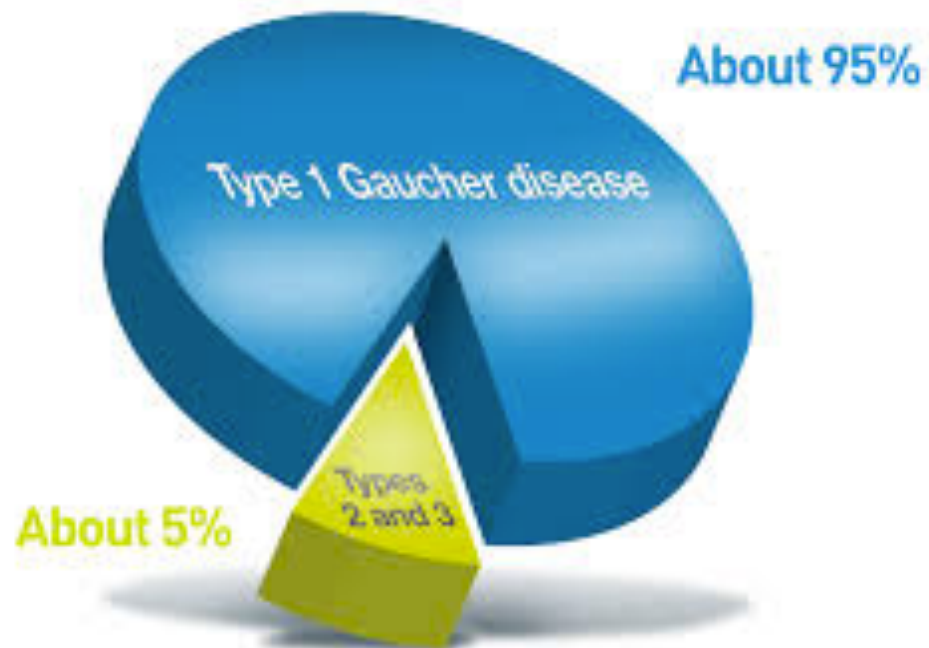


What is Gaucher Disease?

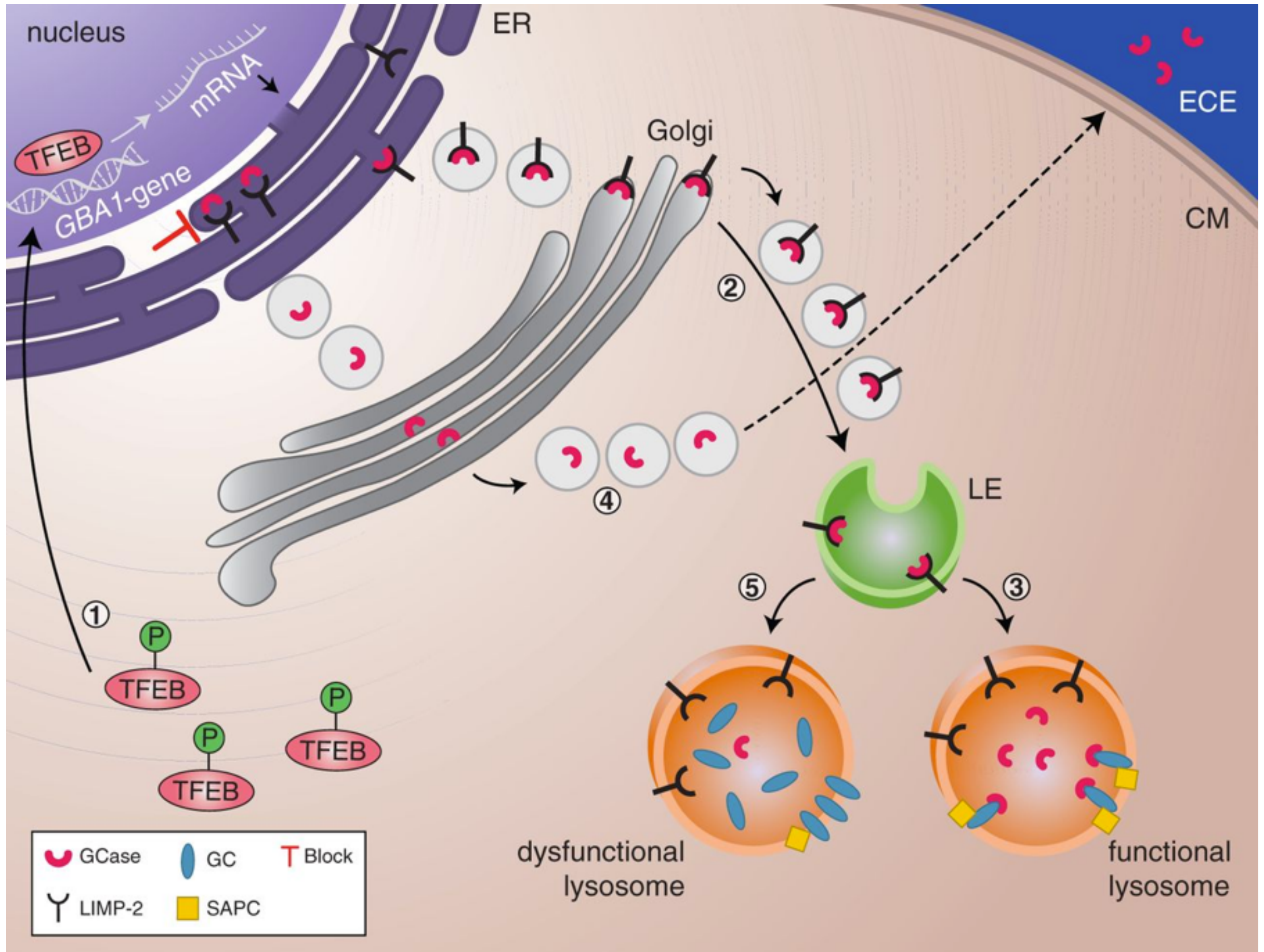


<http://www.vpriv.com/about-vpriv/what-is-type-1-gaucher-disease.php>

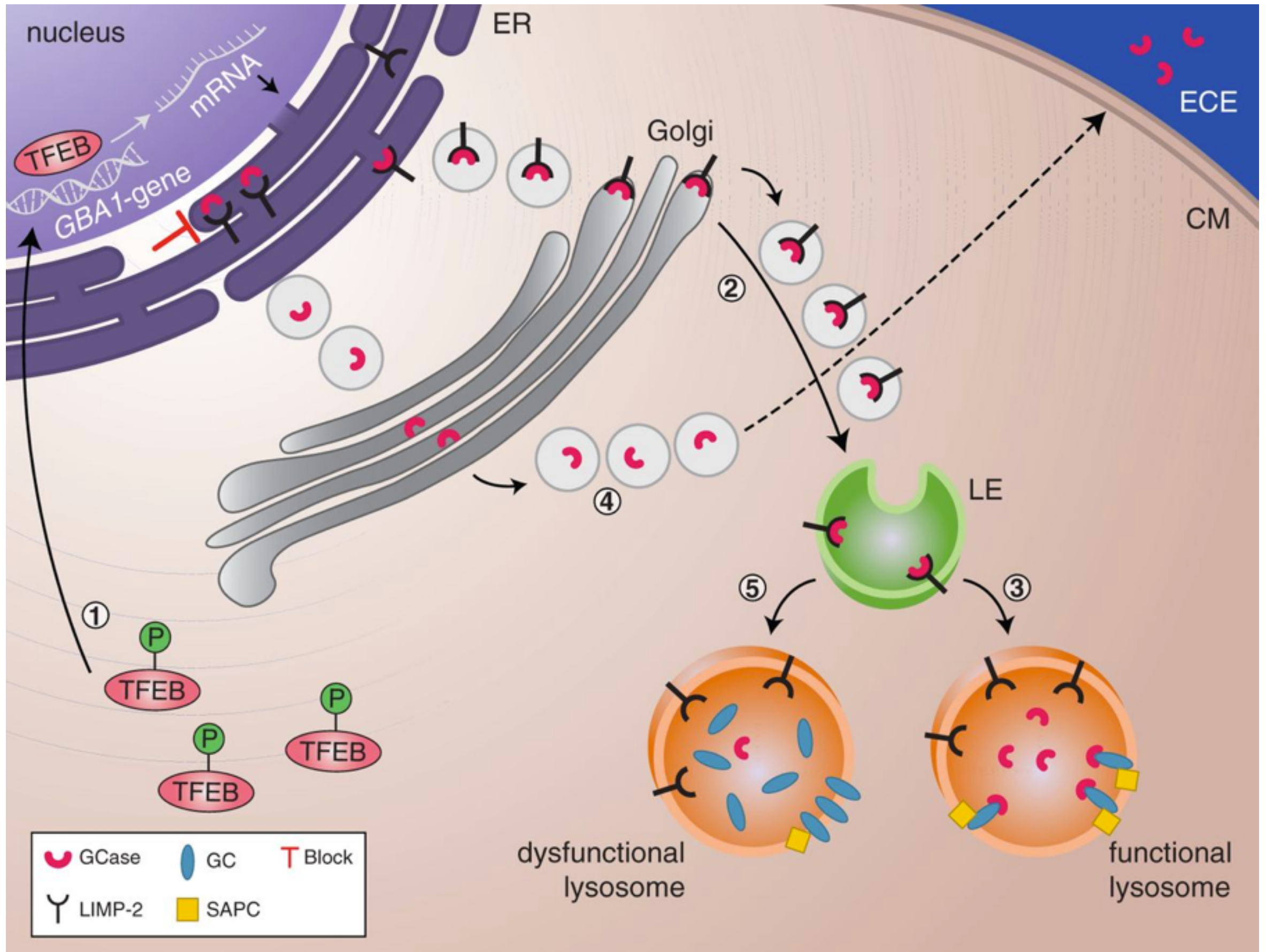
<http://www.gauchercare.com/en/healthcare.aspx>

<http://www.vpriv.com/about-gaucher-disease/>

How are glucocerebrosides(GC) normally broken down?

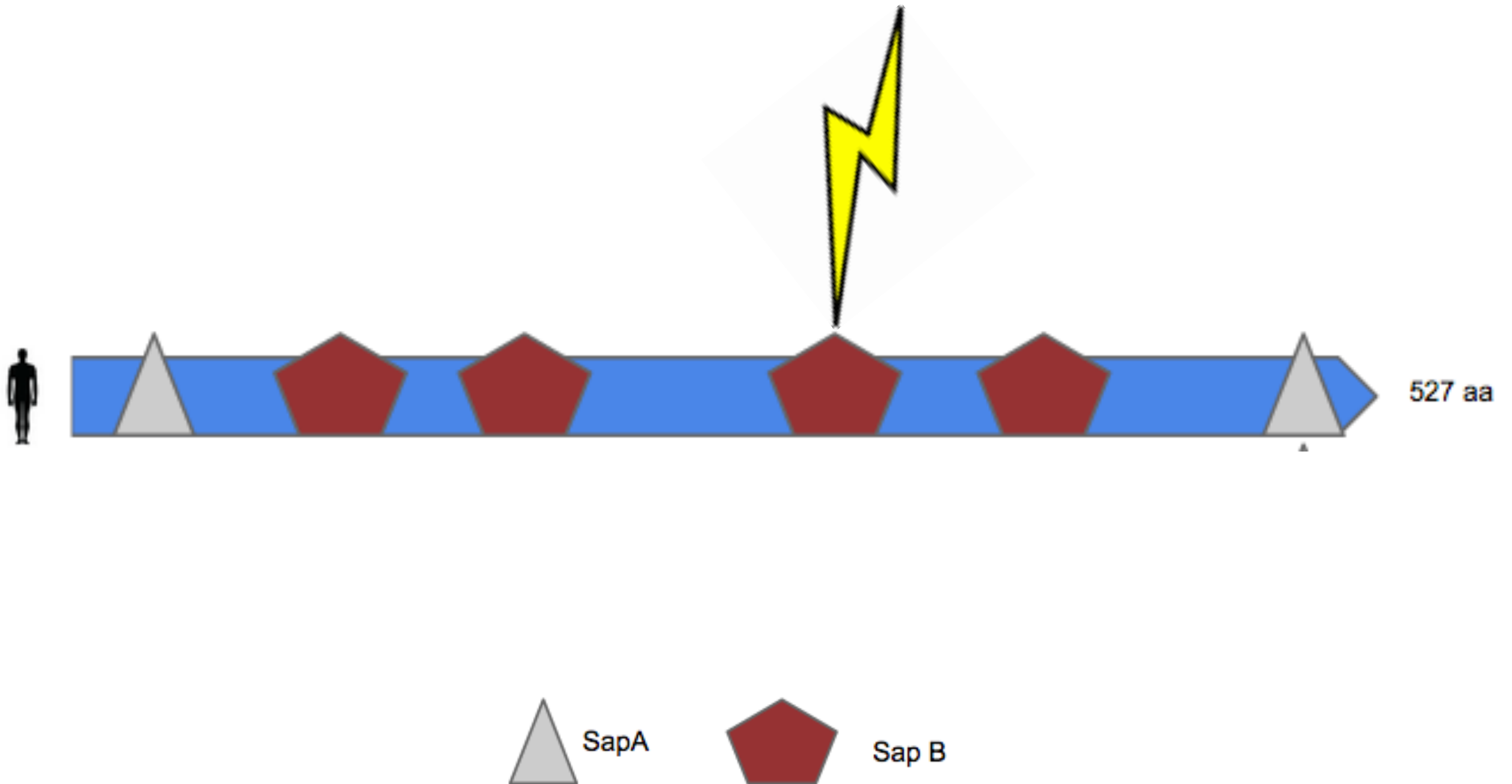


What gene(s) is mutated in Gaucher Disease?

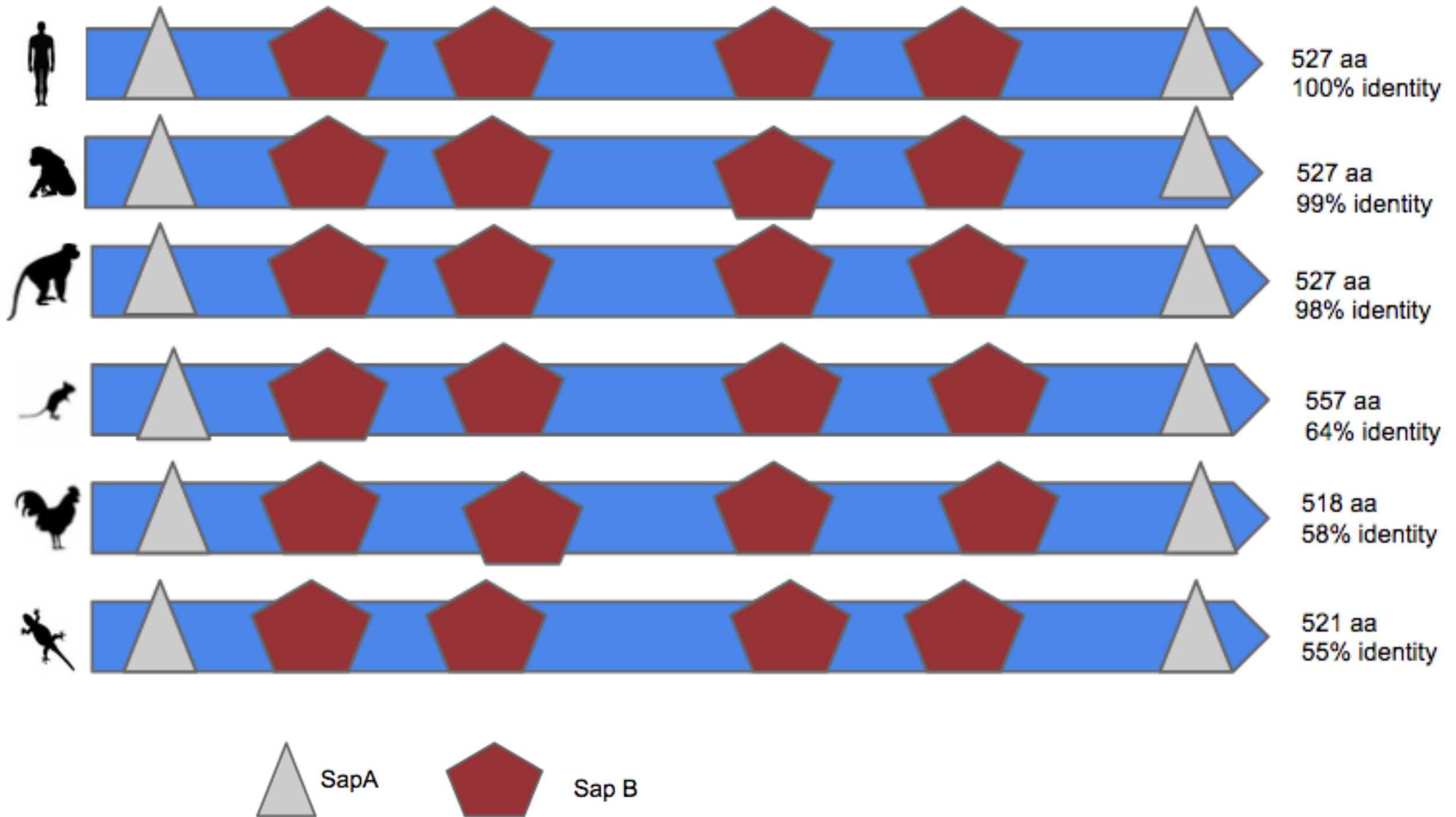


GBA (GCCase) and *PSAP* (SAPC)

PSAP is mutated



How well conserved is the protein?



The proteins domains are highly conserved

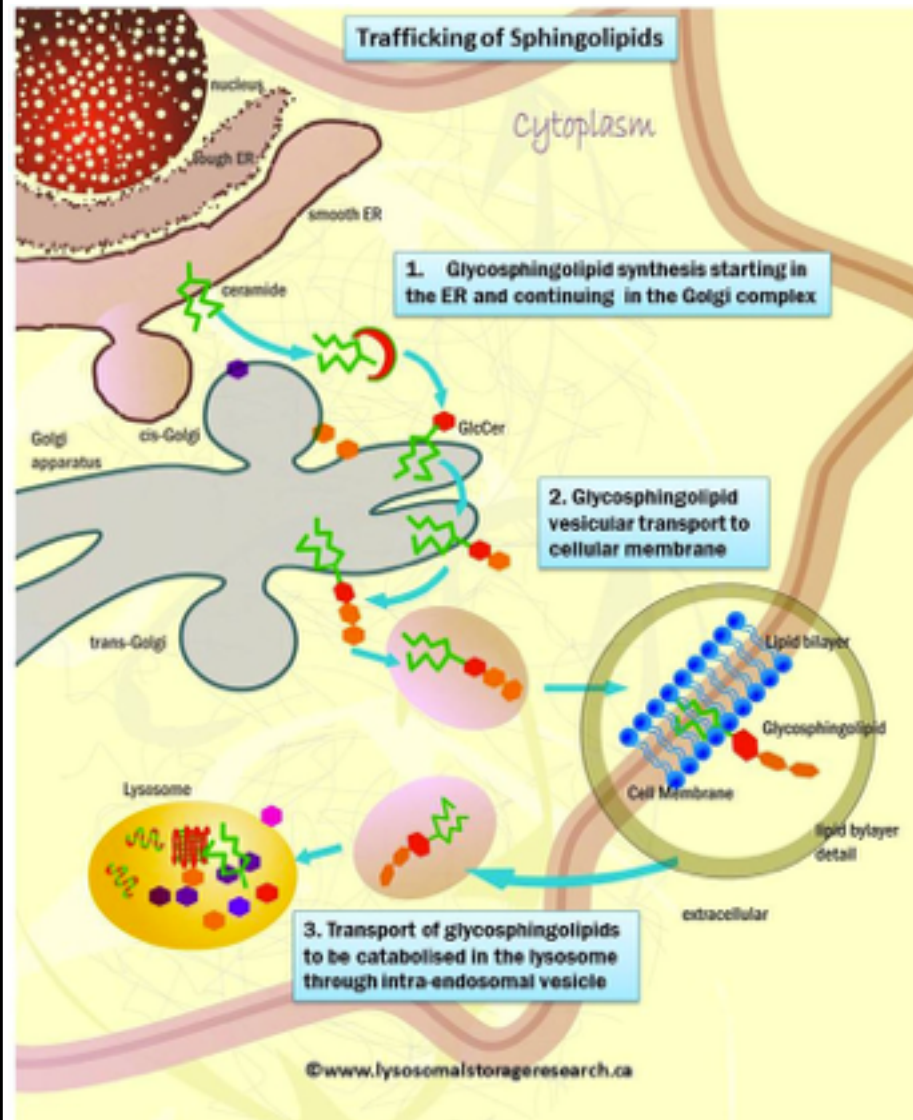
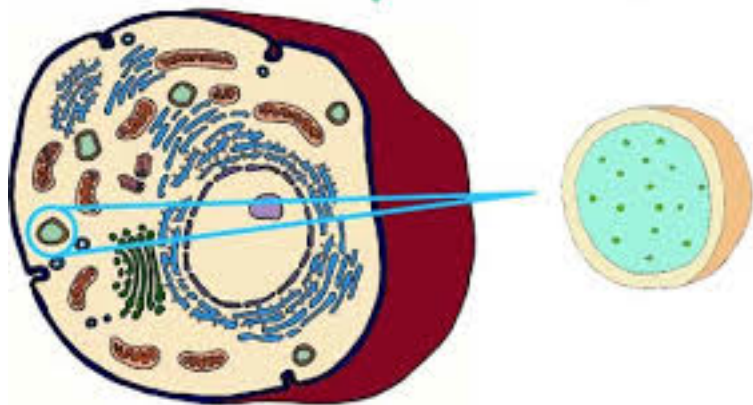
Where and how does PSAP function?

Cellular Components

Biological Processes

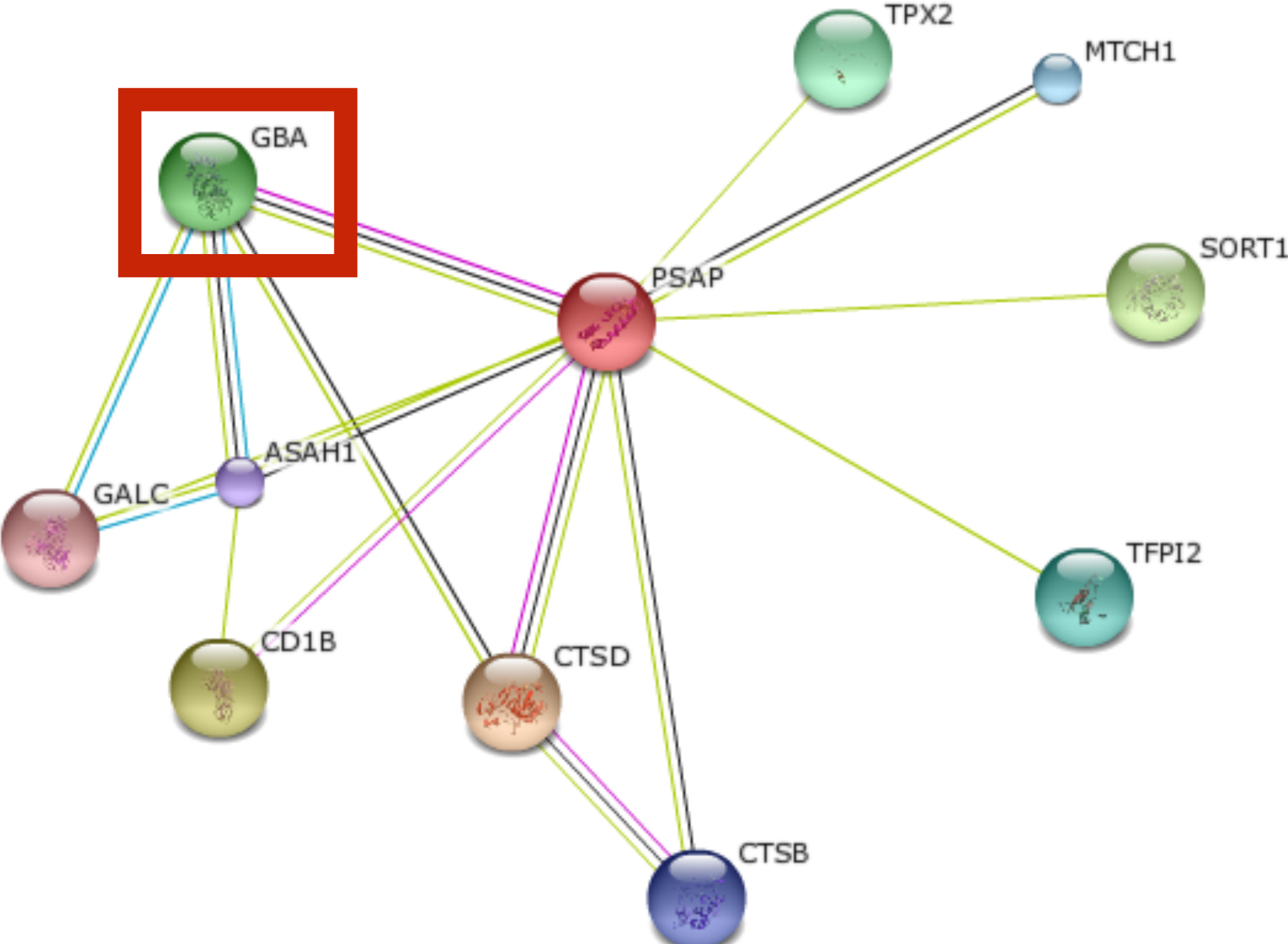
Molecular Function

Lysosome

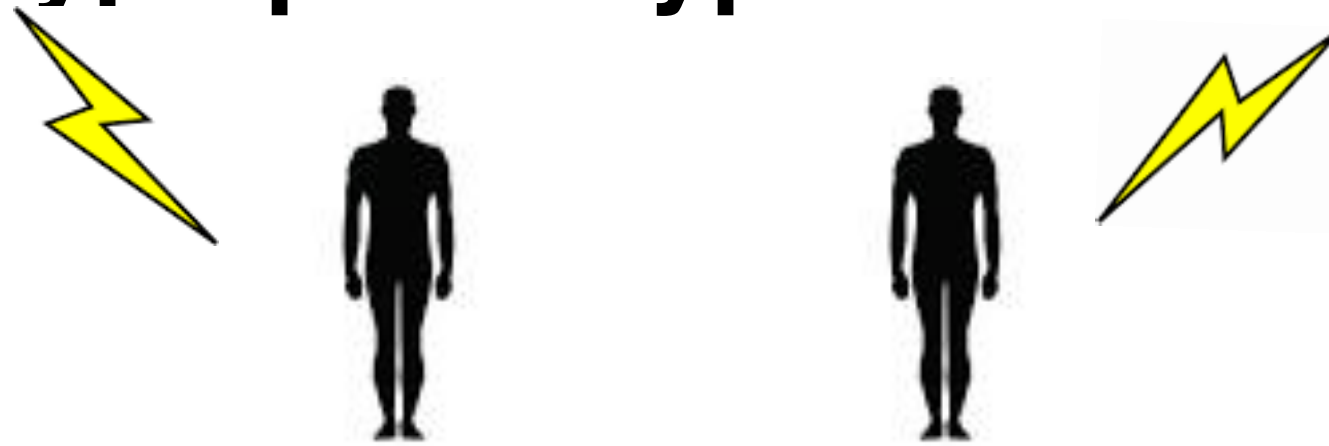


sphingolipid metabolic process


PSAP and GBA are binding partners



Genotype-phenotype association?



Exact same *GBA* mutation

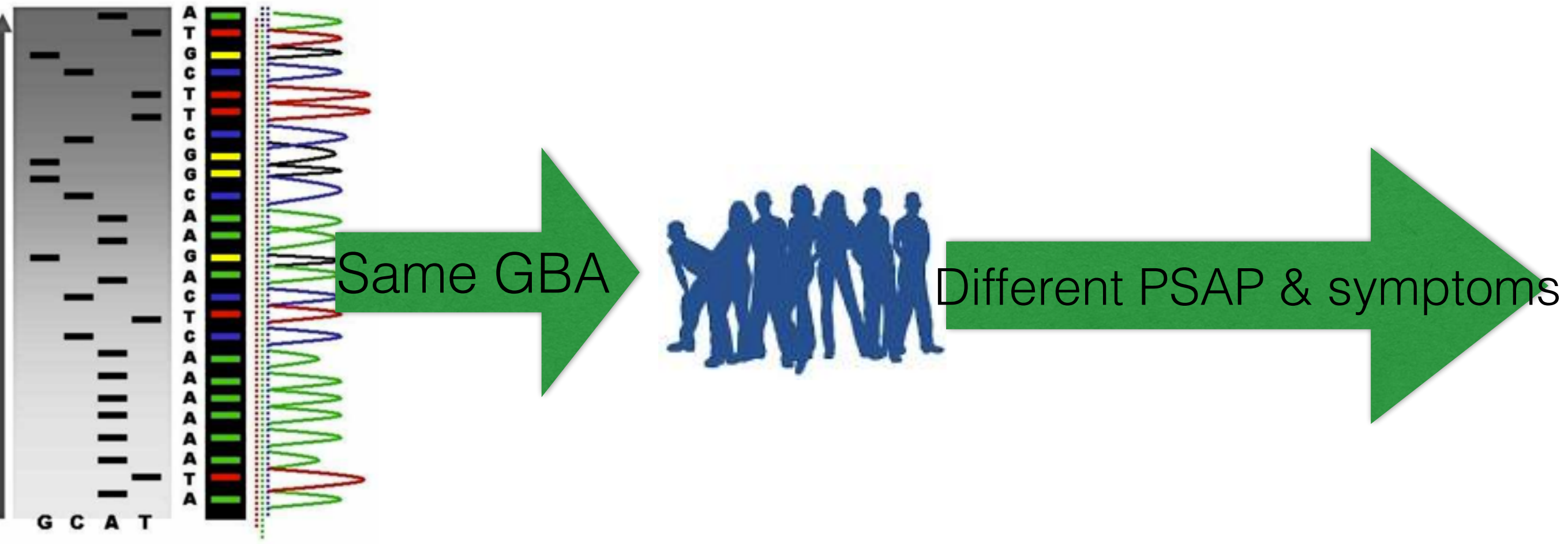
A black arrow pointing downwards from the text "Exact same *GBA* mutation" towards the two photographs below.

What is responsible for the differences in clinical manifestations?

Hypothesize that variations in *PSAP* contribute to the phenotypic variability in GD patients with same *GBA* mutations



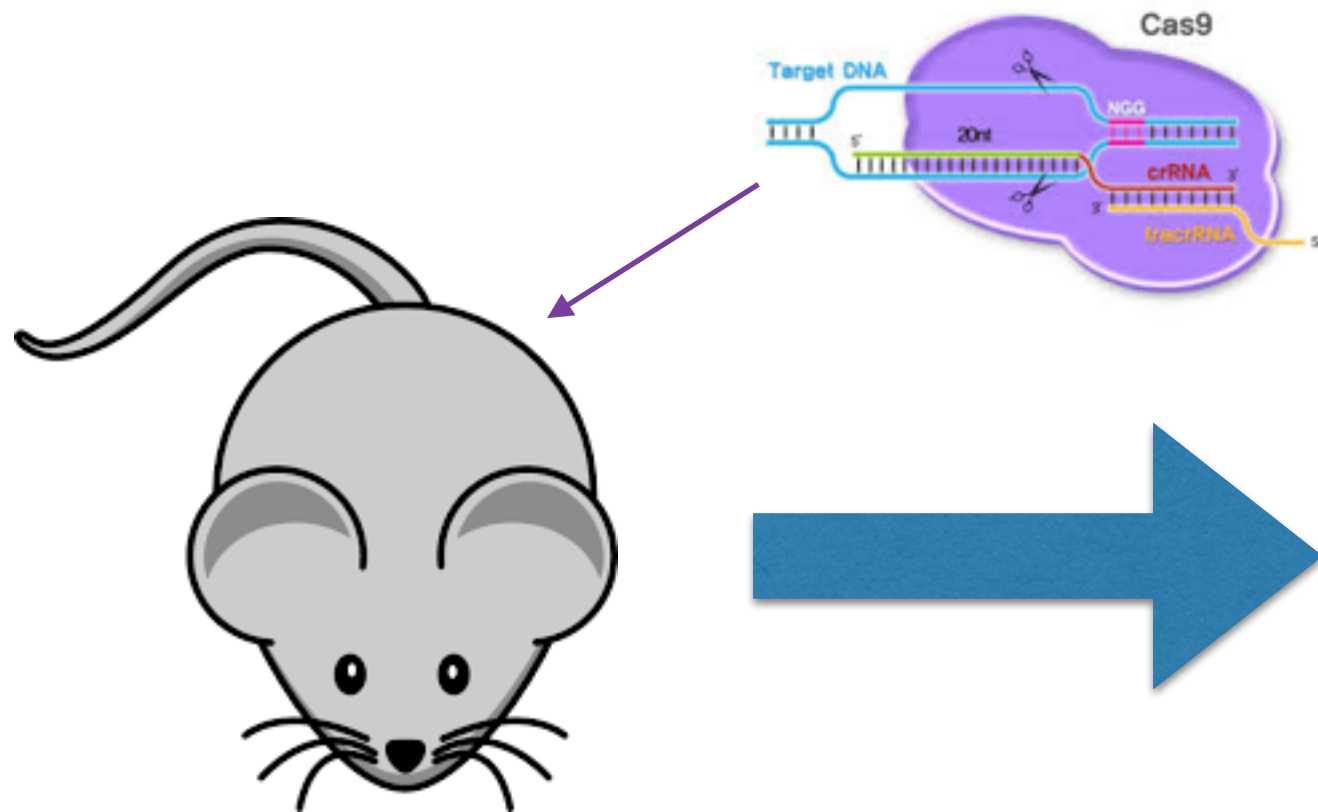
Aim 1: To Identify *PSAP* variants that are associated with patients who have the same *GBA* mutation, but do not exhibit the same symptoms.



Hypothesis: There will be individuals with variations in *PSAP* and symptoms but have the same *GBA* mutation.

http://en.wikipedia.org/wiki/DNA_sequencing

Aim 2: Examine the effects of overexpression of wild type *PSAP* in mice with the same *GBA* mutation.



Healthier?

Hypothesis: Changing the expression of *PSAP* will result in a phenotypic change in mice with *GBA* mutations.

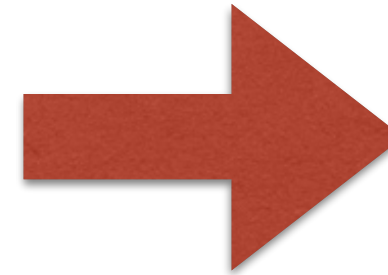
http://pnabio.com/products/CRISPR_Cas9.htm

http://www.everymantri.com/everyman_triathlon/2011/03/exercise-can-slow-and-even-prevent-aging-a-new-study-confirms.html

Aim 3: Compare tissue specific levels of PSAP expression in GD patients.



liver tissue



Differences in expression?



Hypothesis: Tissues that result in differences in symptoms will have irregular PSAP expression

Payoff?

PSAP is a factor in disease symptoms



Questions?



<http://cliparts.co/people-animation>