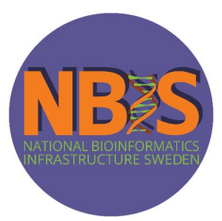
Rui Benfeitas 11/11/2019

DATA LAB

@ruifeitas

benfeitas



Who am I?

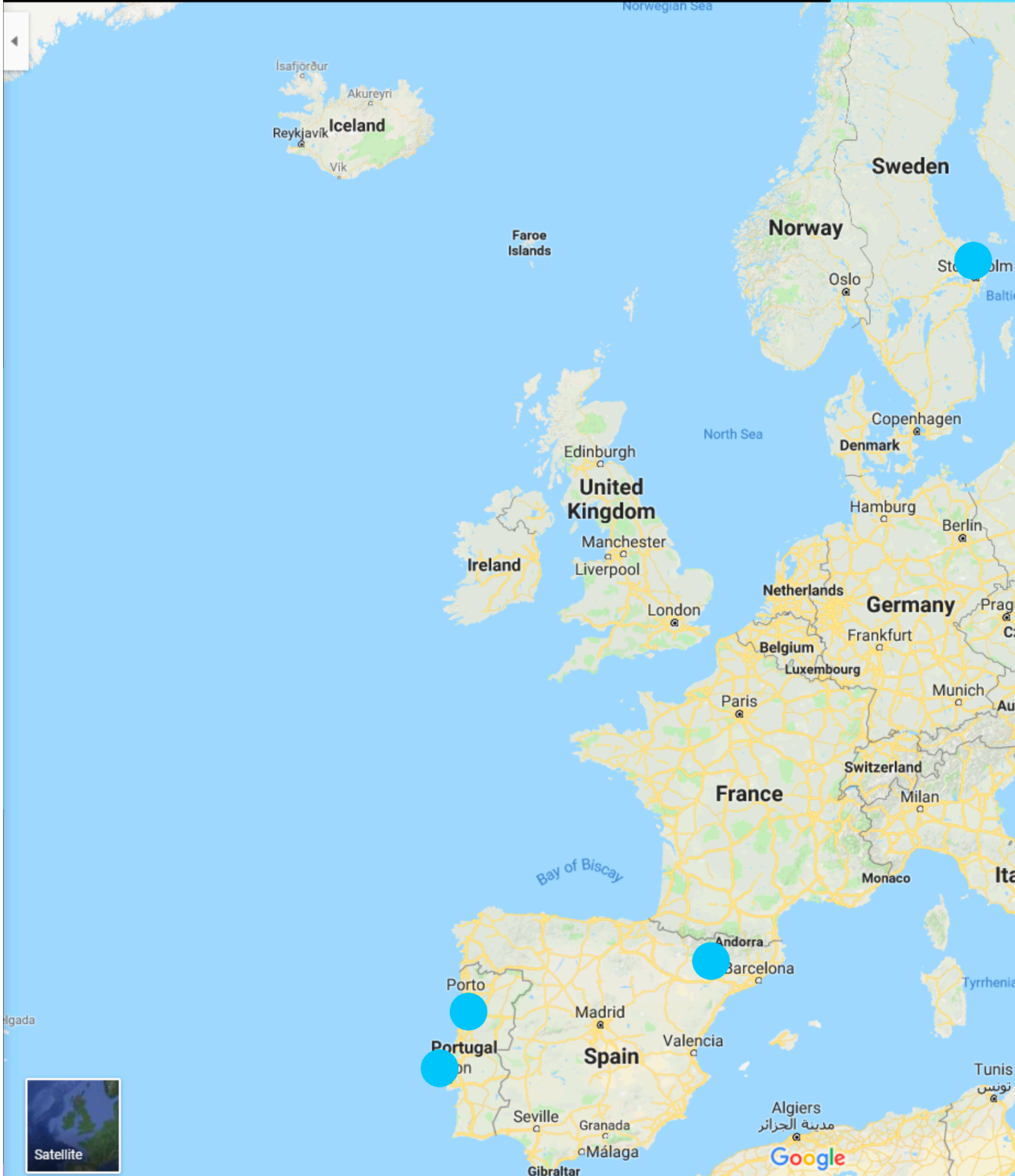
School:
Science! Bio?Maths?Chem?

University:
Bio! Molecular?Ecology?

University (+):
Biochemistry! Study what?

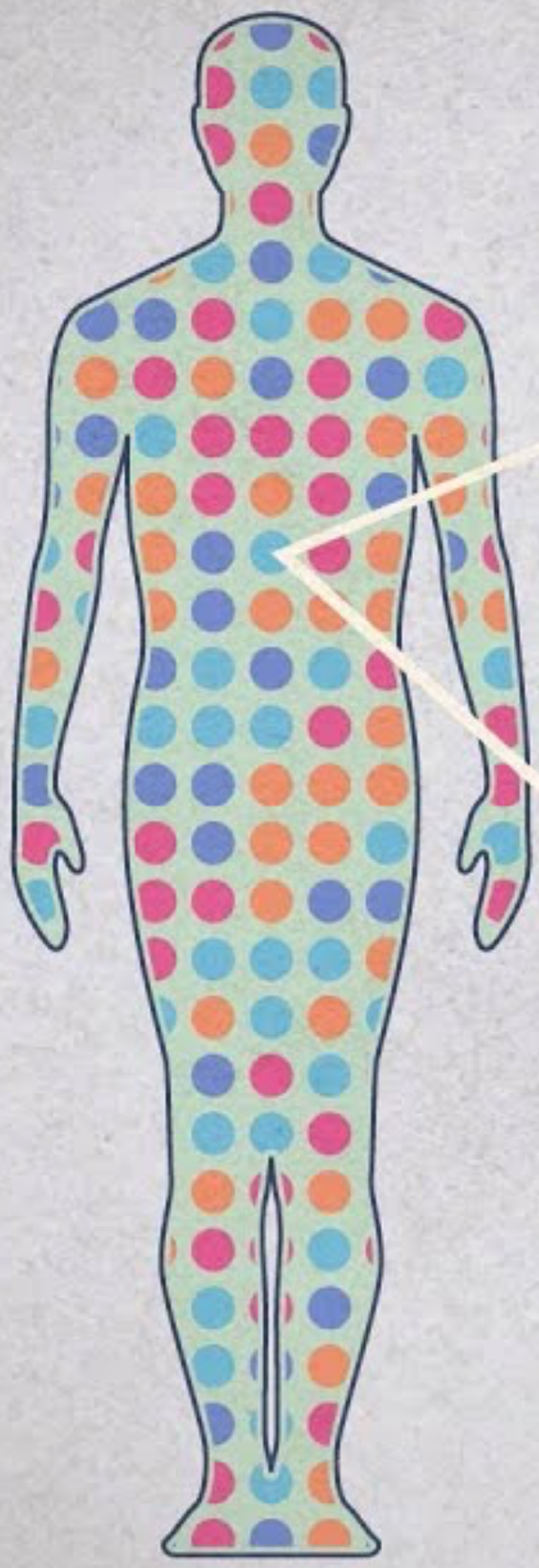
University (++):
Computational Bio

University (+++):
Bioinformatics



NBIS
NATIONAL BIOINFORMATICS INFRASTRUCTURE SWEDEN

SciLifeLab



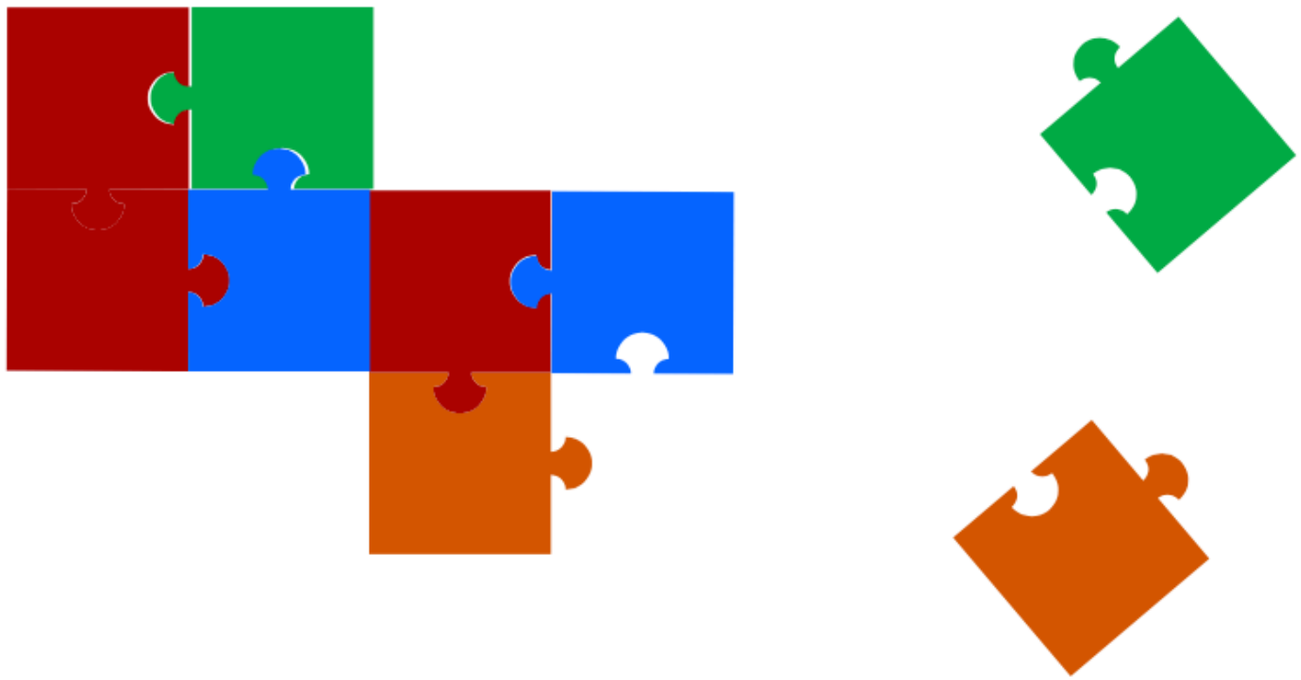
Human genome sequenced in 2003, took 20 years

ACCTACGCAGAC

AGACCCTAGCGA

TAGCGAGGAAT

CGAGGAATCGAGC

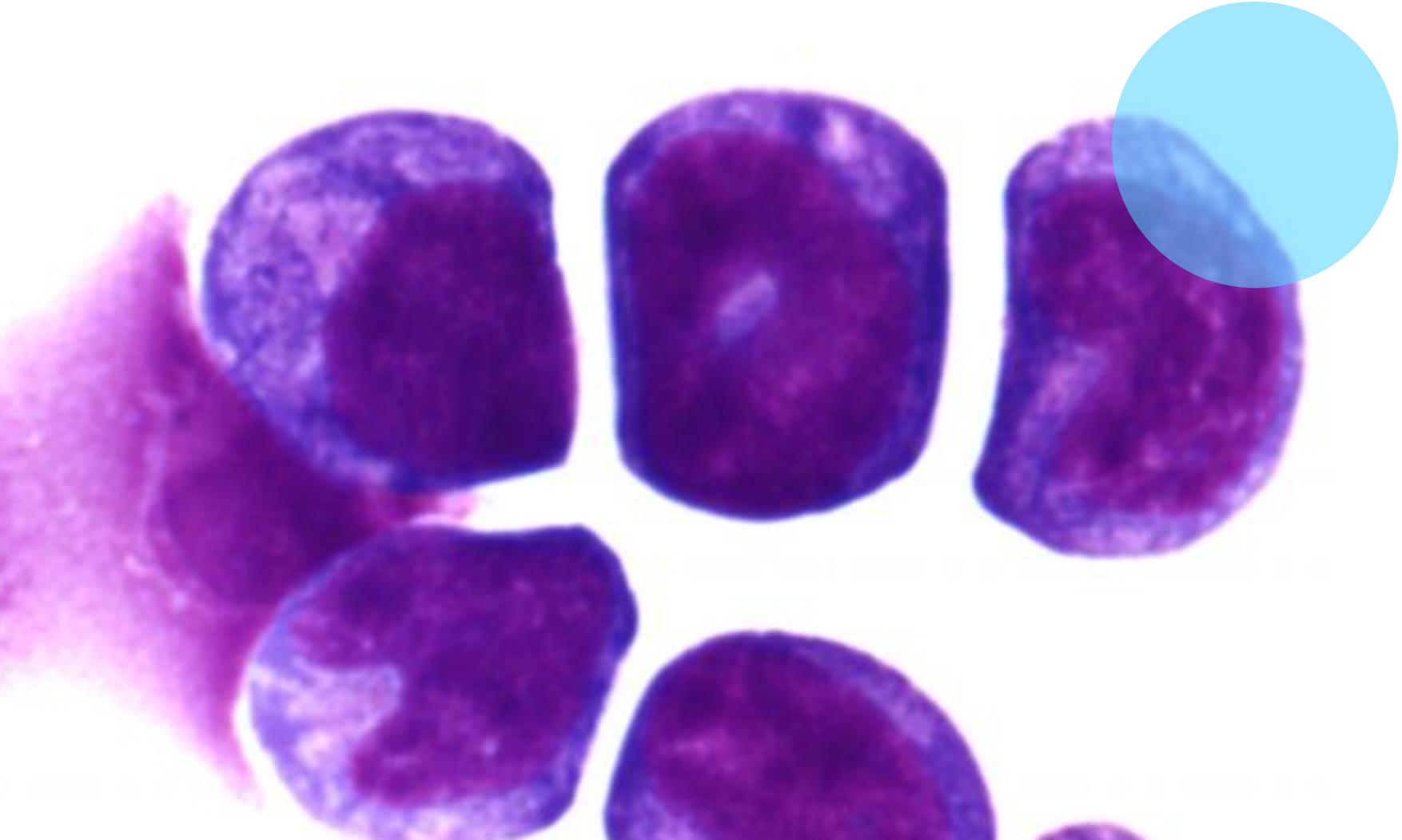


BIOINFORMATICS

CANCER

CANCER

What is so special about these cells?



understand the biology

develop drugs

biology

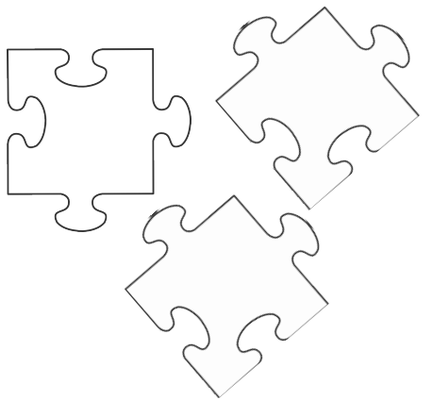
physics

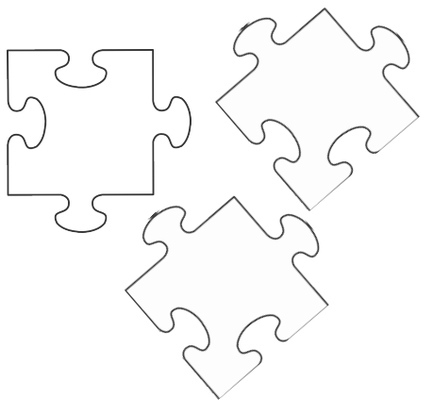
chemistry

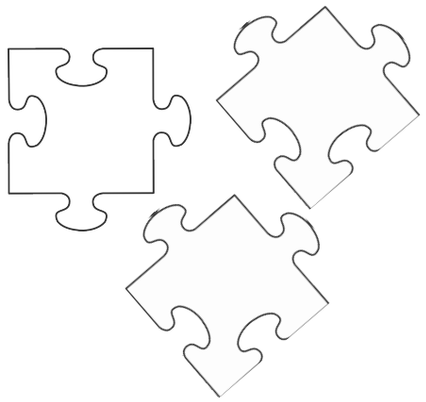
informatics

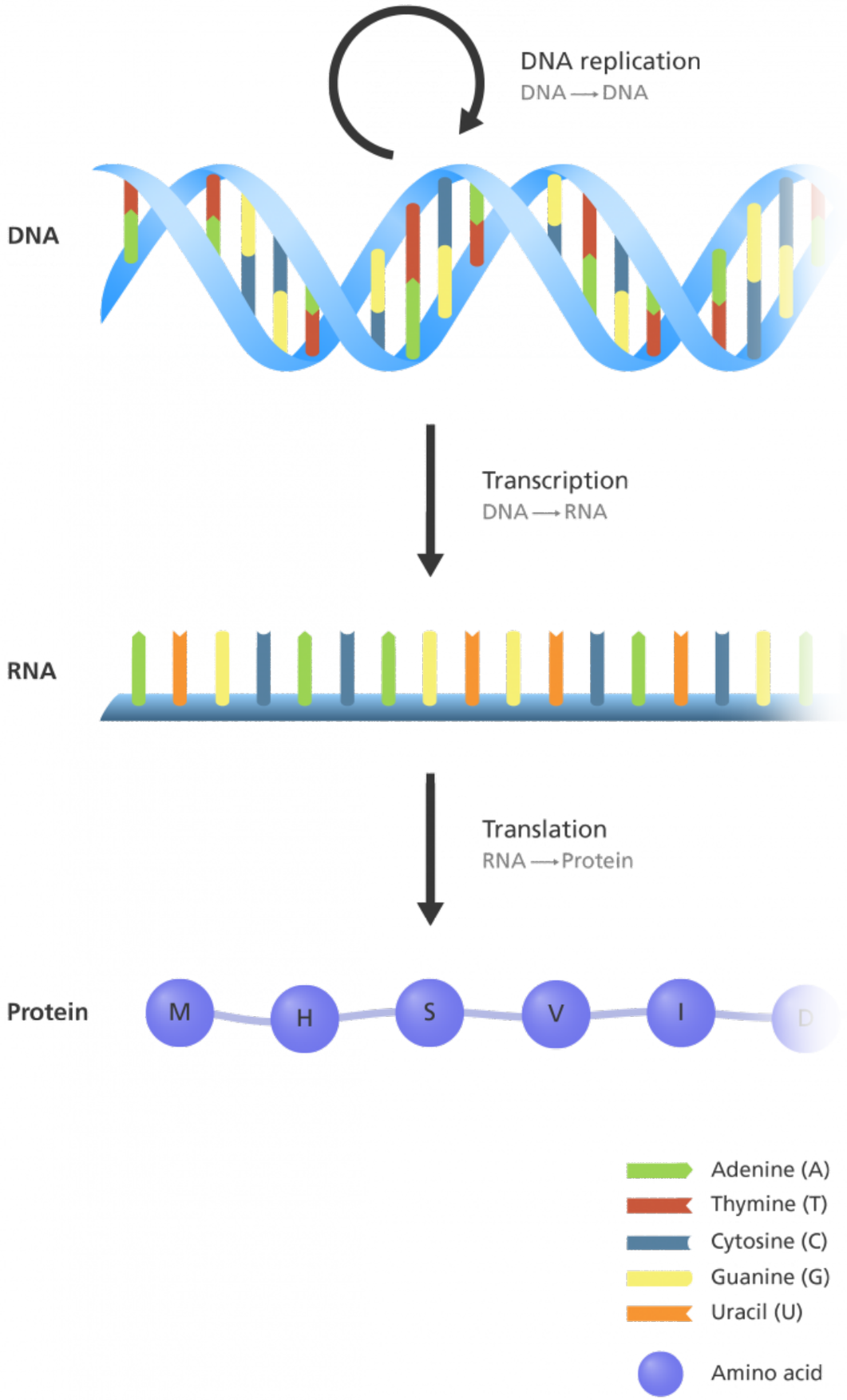
understand cancer

new drug targets








DNA replication
DNA ⟶ DNA
DNA
Transcription
DNA ⟶ RNA
RNA
Translation
RNA ⟶ Protein
Protein
M
H
S
V
I
D
Adenine (A)
Thymine (T)
Cytosine (C)
Guanine (G)
Uracil (U)
Amino acid

patients

genes

Presentations
visualization
lectures
information
measurements
programming
analysis
DNA
knowledge
tools
practical
course
data
R
datasets
research
science
programs
processing
biological
computer
bioinformatics
proteins
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minor
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quantitative
metabolites
clustering
applicability
assignments
experiments
computational

What is a programming language?

(Bio)informatician's best friend:

Google

Lesson plan

Lesson 1: Intro to bioinformatics and Python

Lesson 2: Introduction to Data Analysis

Lesson 3: Introduction to genomics

What do we need?

- Form groups
- Computer
- Internet connection
- Google account

LET'S START

Go to:

researchschool.github.io/researchschool/

or

tiny.cc/researchschool

Let’s learn Python!