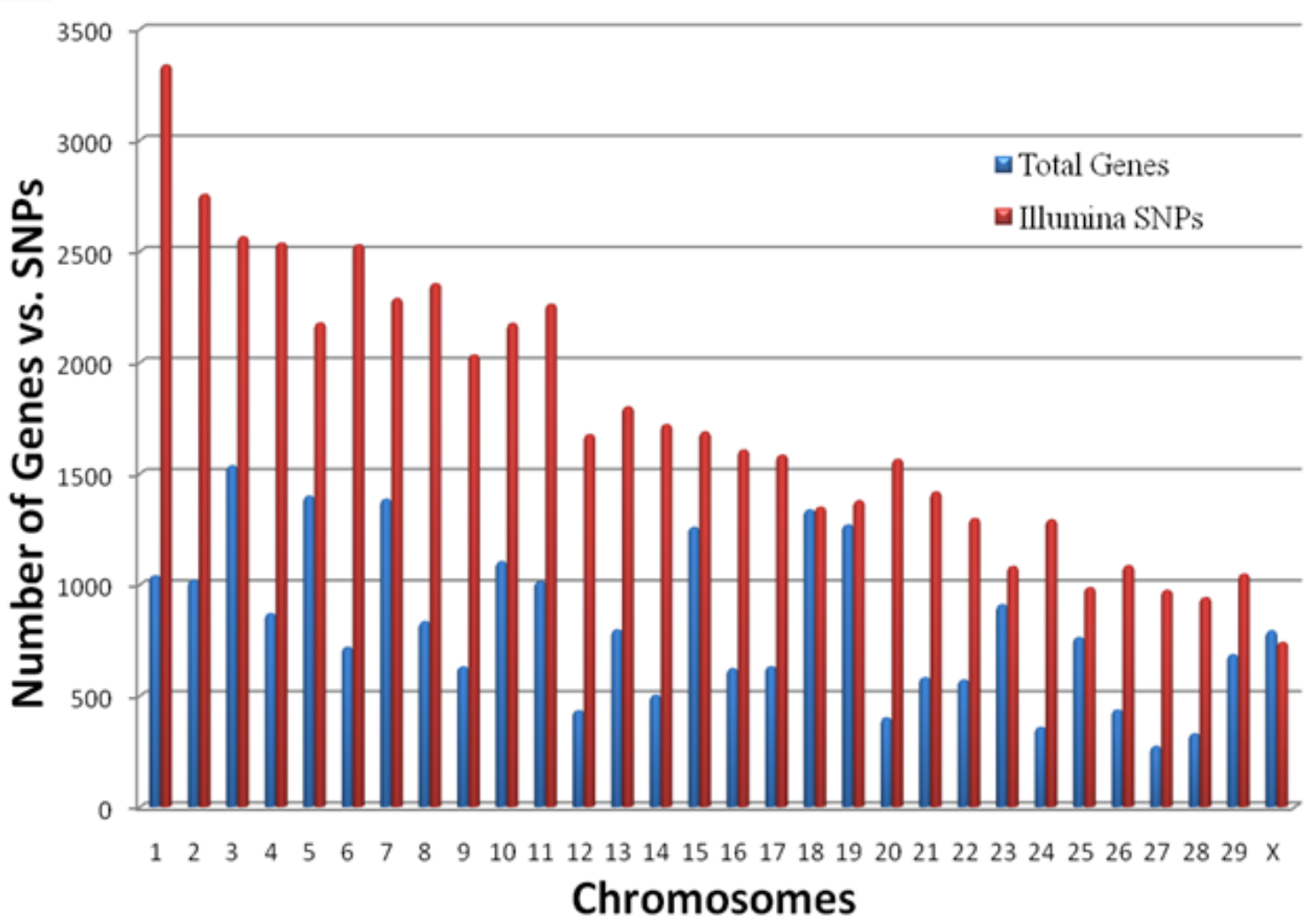
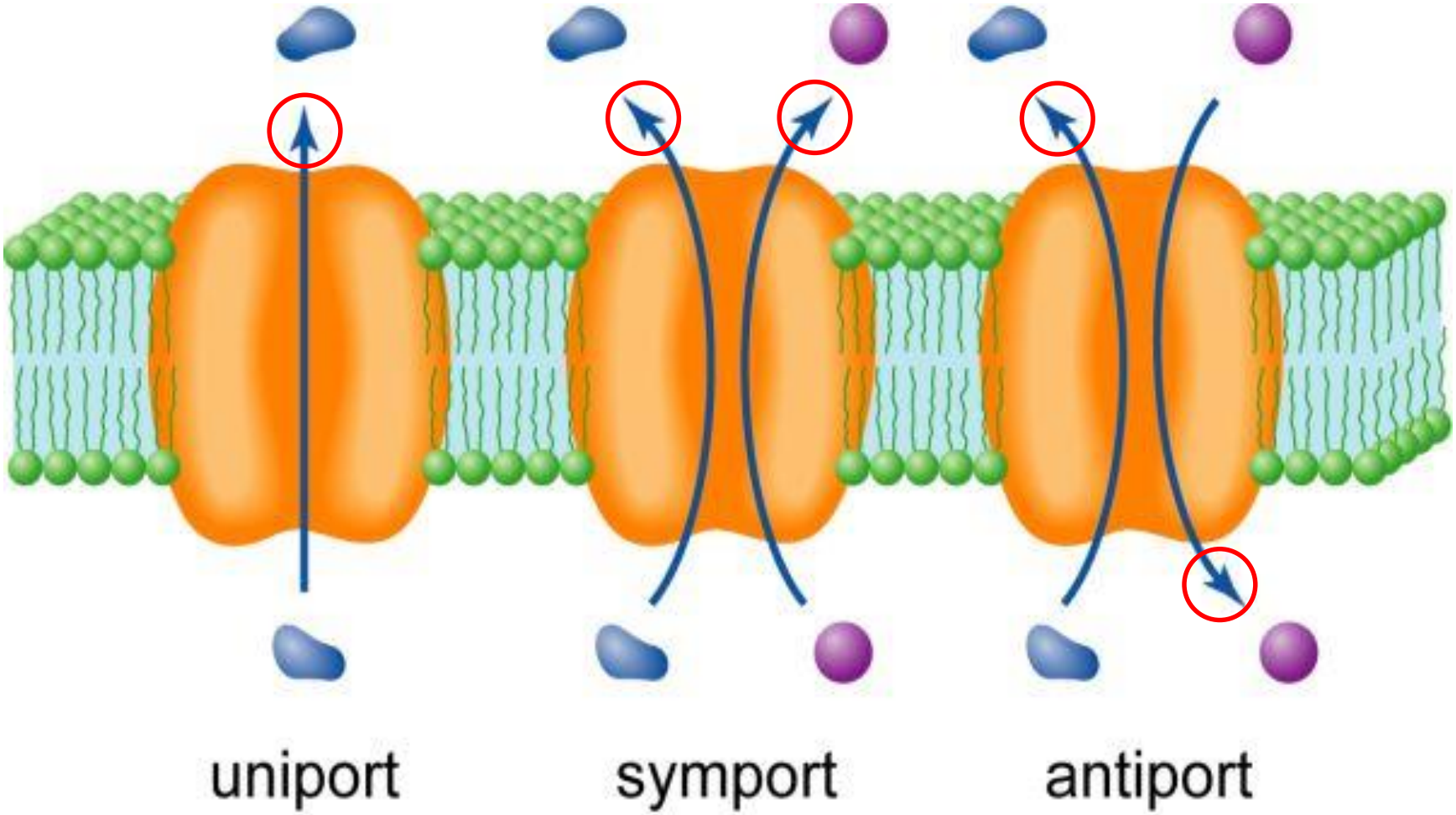
X-Linked Intellectual Disability (XLID, XLMR)

- Large number of known mutations on the X-chromosome
  - >100 known genes and >200 loci.
- Polygenic, multiple mutations contributing
- ~5-10% of intellectual disability in males
- Widely variable presentation
  - Sub syndromes etc



Team Workshop 1: With over 800 genes on the X chromosome how do females compensate for an extra X chromosome? Could this mechanism be exploited for treating a disease?


uniport
symport
antiport

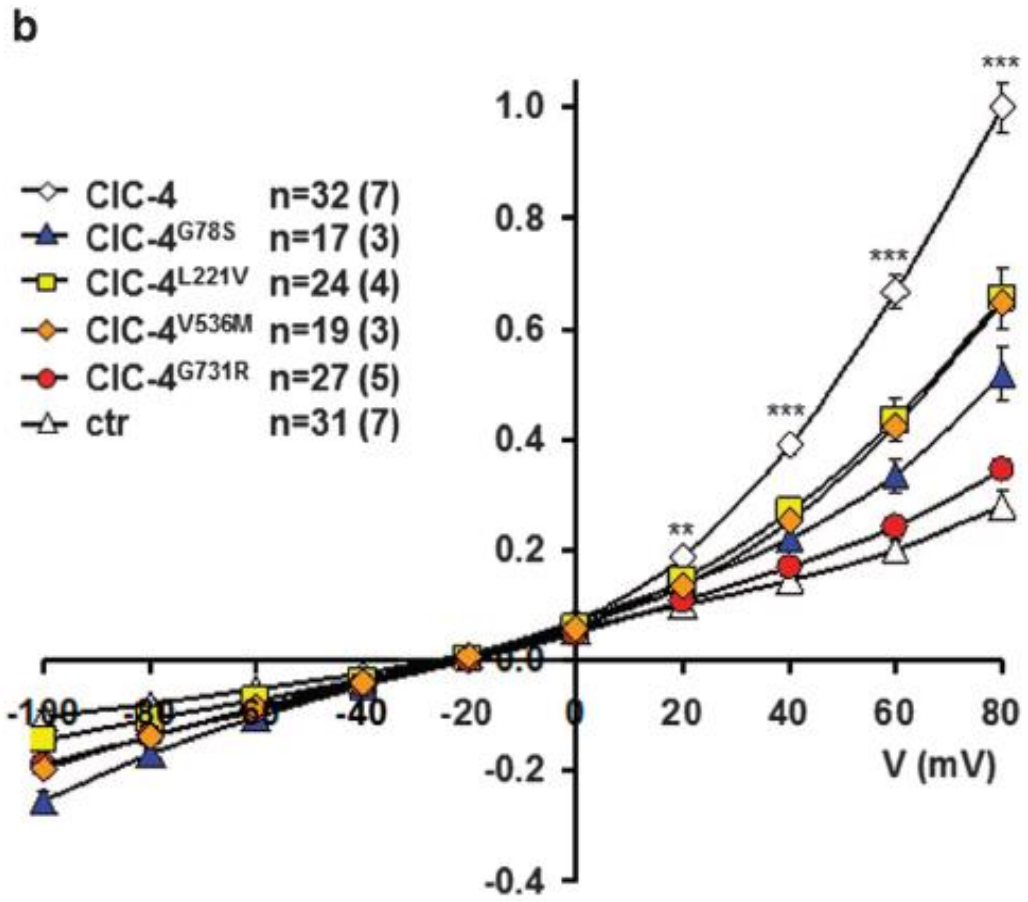
An antiporter

A. Does not require energy
B. Uses a concentration difference
C. Transports one molecule with the gradient and one molecule against the gradient
D. B and C

Synonymous
Missense
Non-sense
In-frame indels
Small frameshift indels
Large indels
Canonical splice sites
Retrocopies
Potential cryptic splice sites
Non-coding exons

Team Workshop 2: Describe what each of these mutations is, provide an example and predict the possible biological consequence of such mutations?

L221 is G208
V536 is V481
G731 is G693



Team Workshop 3: Install a molecular graphics program or use the Protein Workshop Viewer at RCSB. Go to the RCSB and download the coordinates of the CLCN4 paralog CMCLC (3ORG). Propose a molecular mechanism for why these mutants alter conductance.

Remember

- Before 12 PM of the next class day:
  - go to b.socrative.com/student/login and complete the quiz