

**So you want to do a DNA
sequencing project...**

Types of sequencing projects

Mixture “Who’s there?”

Mixture “What are they like
and what can they do?”

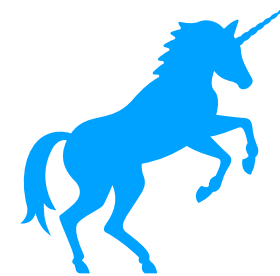
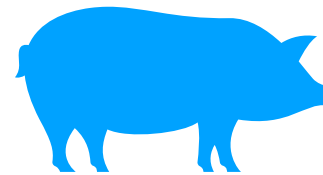
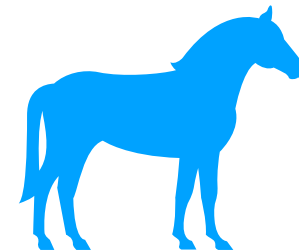
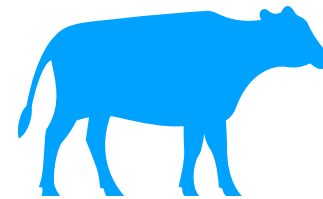
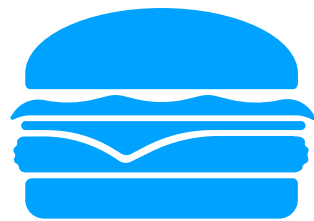
Phylogenetic

Single-organism “What are
you like and what can you
do?”

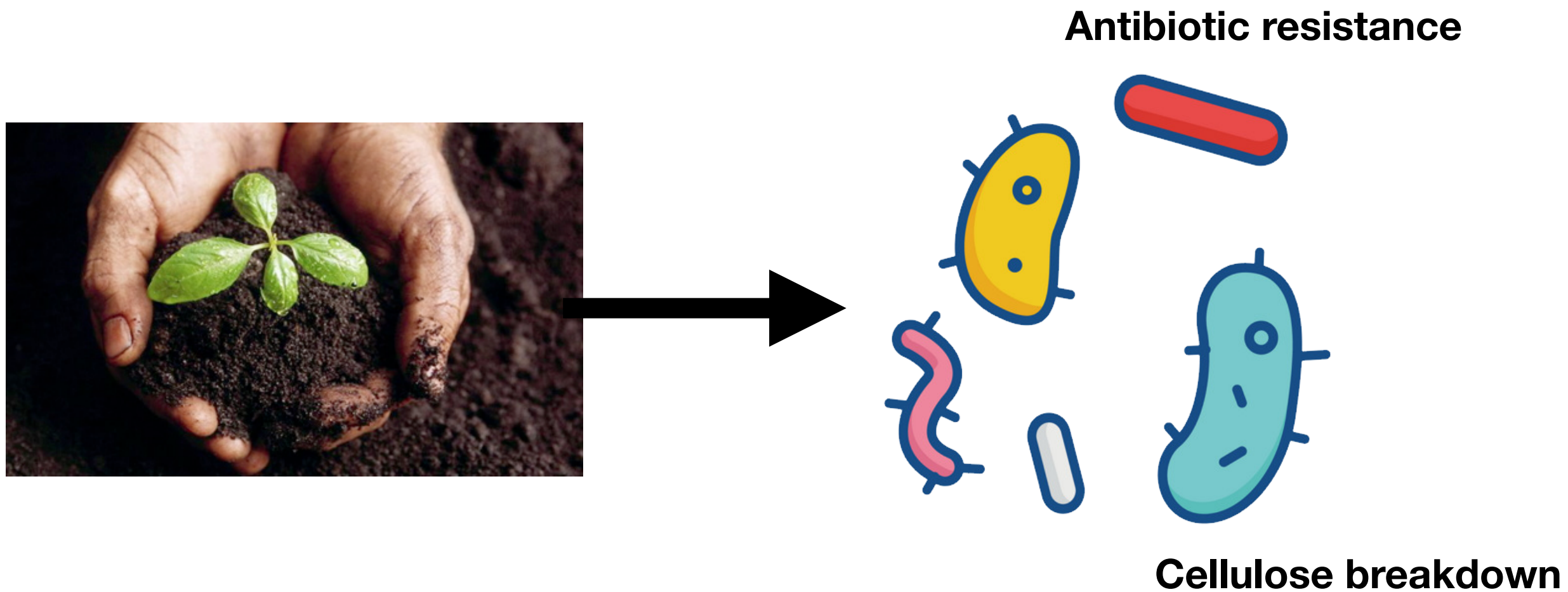
~~Non-DNA~~

Mixture “Who’s there?”

WIMP - What’s in my pot?

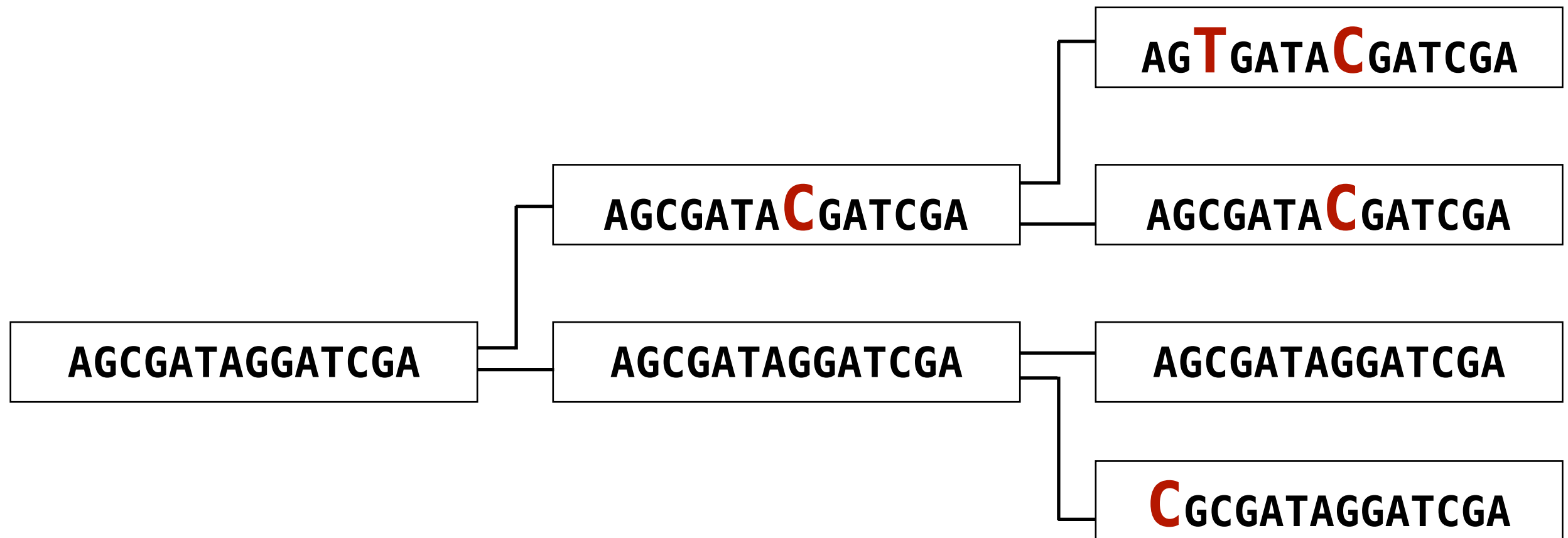


Mixture “What are they like and what can they do?”



Phylogenetic

Evolutionary history and relationships between individuals and species



Phylogenetic

Real-time tracking of influenza A/H3N2 evolution

Showing 2131 of 2131 genomes, from 10 regions, from 119 countries, dated Jun 2011 to Apr 2018. Filtered to [Jun 2011 to Apr 2018](#).

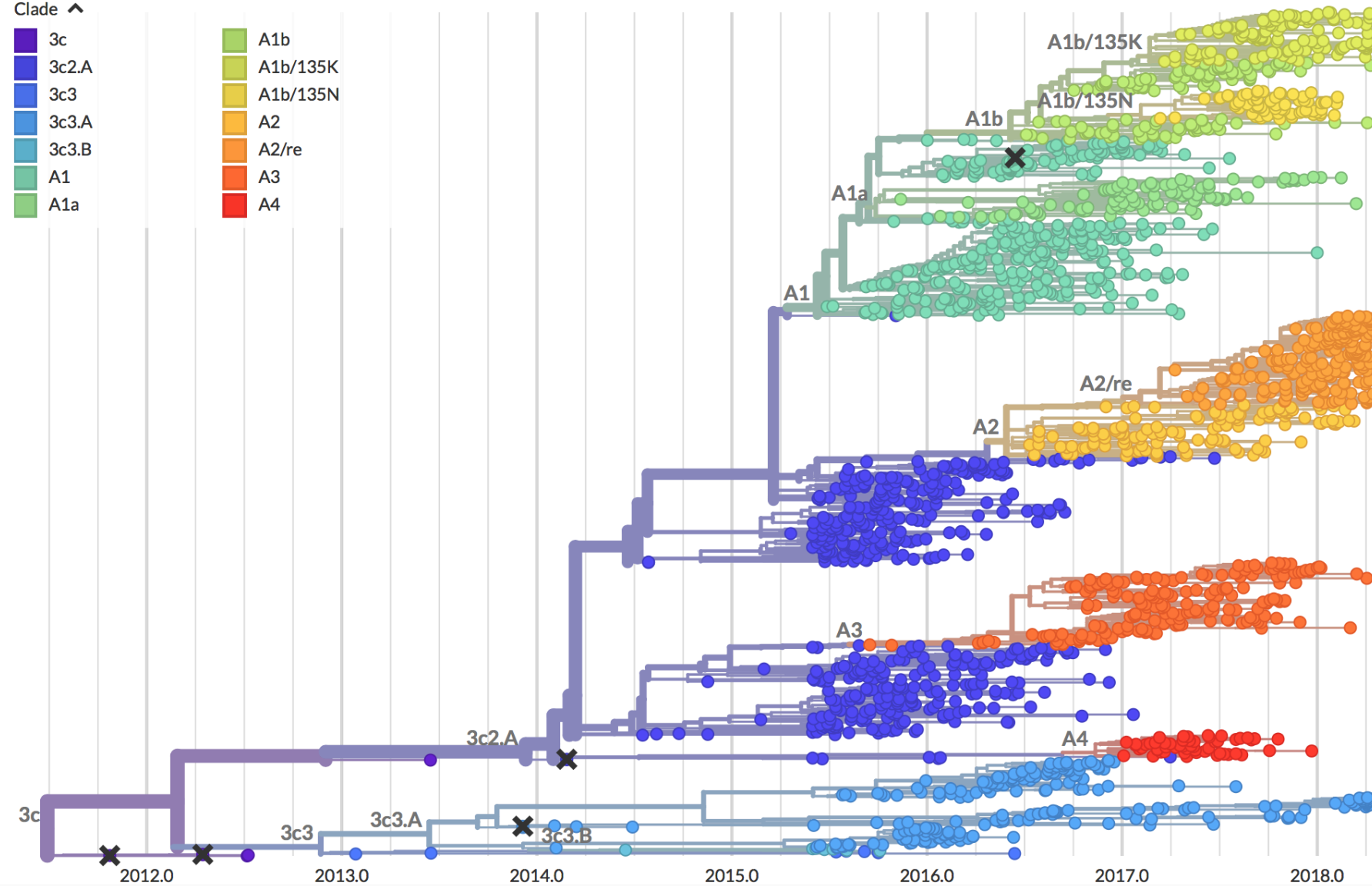
Phylogeny

[RESET LAYOUT](#)

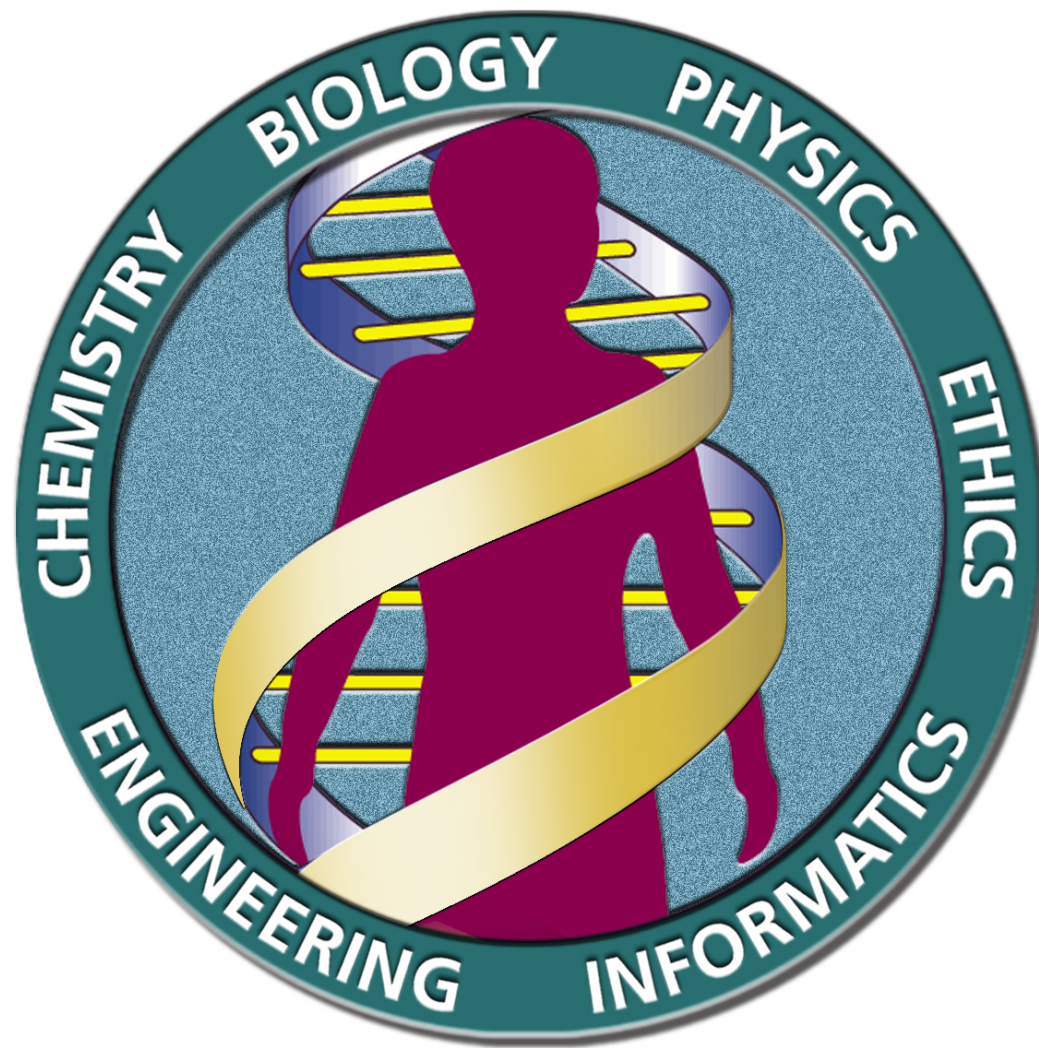
Clade ^

3c
3c2.A
3c3
3c3.A
3c3.B
A1
A1a

A1b
A1b/135K
A1b/135N
A2
A2/re
A3
A4



Single organism “What are you like and what can you do?”



List of questions & Project trading cards



Even though the super market shelves are dominated by a few well-established cultivars of fruits and vegetables, there is a much larger variety out there, often right on our doorsteps: old gardens and farms often harbor old cultivars of apple, pear, cherry, strawberry and more. These cultivars sometimes have unique properties such as disease and drought resistance, taste, and appearance. Documenting and sequencing this variety may be a worthy cause.

Suitable	Yep!
Organism	Plants, various
Substrate	DNA
Full Genome	???
Genome size	Varies
Reference available	Varies



The cost of sequencing

MinION Human Genome Sequencing:

39 flow cells

=

~ 20 000 \$

Plus other reagents

=

~ 5000 \$

=

Not within our means

We will have:

2 or 3 flow cells

Enough reagents for 6 experiments

Ethical and legal issues

Out of bounds for our workshops

**Due to ethical and legal
concerns:**

- **Paternity testing**
- **Medical diagnoses**
- **Invasive sampling (unless you
can get a medical professional
involved...)**
- **...**

More group work!