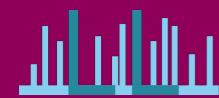




Dr. Matthias Stahl - 28/09/2018

FROM BIG MAC
TO BIG DATA
TO BIG PROGRESS



LehtiöLab Clinical Proteomics Mass Spectrometry at SciLifeLab

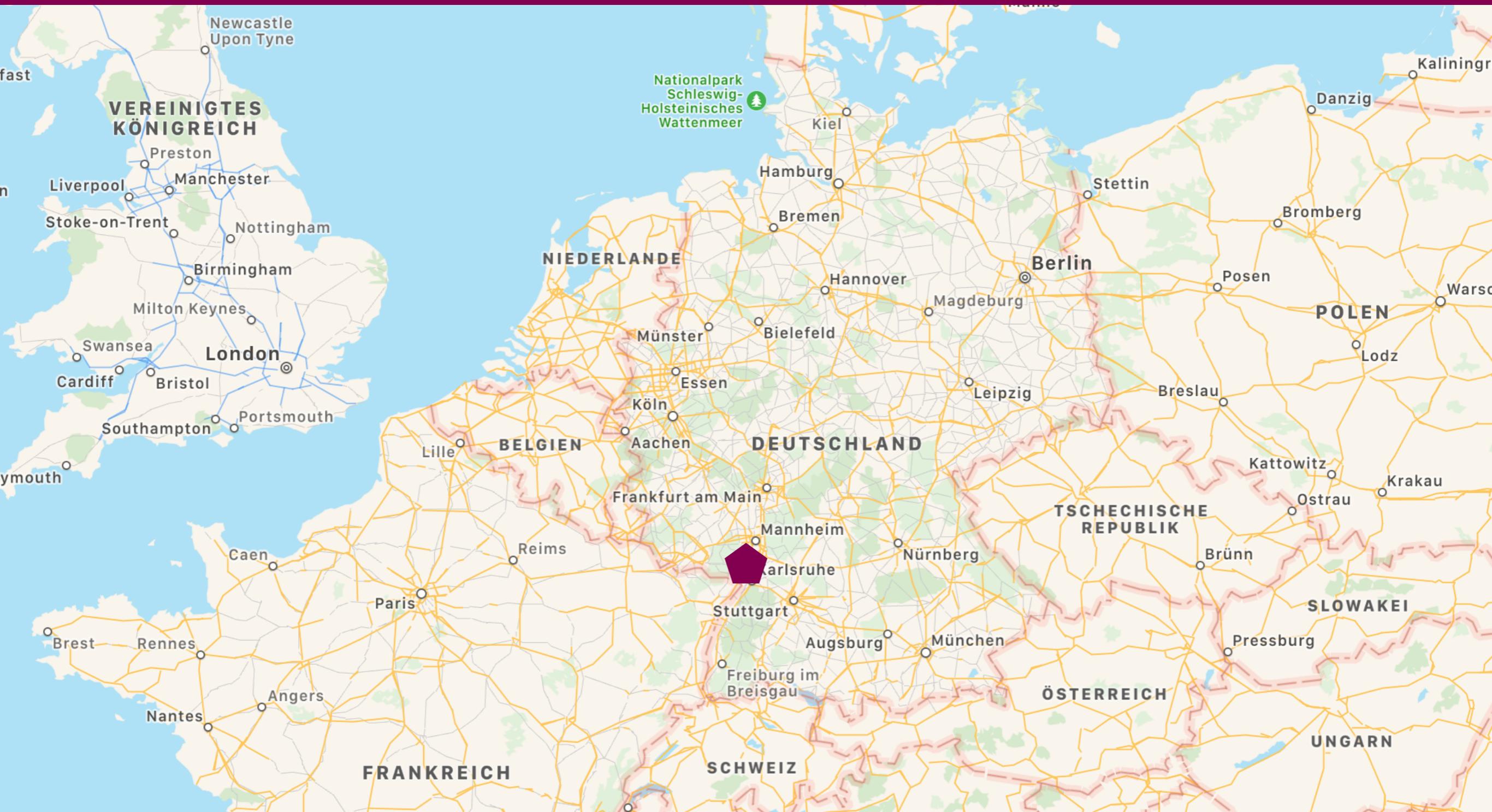
My previous Life - Episode n

IT ALL STARTED WITH...



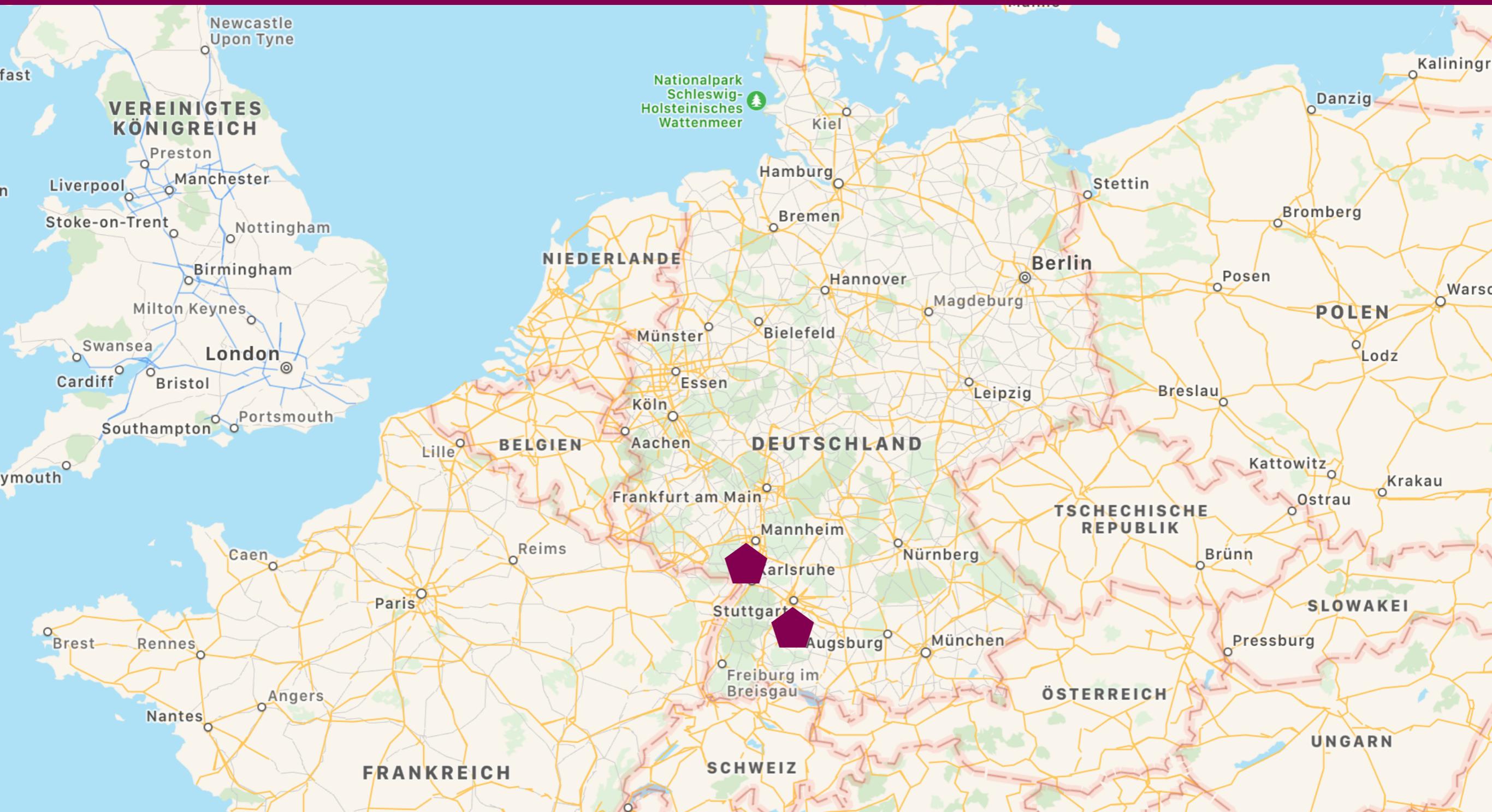
My previous Life - Episode n+1

SCHOOL IN GERMANY



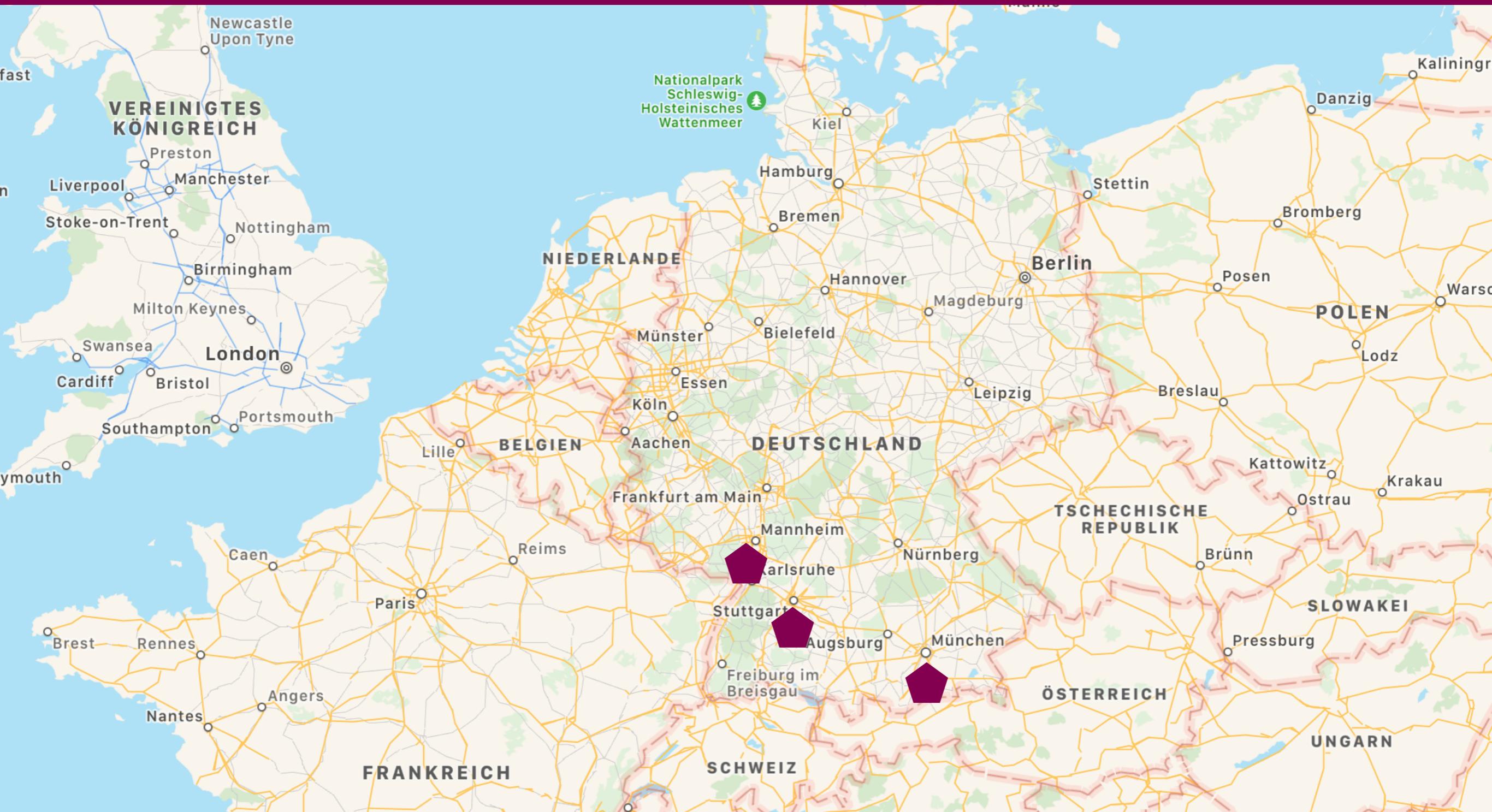
My previous Life - Episode n+2

INTERNSHIP, DECISION MAKING



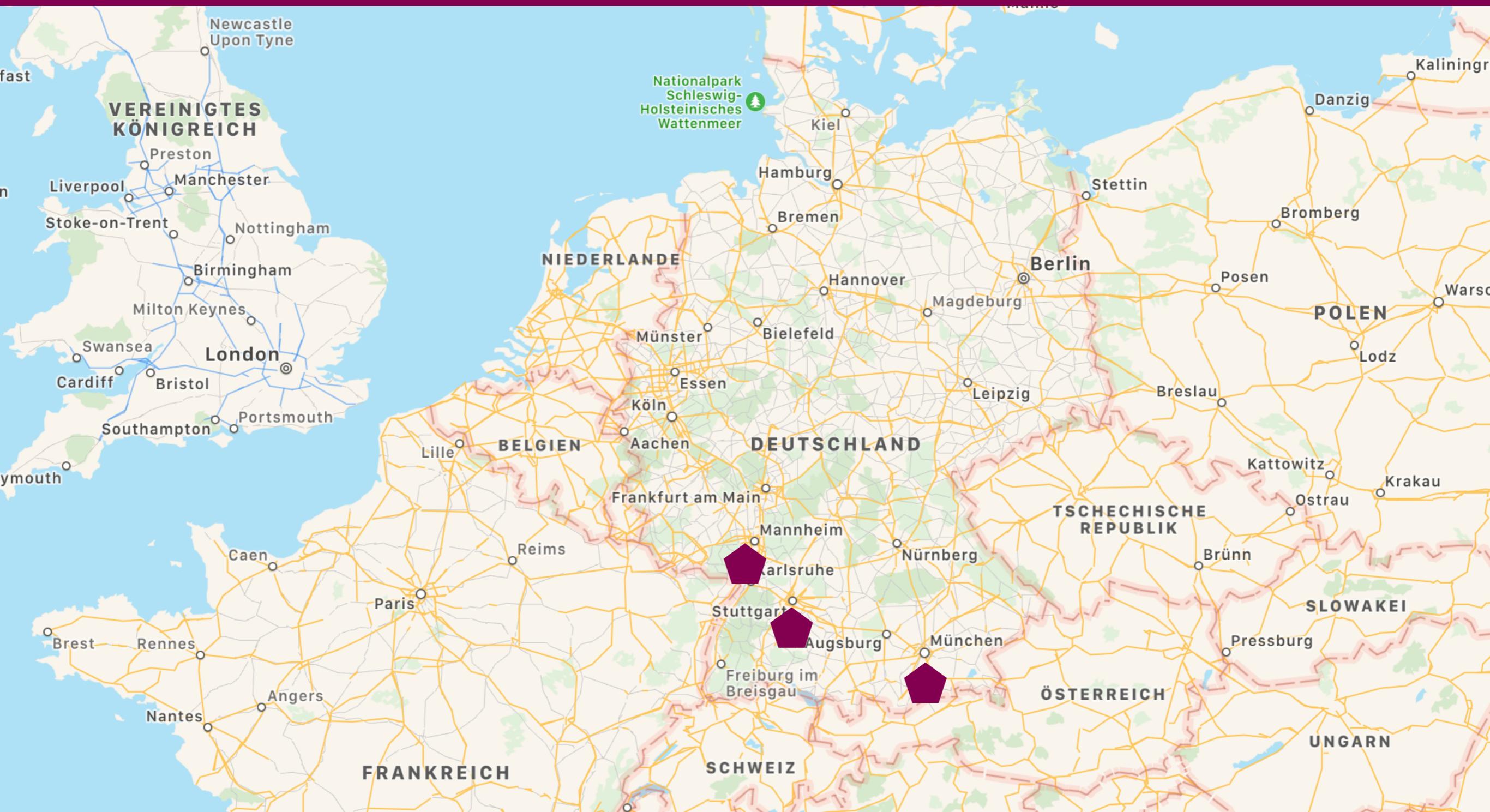
My previous Life - Episode n+3

BIOCHEMISTRY STUDIES



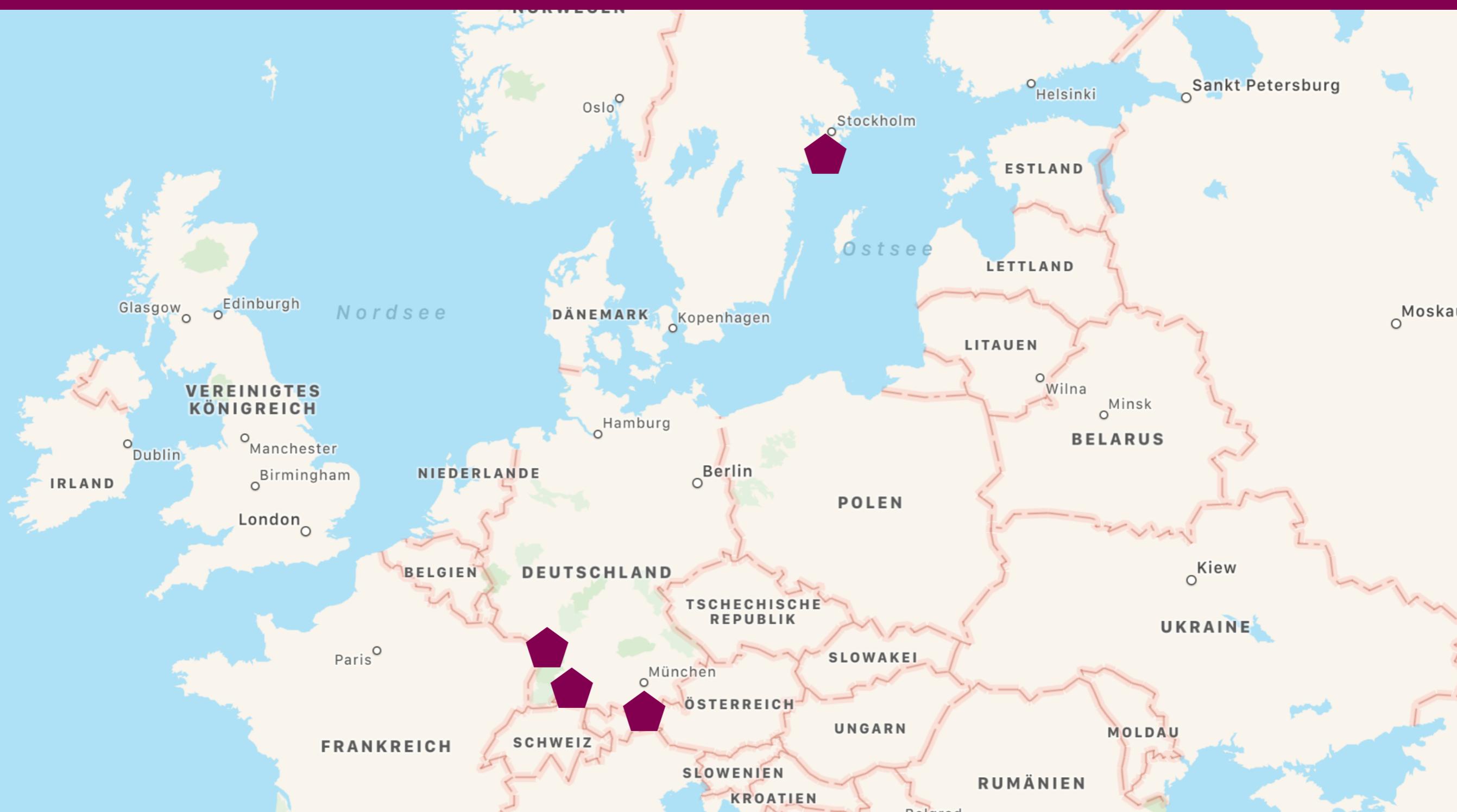
My previous Life - Episode n+4

BIOCHEMISTRY PHD INFORMATICS



My current Life - Episode k

BIOINFORMATICS POSTDOC



CLINICAL PROTEOMICS MASS SPECTROMETRY

CLINICAL PROTEOMICS MASS SPECTROMETRY

CLINICAL PROTEOMICS MASS SPECTROMETRY

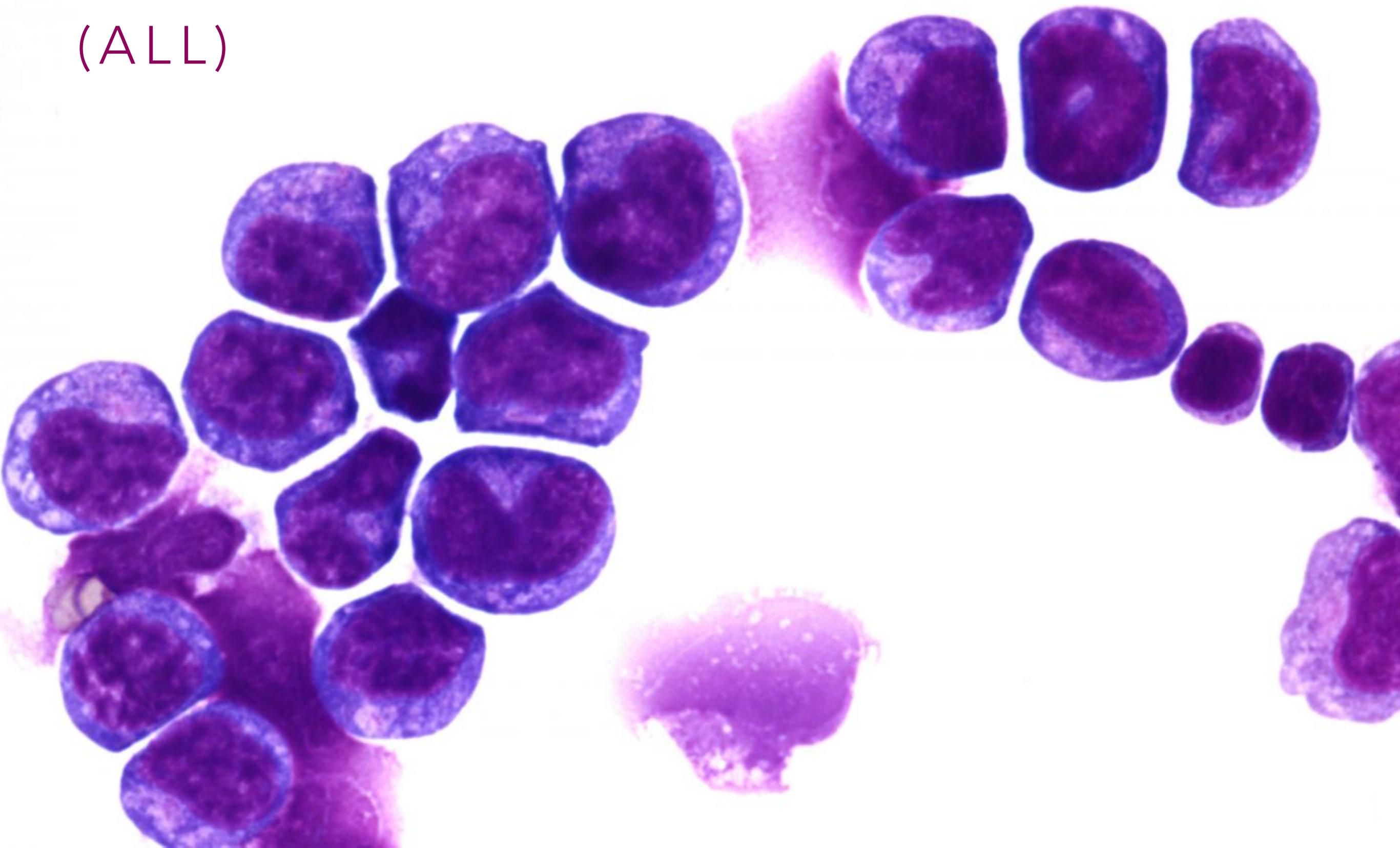
Big Progress

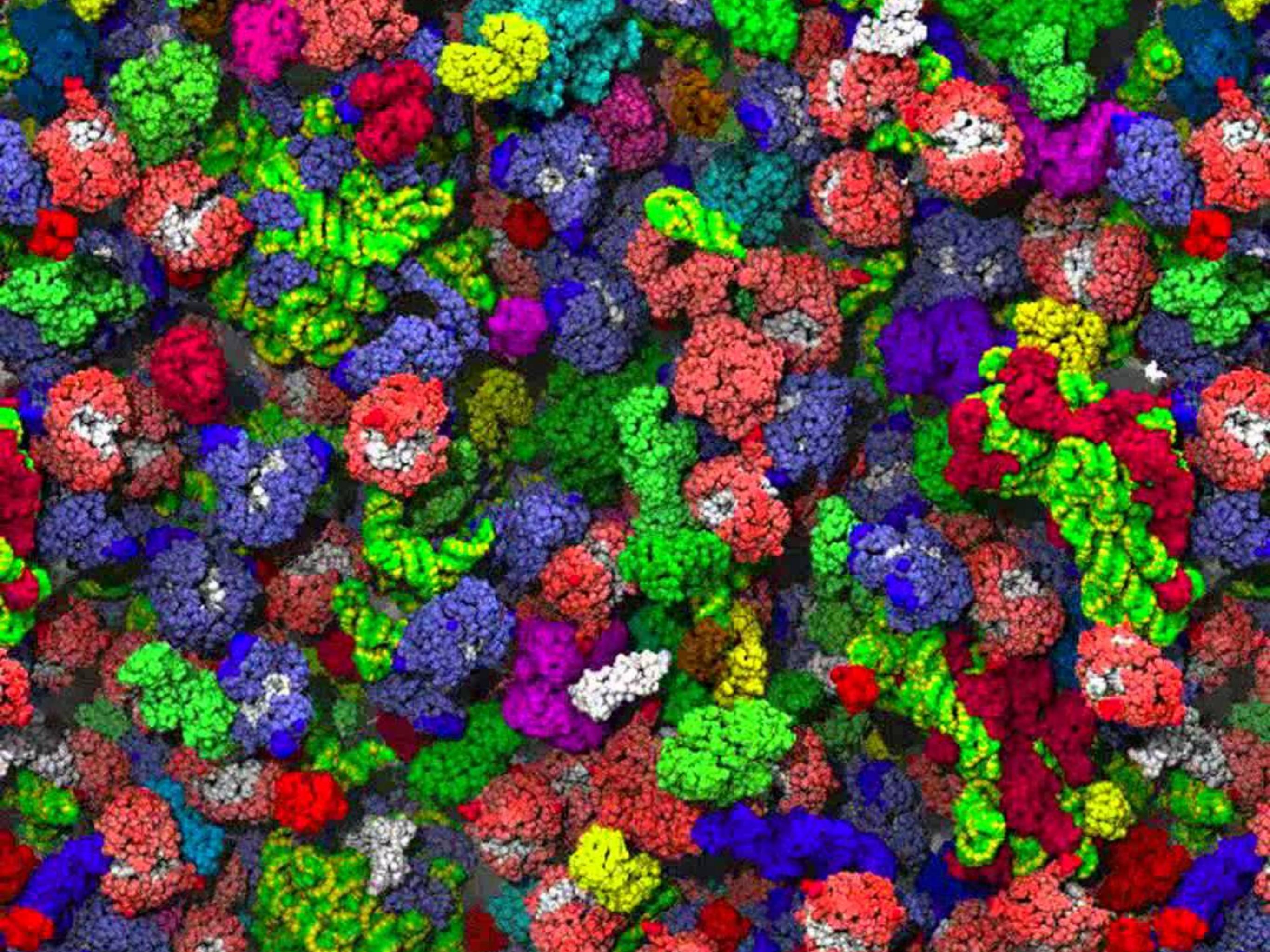
Big Data

CLINICAL PROTEOMICS MASS SPECTROMETRY

Big Mac

ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)





Big Progress

Big Data

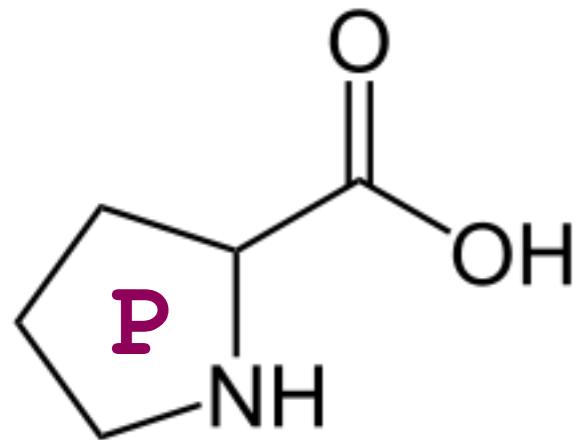
CLINICAL PROTEOMICS MASS SPECTROMETRY

Big Mac

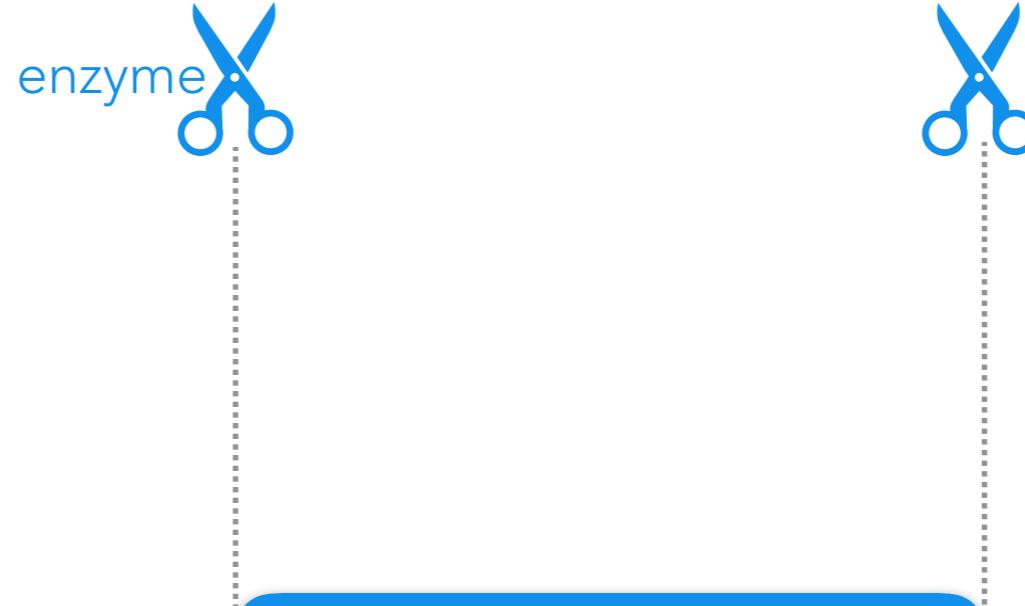


Protein

WE NEED TO KNOW THE SEQUENCE



... P T D R T A A T I P L H K A S T T



T A A T I P L H K

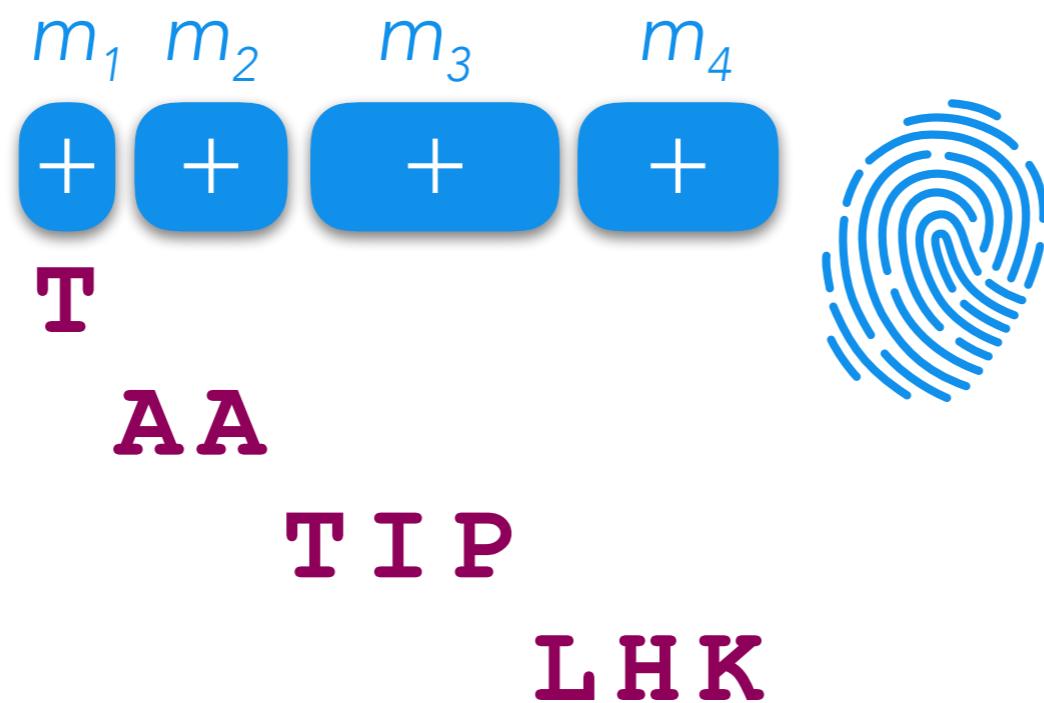
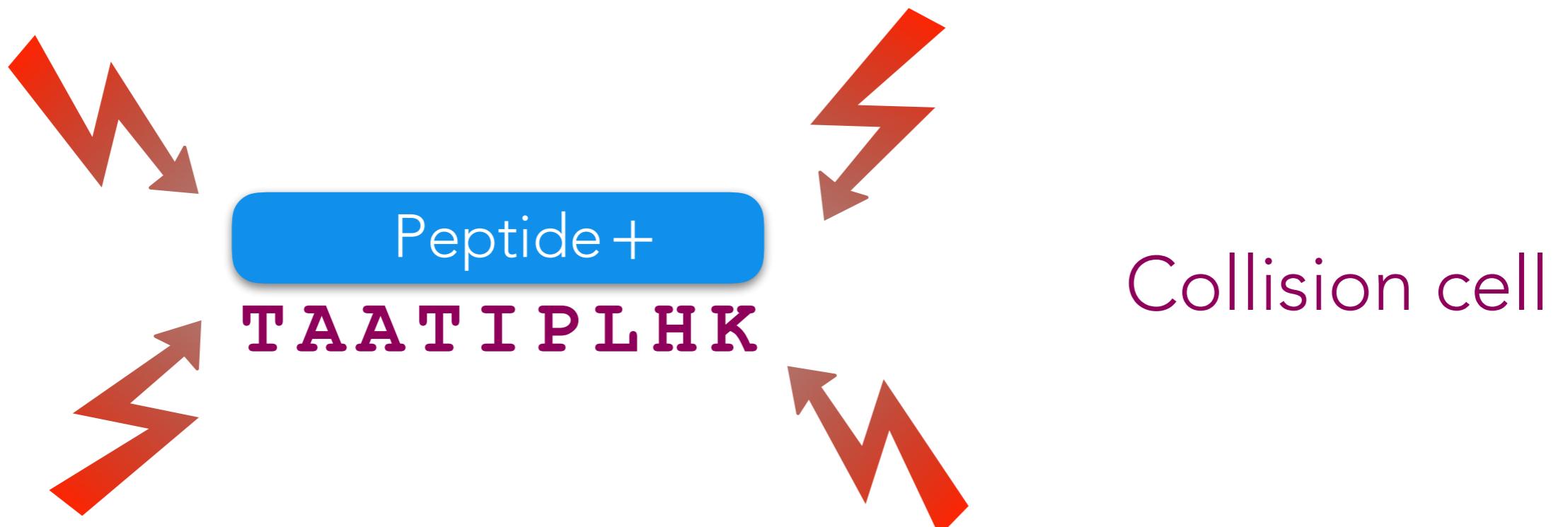
Sequence → Structure



MASS SPECTROMETER



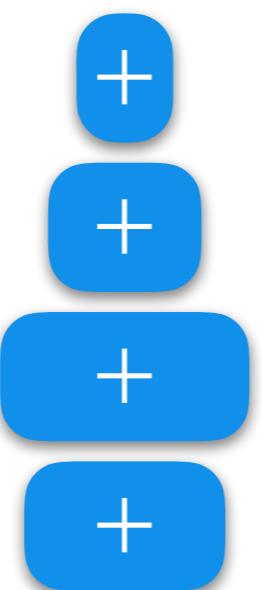
Destroy
Measure

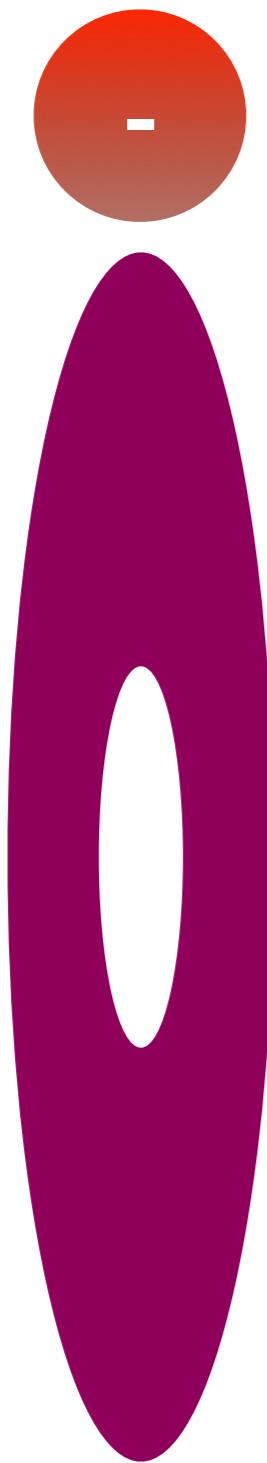


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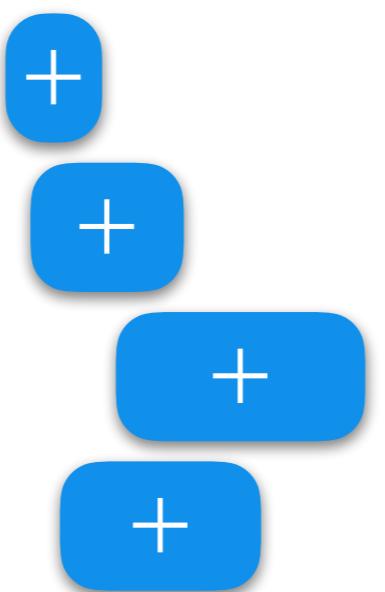
Ion trap

-





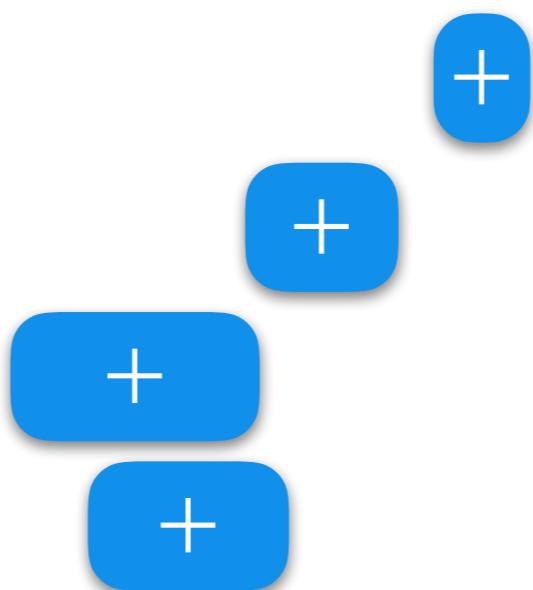
Ion trap



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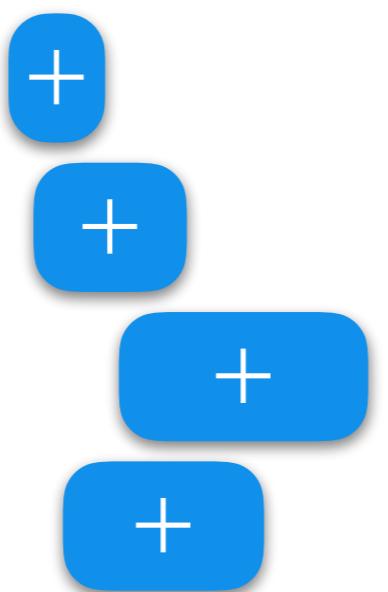
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Ion trap





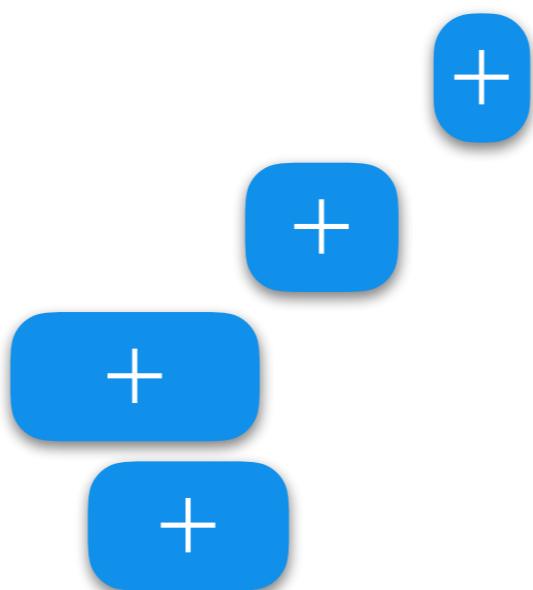
Ion trap



+

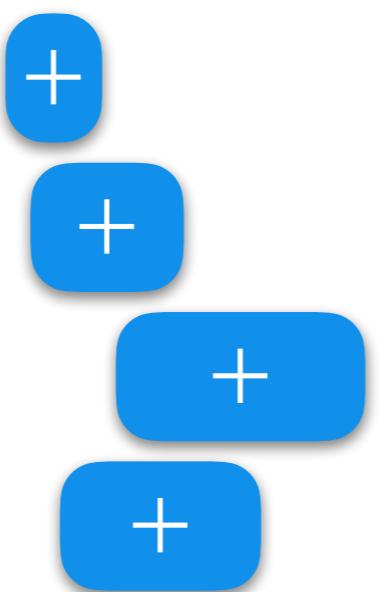
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Ion trap





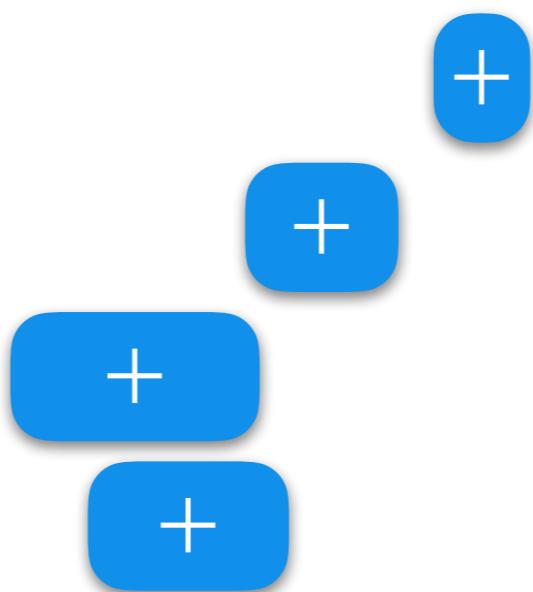
Ion trap

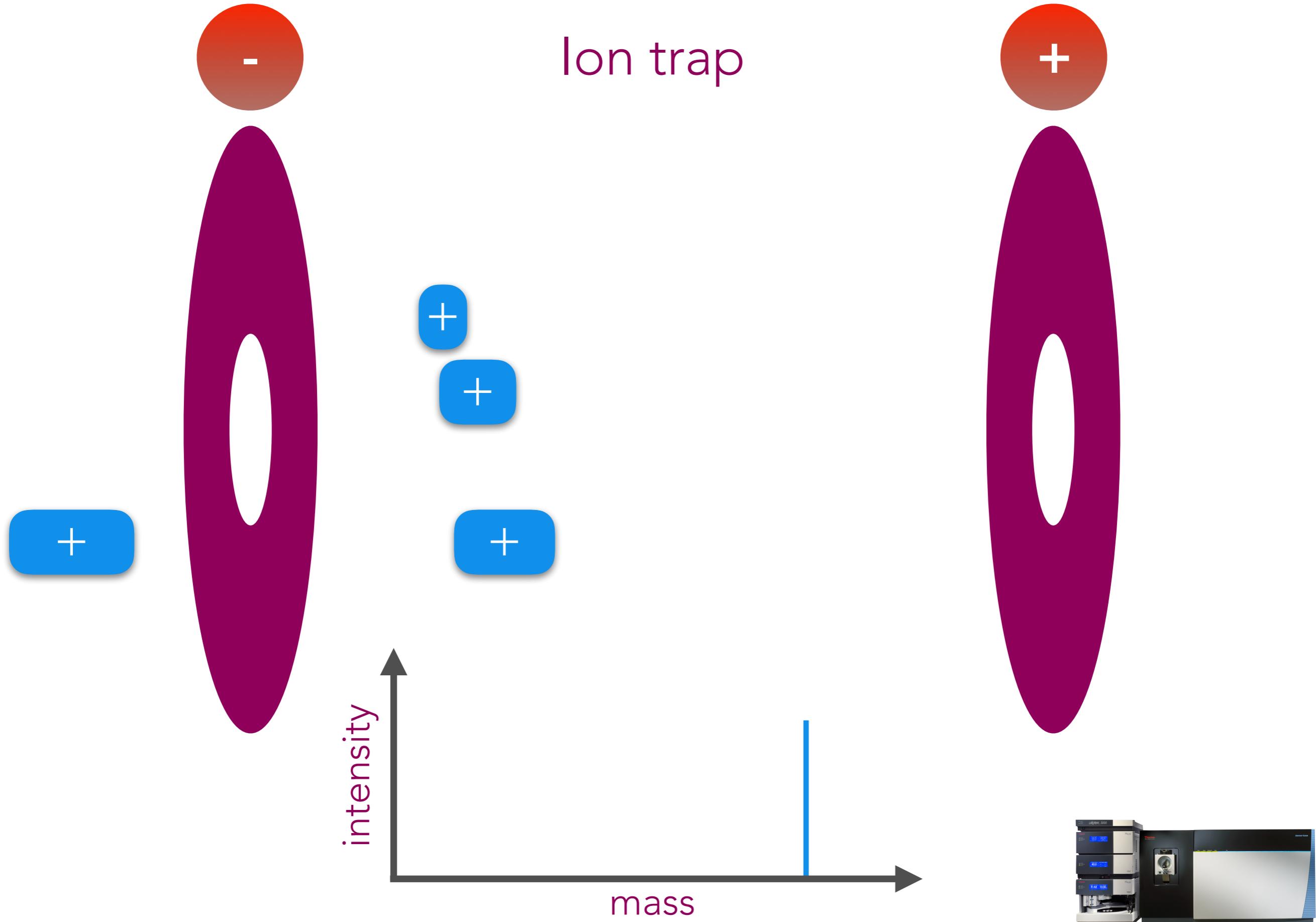


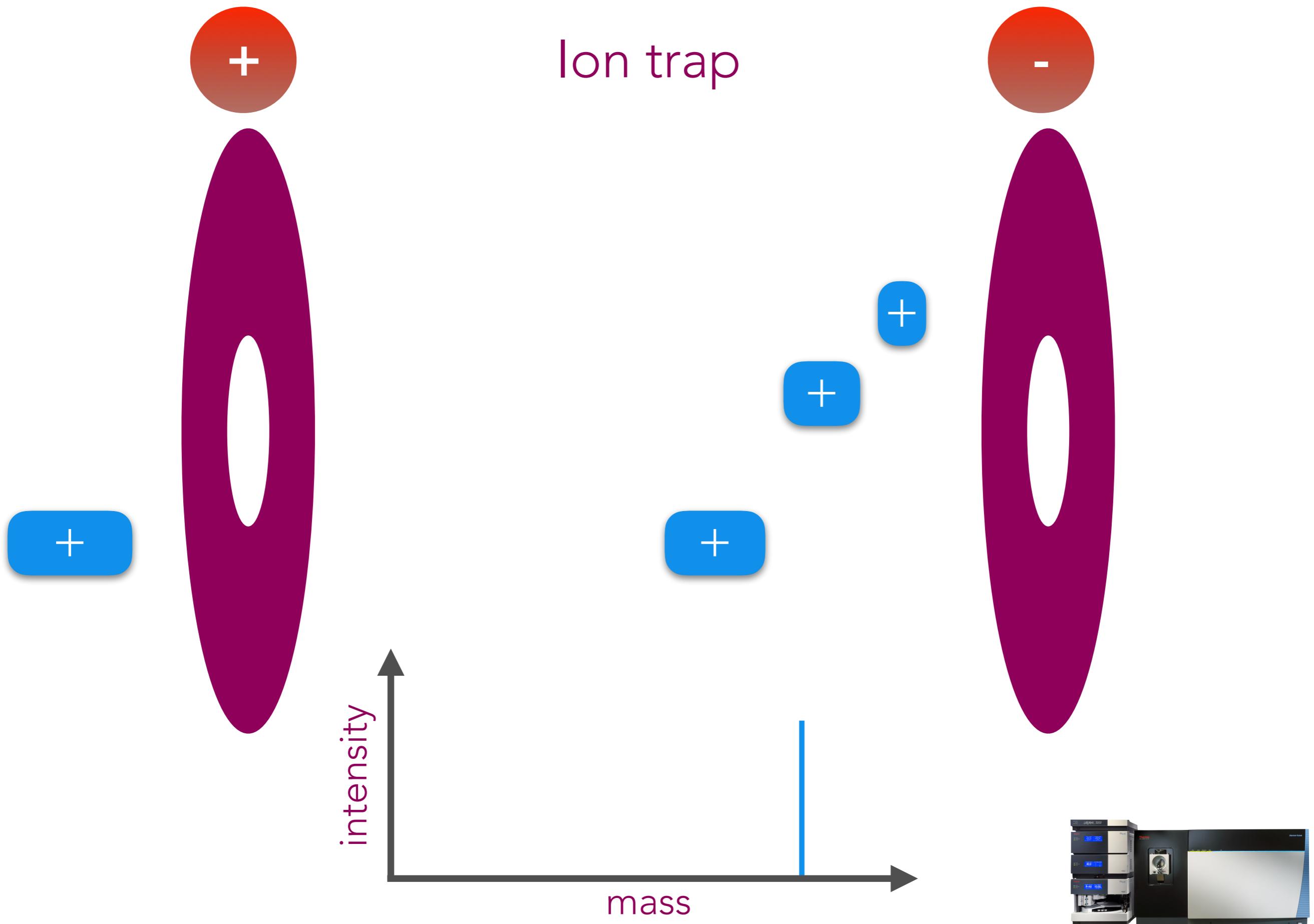
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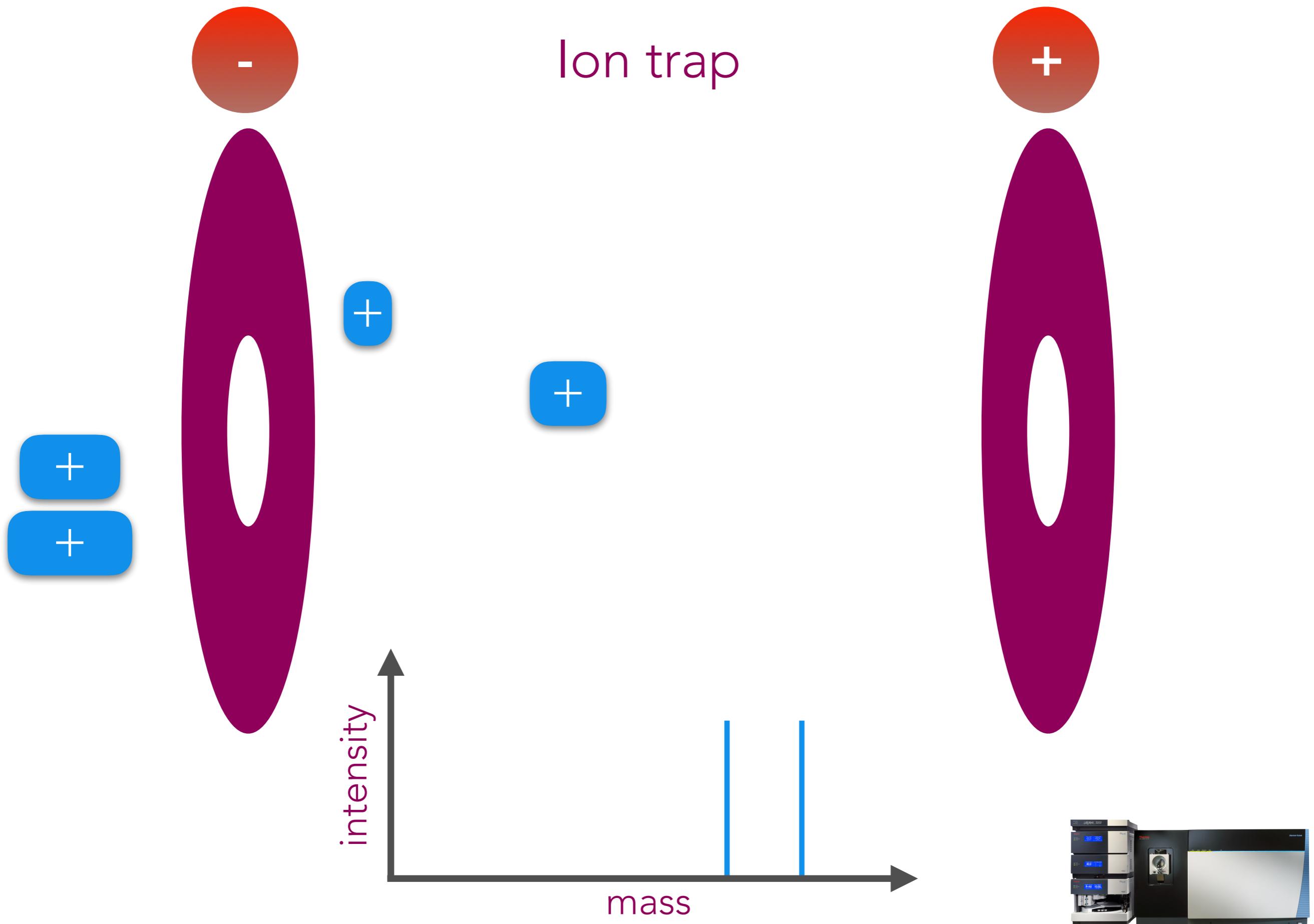
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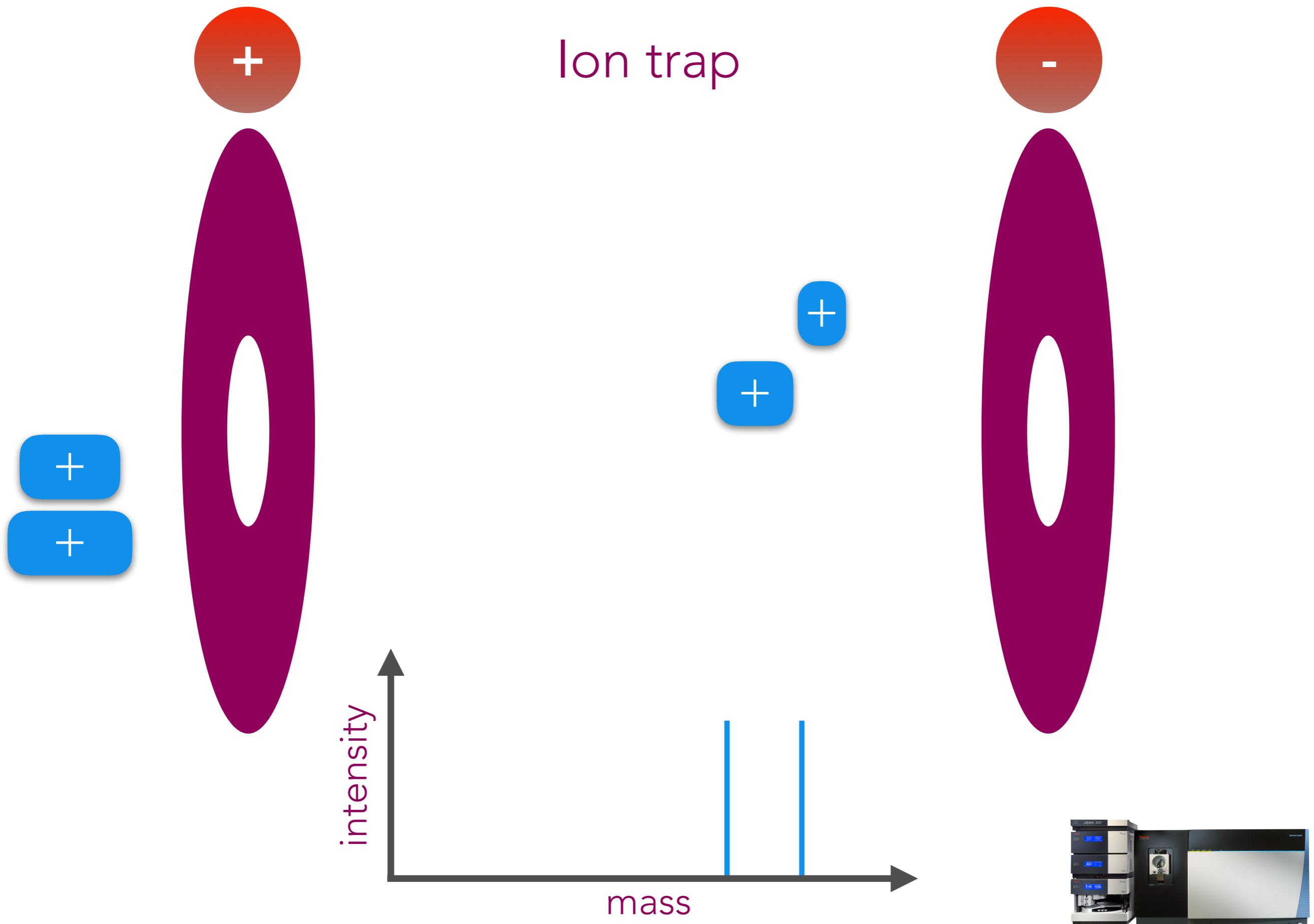
Ion trap



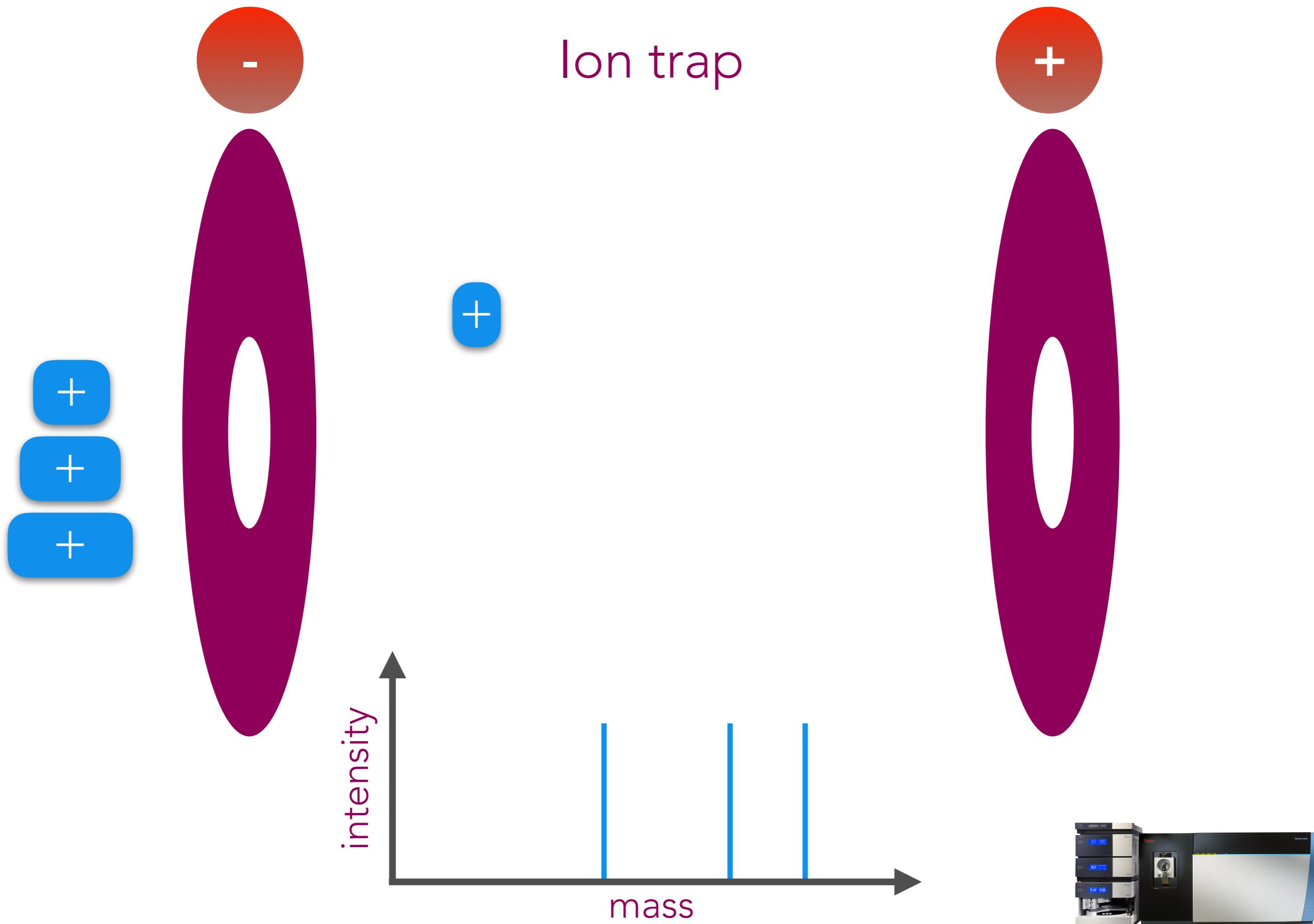


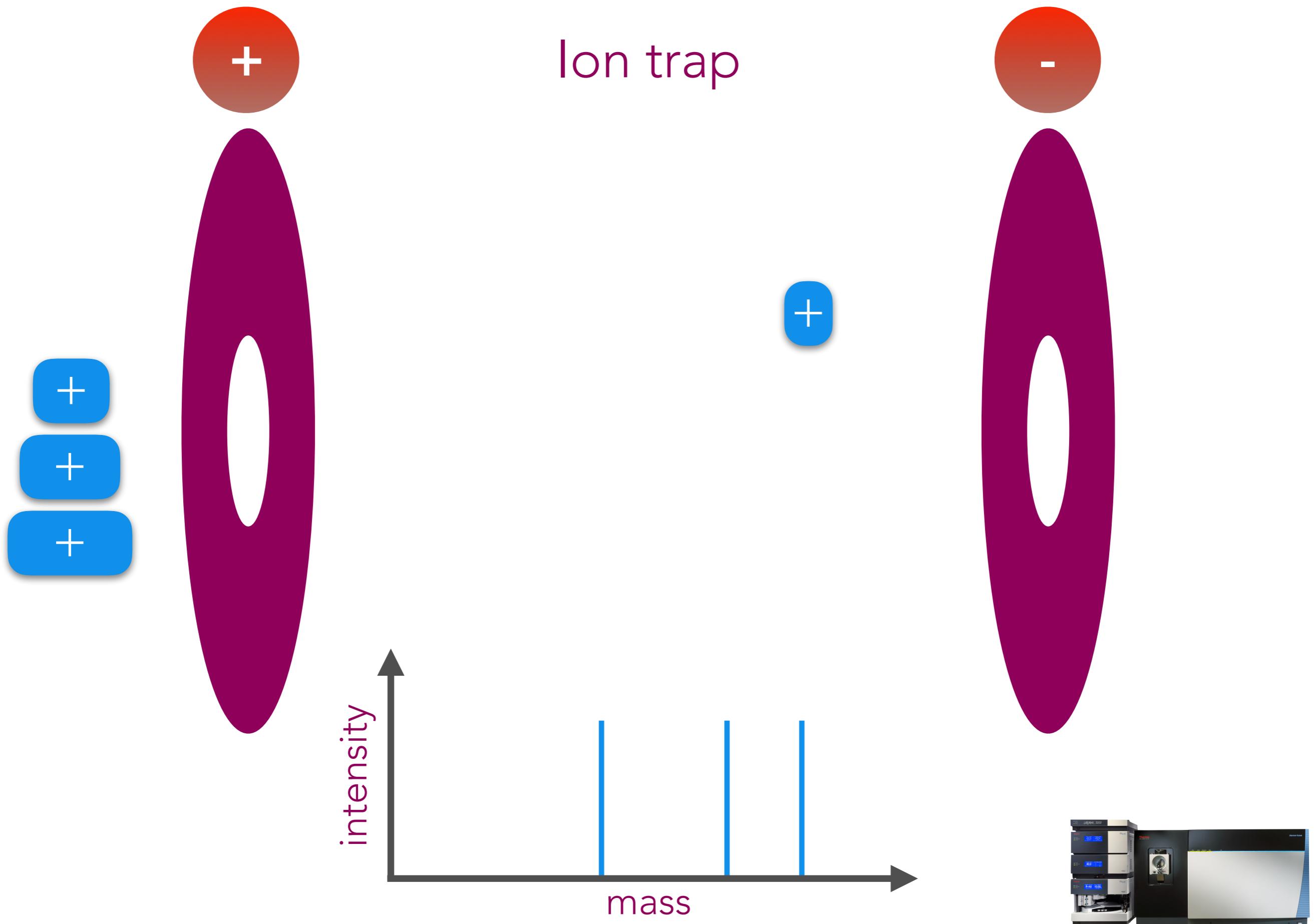


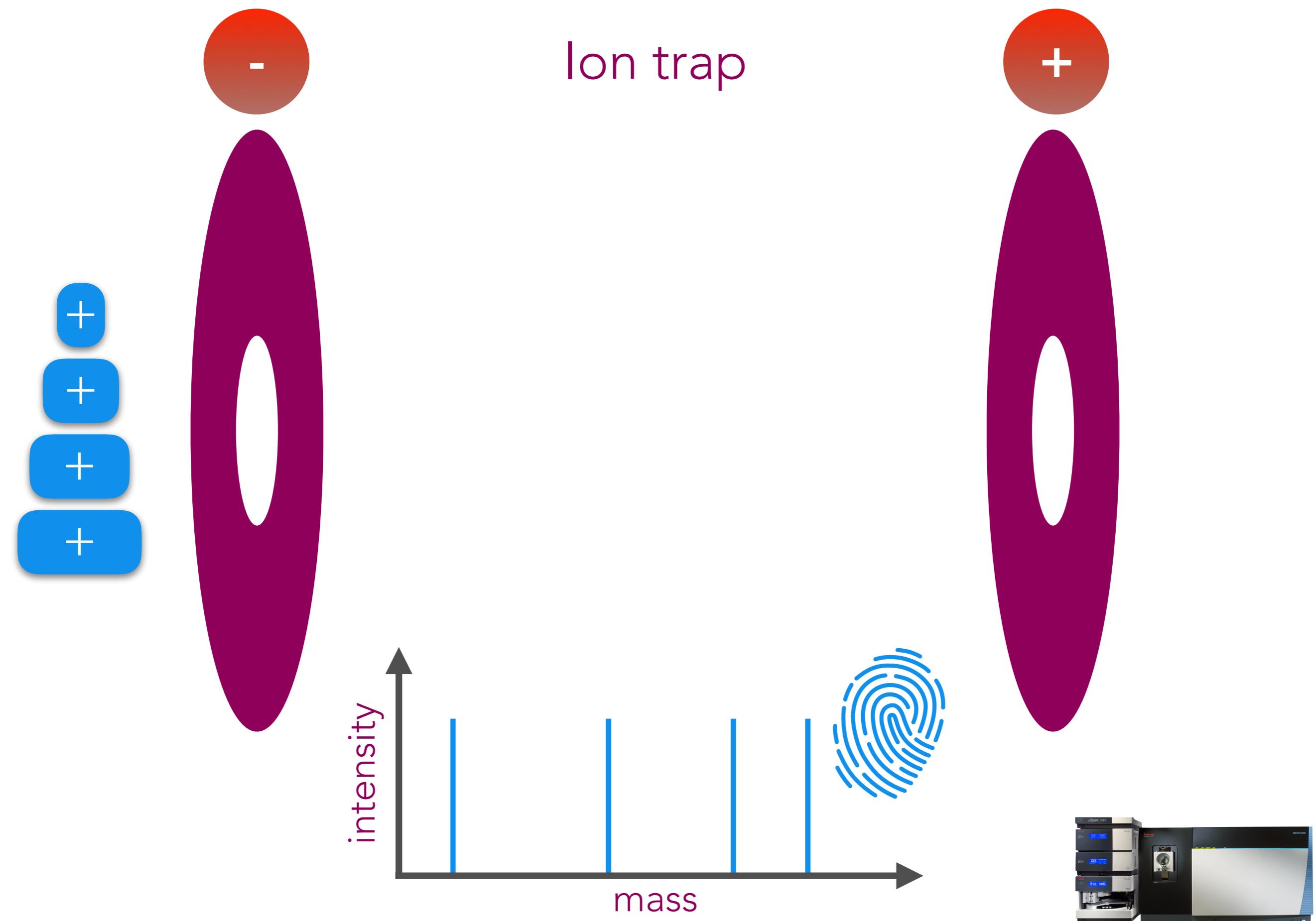




Ion trap







Big Progress

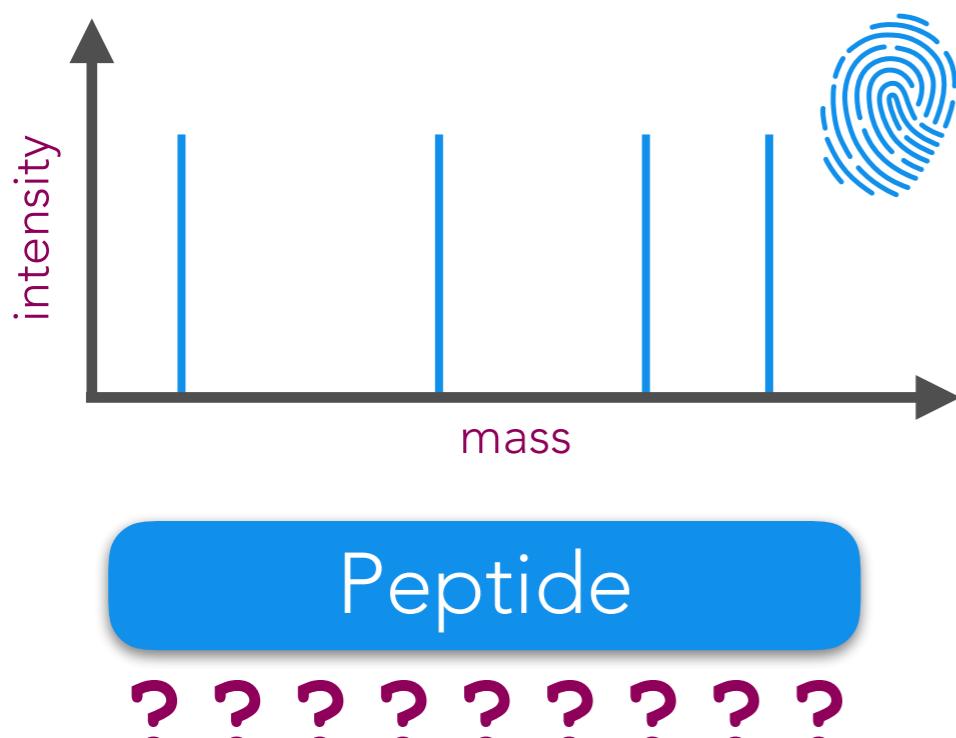
Big Data

CLINICAL PROTEOMICS

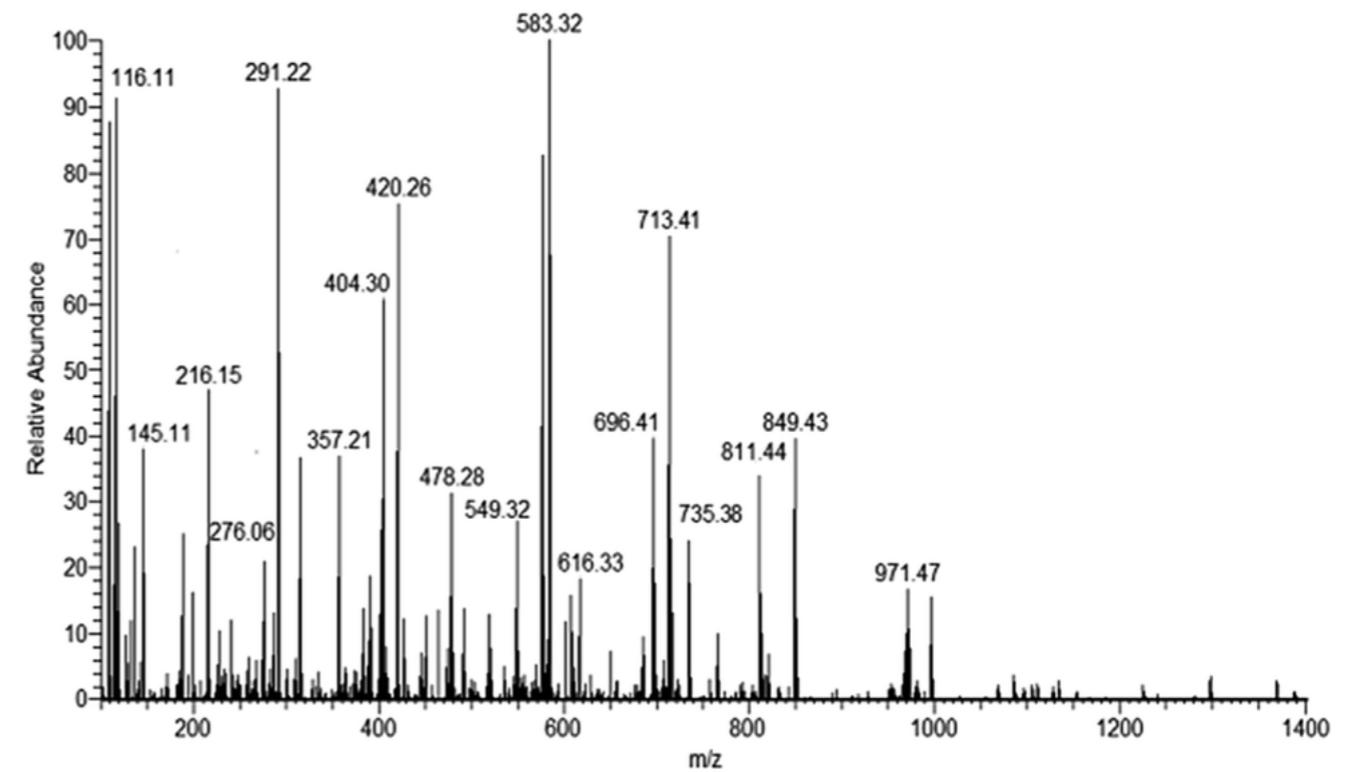
MASS SPECTROMETRY

Big Mac

Big Data



real world example



Big Progress

Big ^{Bdgater} Data

CLINICAL PROTEOMICS

MASS SPECTROMETRY

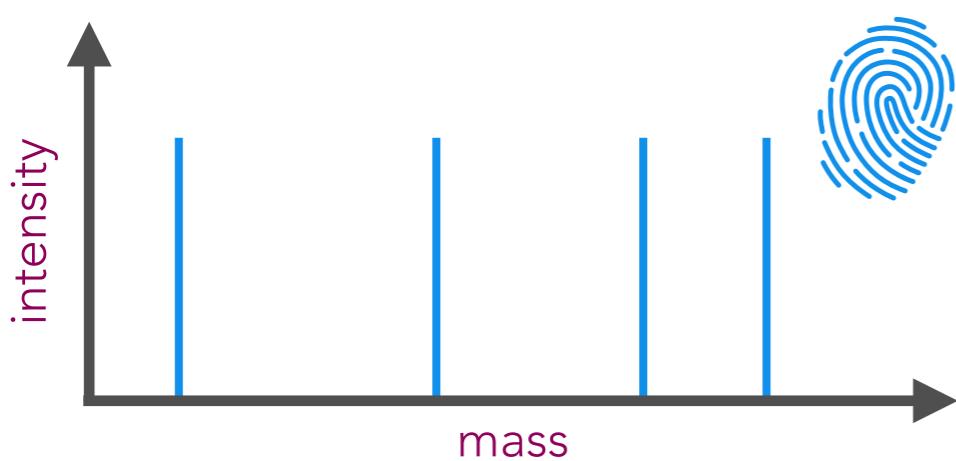
Big Mac

SciLifeLab proudly presents:

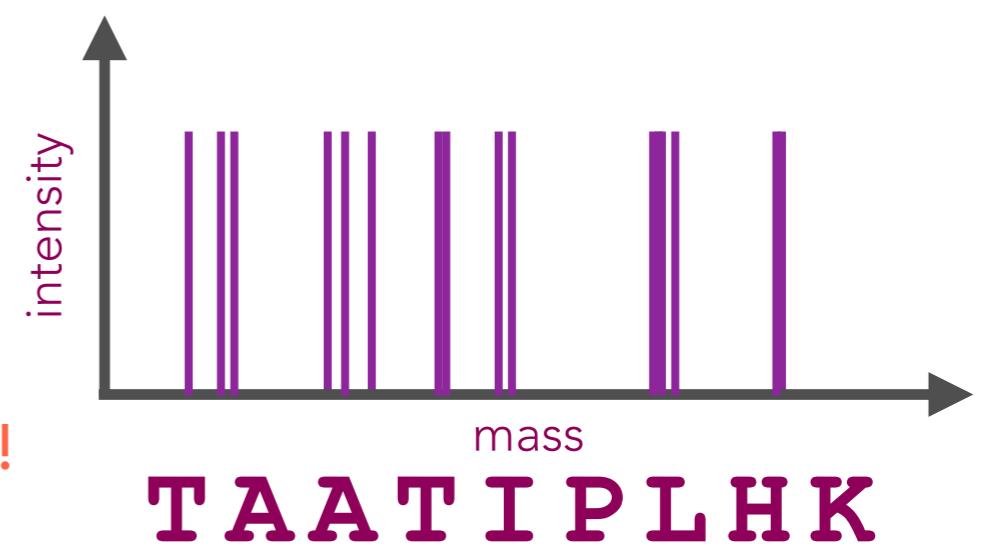


The Big Dater: Proteomics Tinder

Proteomics Tinder



IT'S A MATCH!

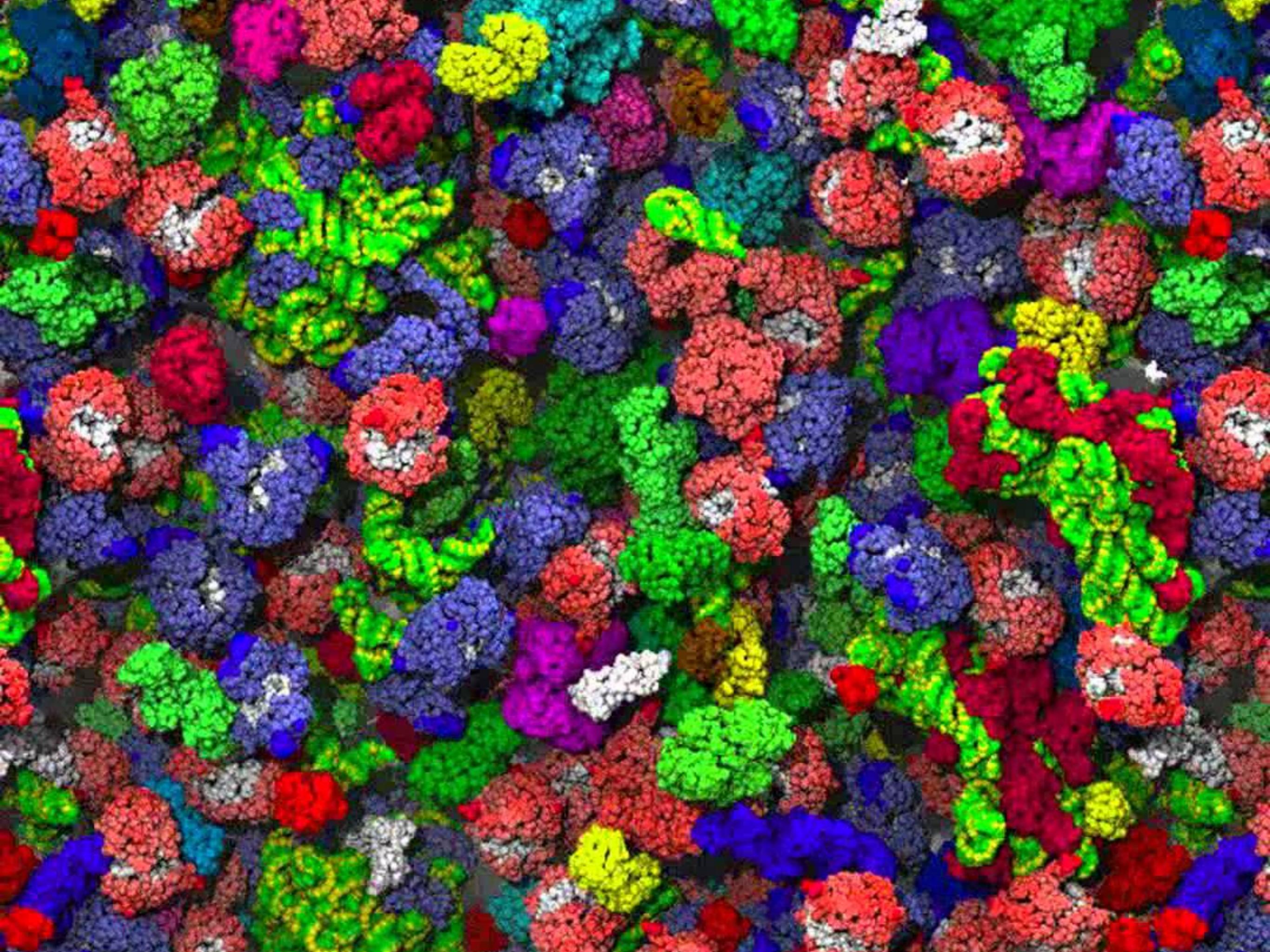


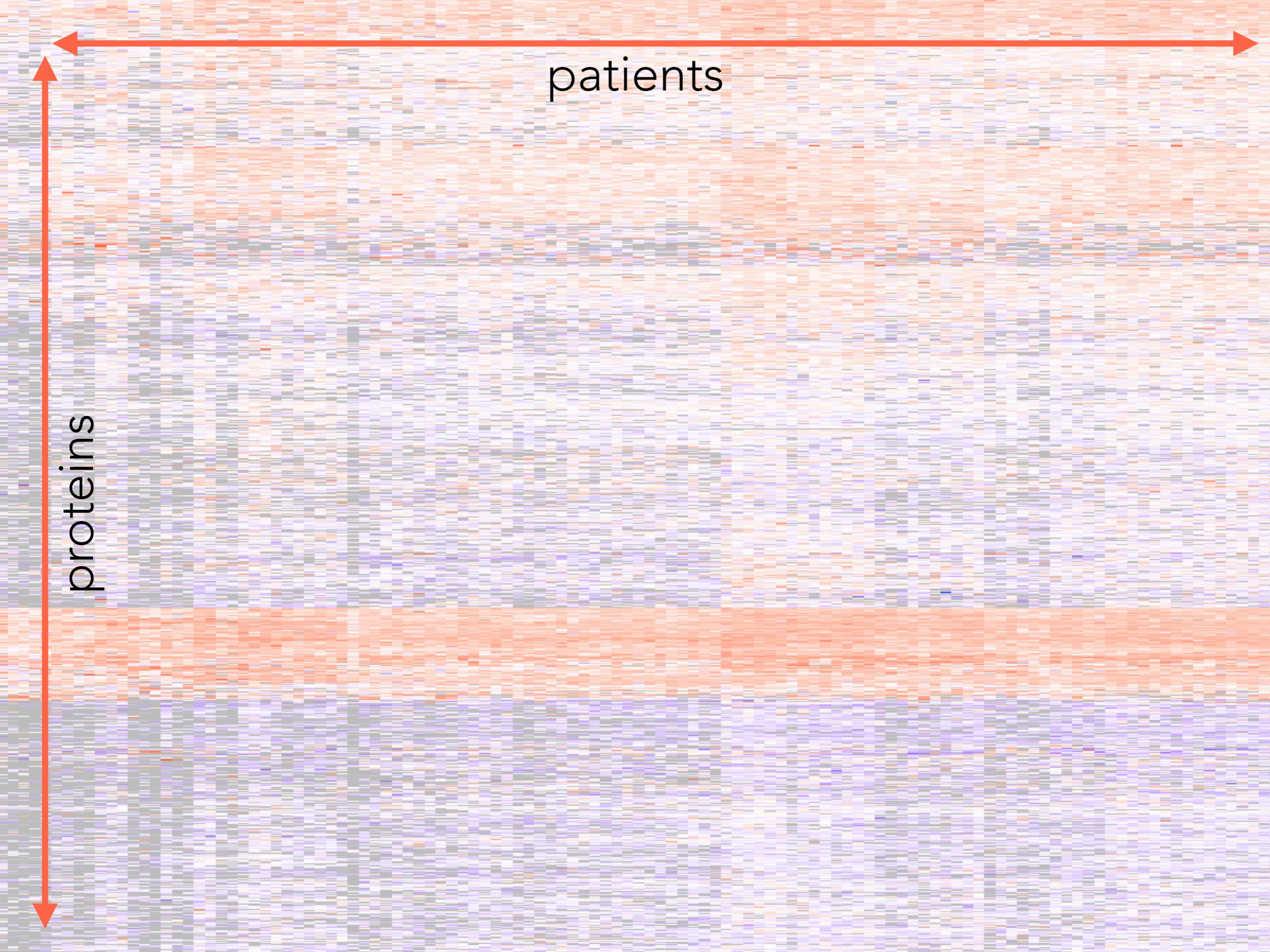
TAAT I P L H K



Database of known spectra







Big Progress

Big Dater

CLINICAL PROTEOMICS

MASS SPECTROMETRY

Big Mac

Big Progress

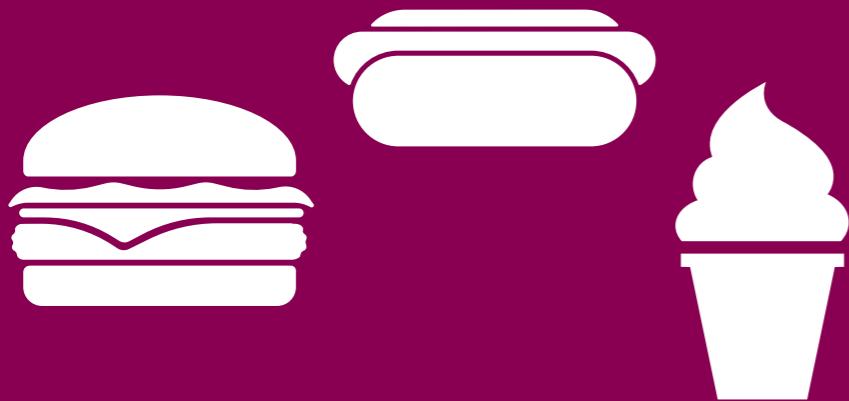
Big Dater

CLINICAL PROTEOMICS

MASS SPECTROMETRY

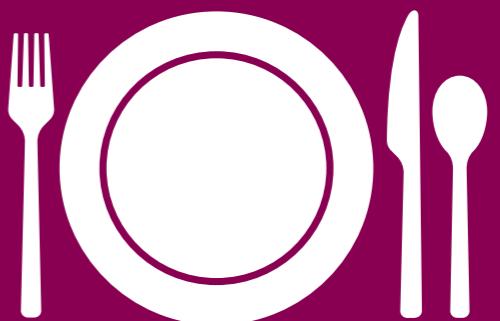
Big Mac

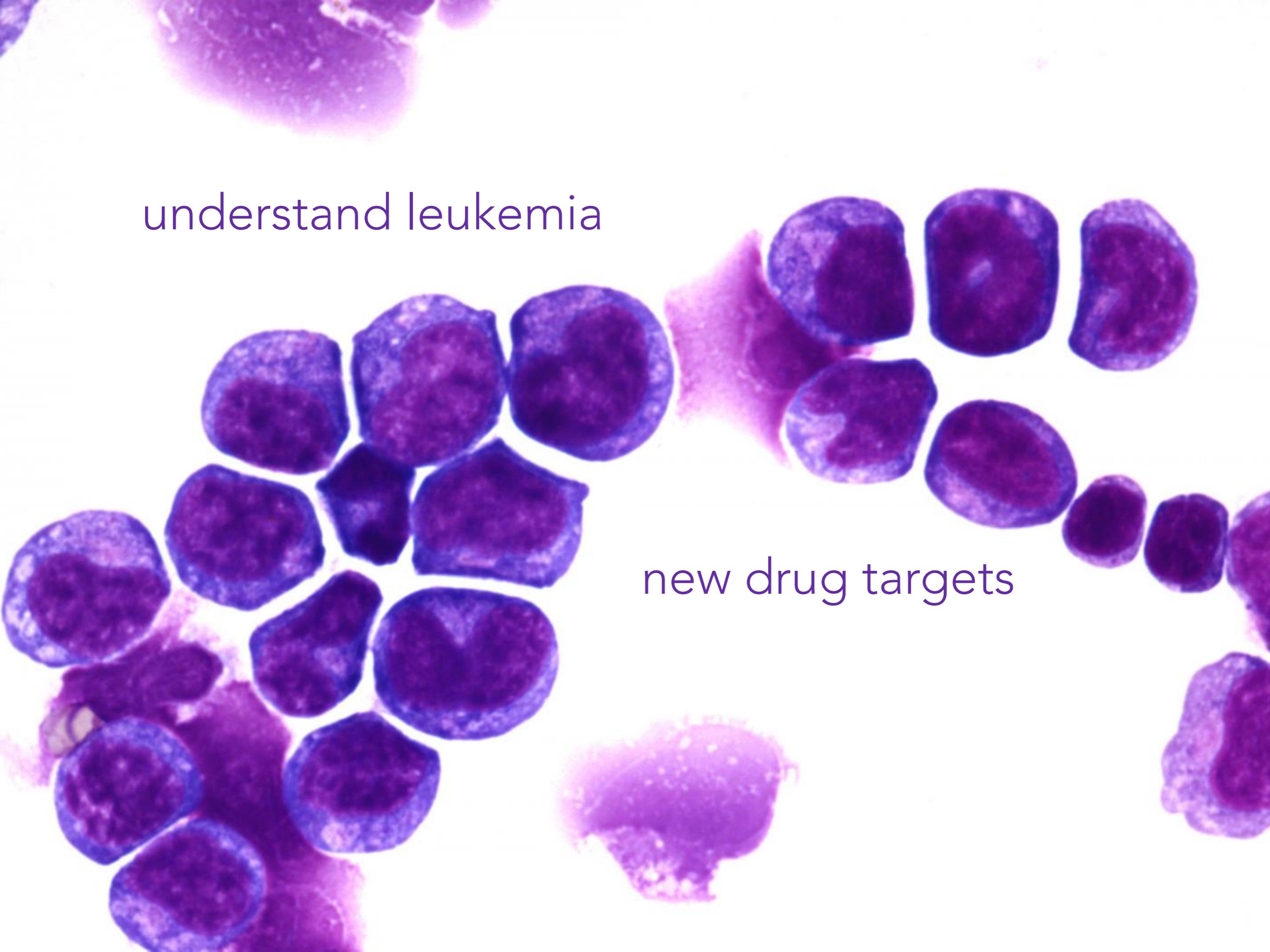
The Fast Food Pipeline



all proteins at once

Past: only one
protein at a time



A microscopic image showing several clusters of leukemic cells. These cells are large, irregularly shaped, and have a dark purple, granular cytoplasm. Some cells appear to be in contact with each other or with other types of cells. The overall appearance is one of a dense, cellular tissue.

understand leukemia

new drug targets



Tack så mycket!