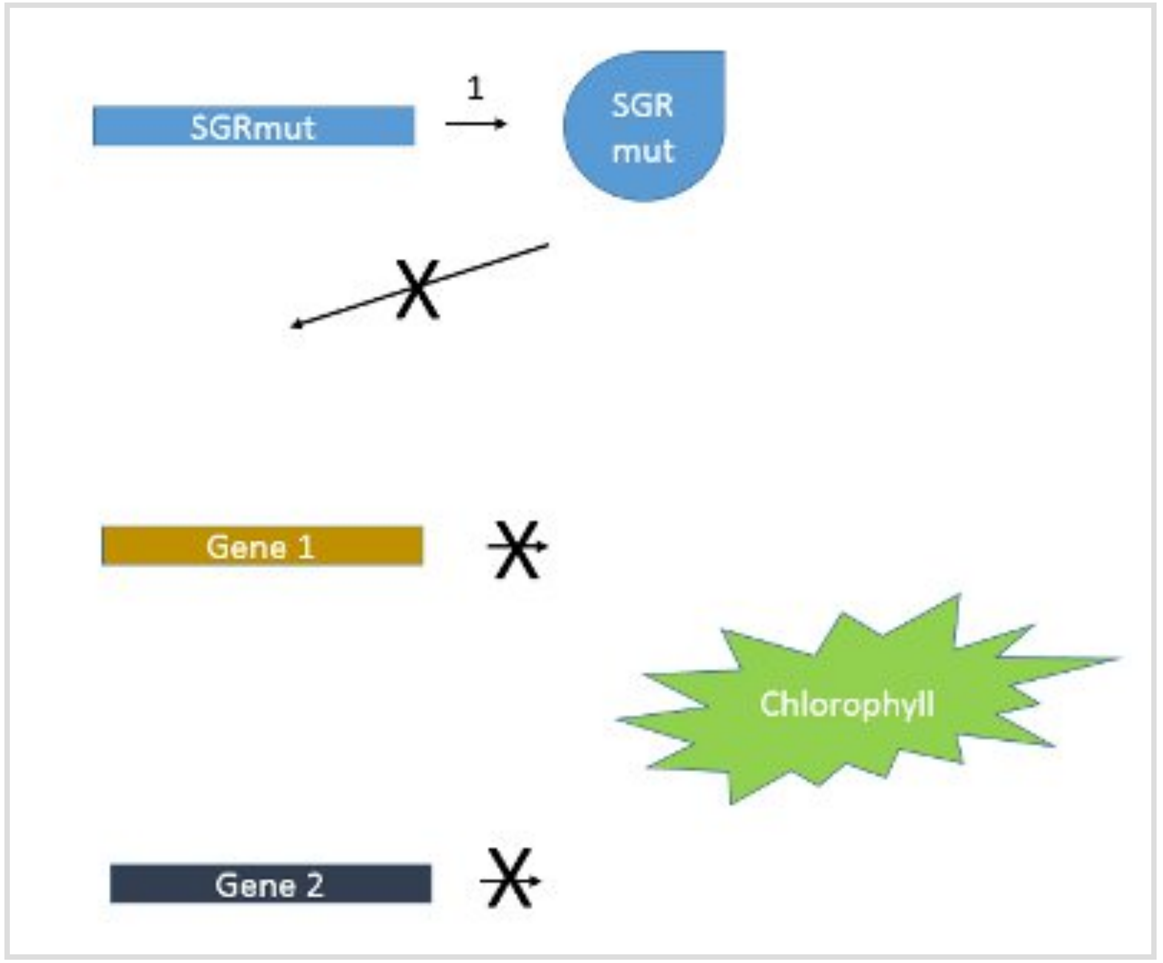
Length: 261
Mass (Da): 29,651
Last modified: October 23, 2007 - v1
Checksum:[i] 224749FD8714AF82

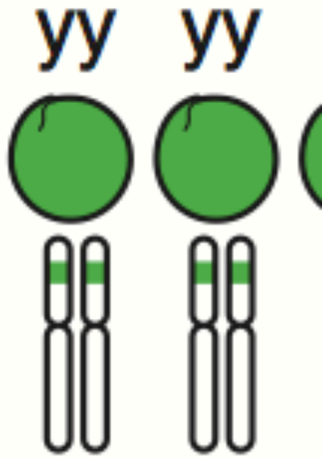
BLAST GO

Y =SGR gene

"SGRmut"= mutated SGR gene

?





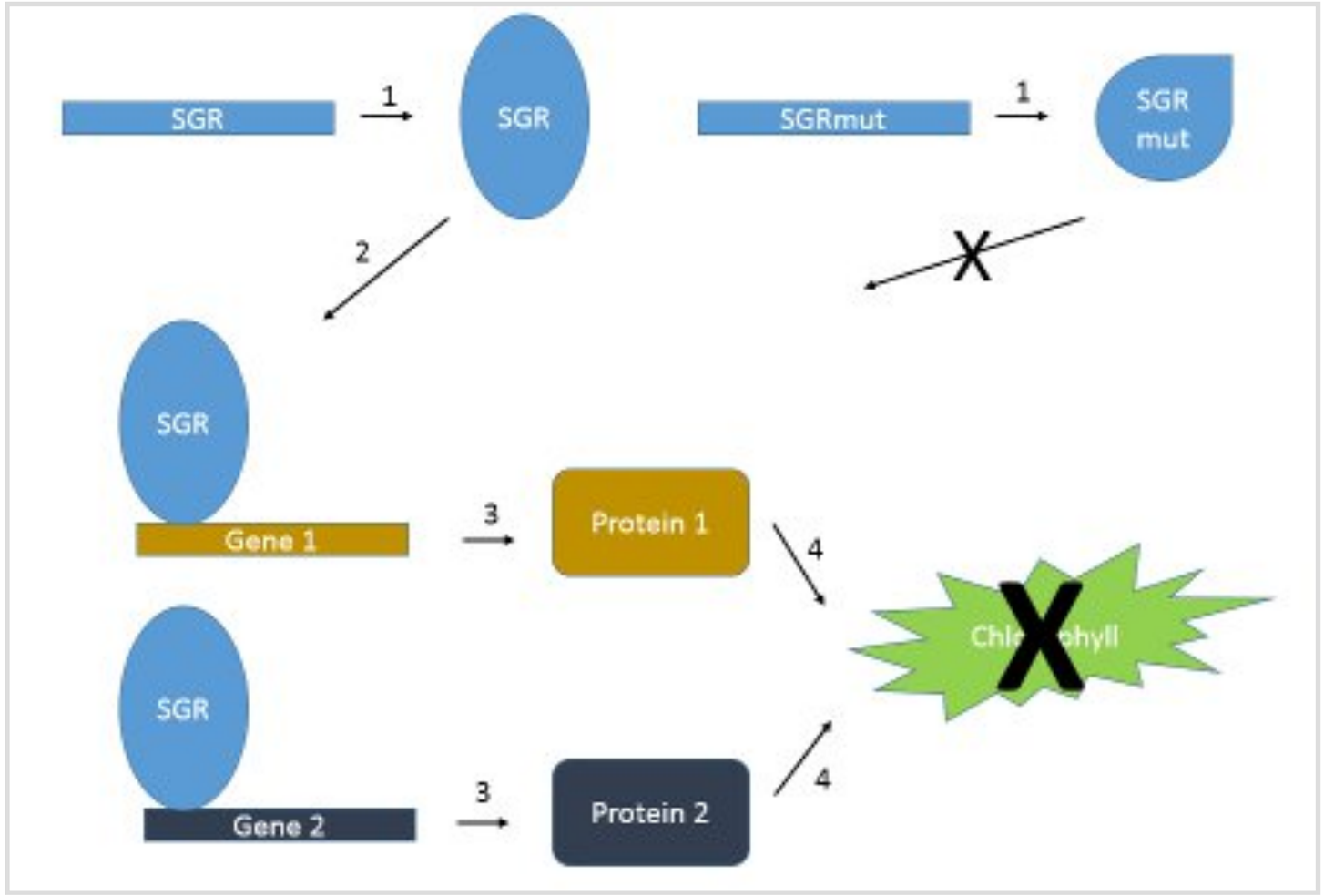
Y =SGR gene

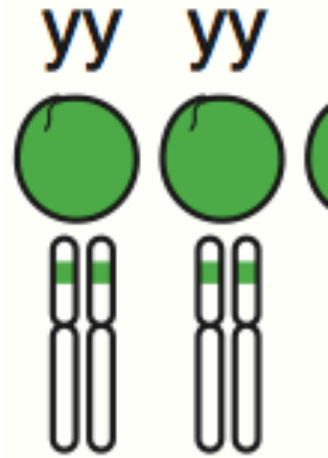
SGR="STAY-GREEN" Regulator

?

genotype

phenotype





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