

```
library(dplyr)
```

```
rladies_global %>%  
  filter(city == 'London')
```



@RLadiesLondon

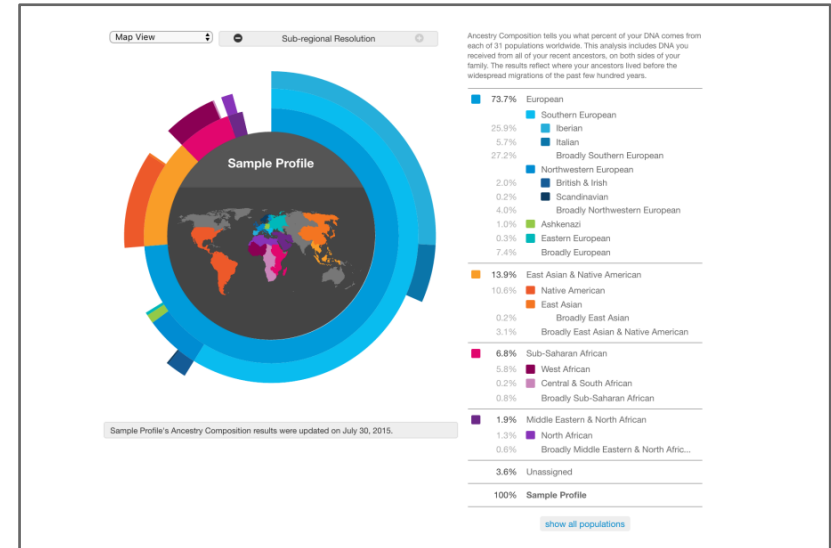
#RLadies

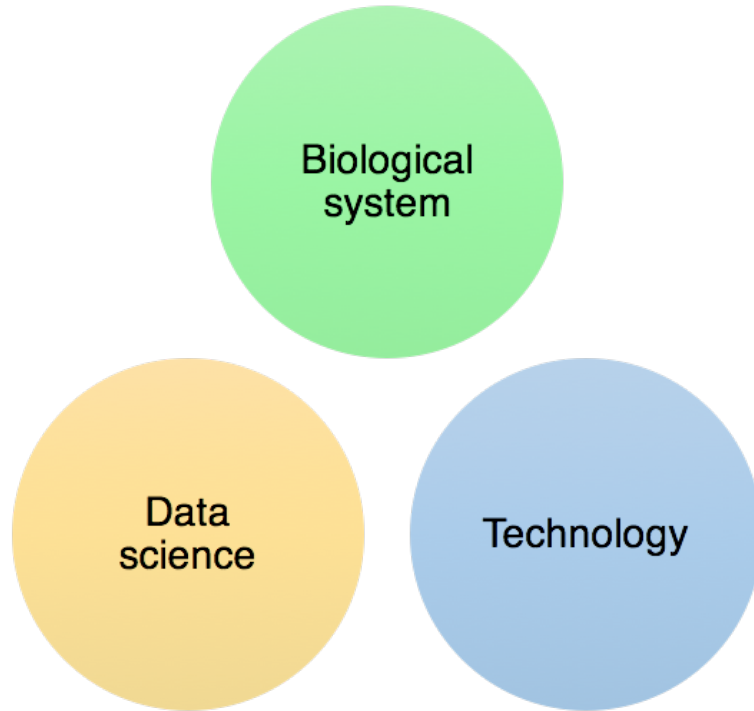
@victoriabutt1

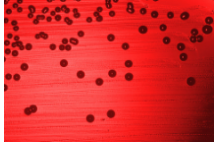
Slack: rladies-london

Researchers & Students Community Launch

What has bioinformatics done for us?







1995



1998



2000



2002



2004

Now...

illumina®



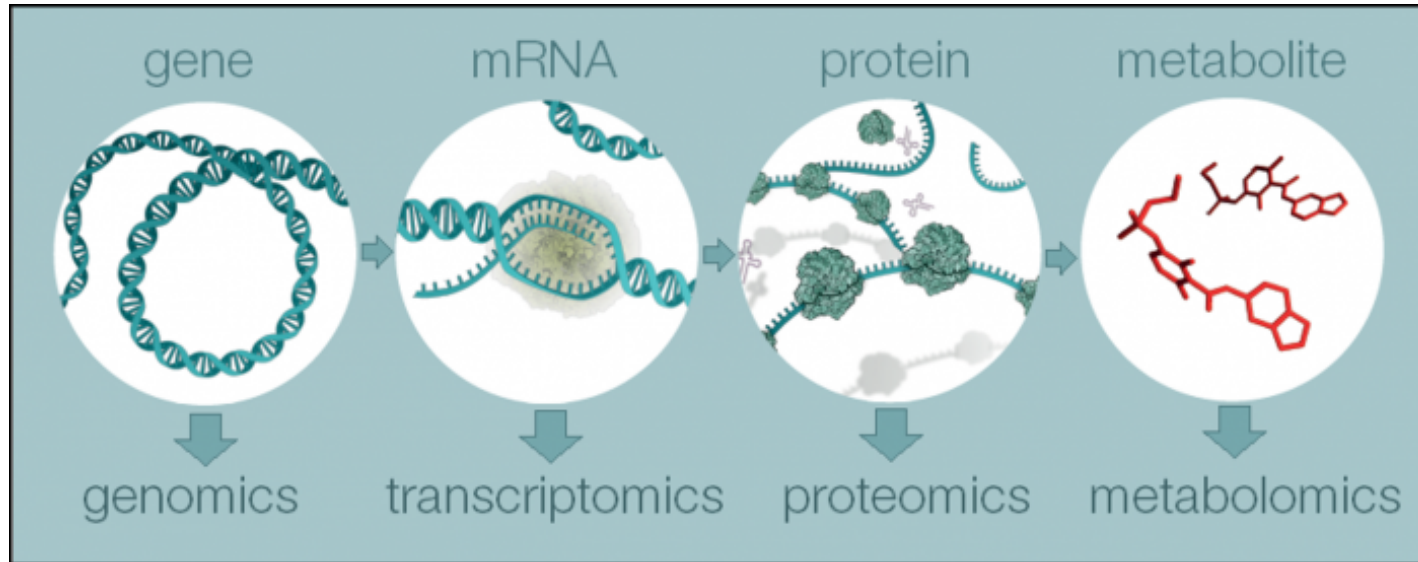
Cheaper
and faster

1000s of
species...

Oxford
NANOPORE
Technologies™

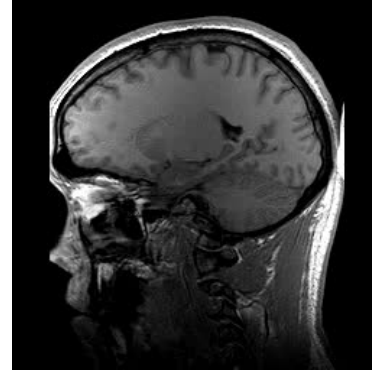


The 'Omics



What else?

Imaging



WIRED

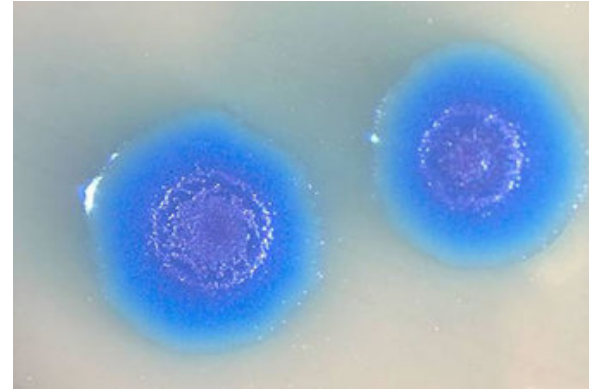
Technology | Science | Culture | Video | Reviews | Magazine

This AI can spot skin cancer as accurately as a doctor

The artificial intelligence was trained on an image database of 129,000 images and performed as well as trained medical professionals

What else?

Synthetic biology



The perks



- Computational biology is now and the future
- Transferrable skills
- Logical thinking
- Fail fast, succeed faster
- Now is the time to learn

Myths?

“

Coding is hard”

I’m not mathsy enough”

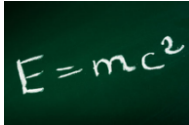
Bioinformaticians have a background in computer science or mathematics”



How do you become a bioinformatician?



Year 1
Physicist



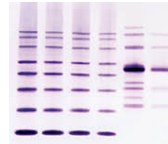
Year 2
Biologist



Lab placement
Computational
biology



Year 3
Neuroscience



Year 4
Systems
Biology



Year 1 PhD



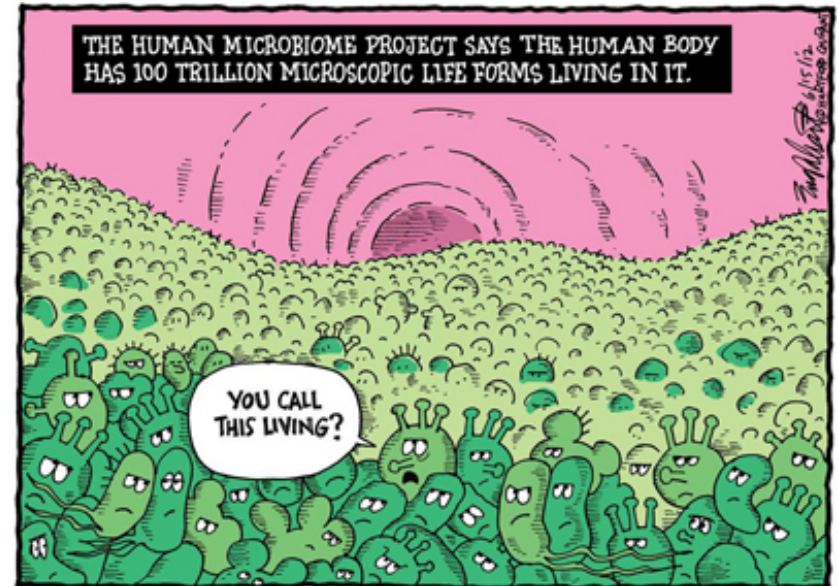
London Interdisciplinary
Doctoral Programme
@ UCL, KCL, QMUL, Birkbeck, LSHTM, RVC



Project 1 - UCL



Project 2 - KCL





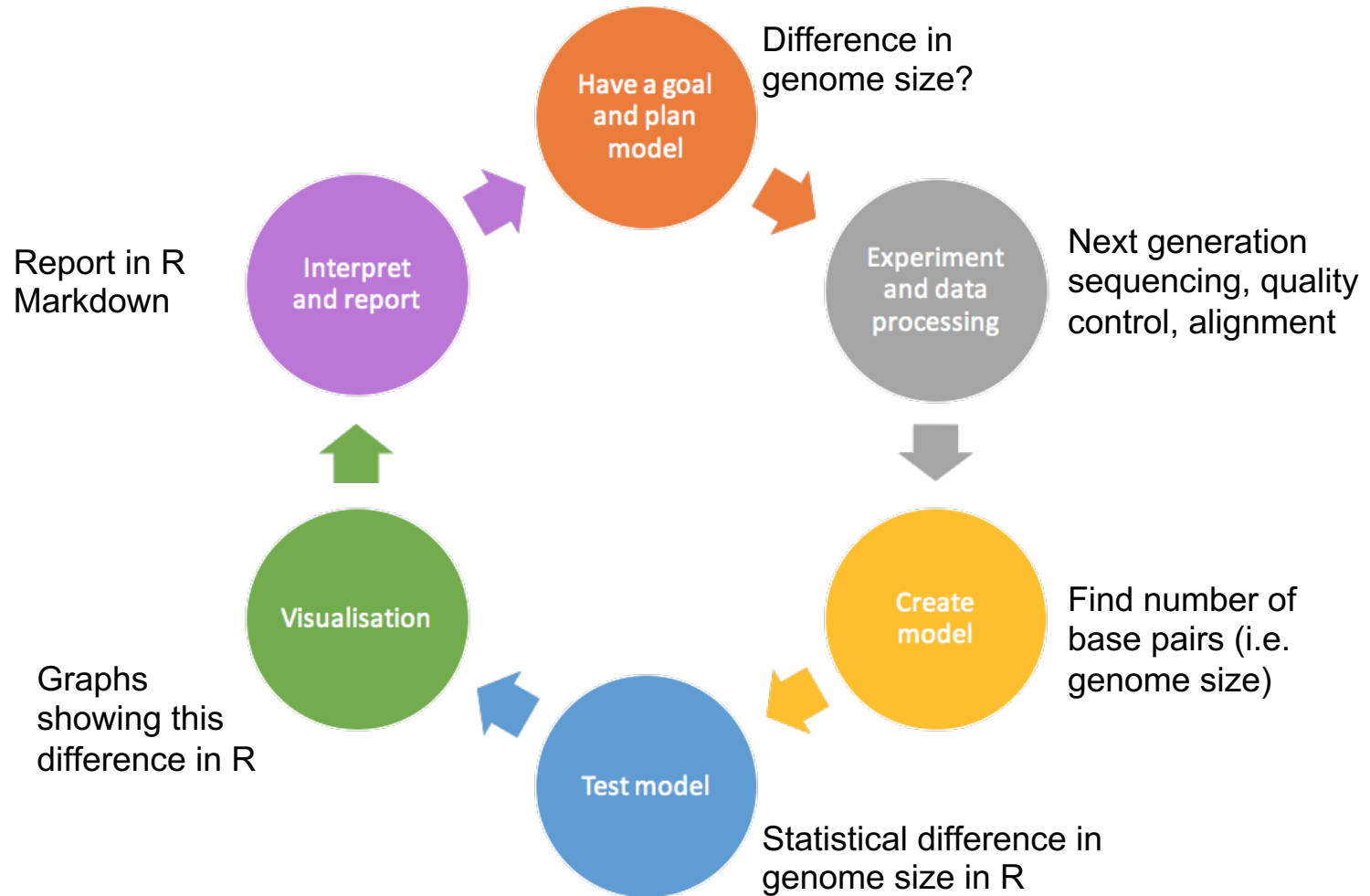
Now it's your turn!

Experiment

We are studying a population of *Escherichia coli* (Ara-3), which multiplied for more than 40,000 generations in a glucose-limited medium. This medium was supplemented with citrate which *E. coli* cannot metabolize in the aerobic conditions of the experiment. Sequencing of the populations at regular time points reveals that spontaneous citrate-using mutants (Cit+) appeared at around 31,000 generations.

Goal

Look to see if there is a difference in genome size between citrate-using mutation status of the strain i.e. between Cit- and Cit+



Metadata

Column	Description
sample	clone name
generation	generation when sample frozen
clade	based on parsimony-based tree
strain	ancestral strain
cit	citrate-using mutant status (plus, minus, unknown)
run	Sequence read archive sample ID
genome_size	size in Mbp (mega base pairs)