



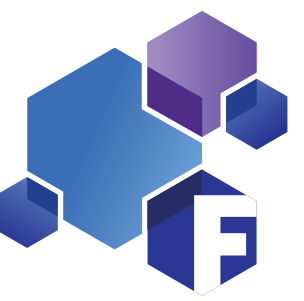
# Introduction of FHAIVE

Open Office 15.11.2023

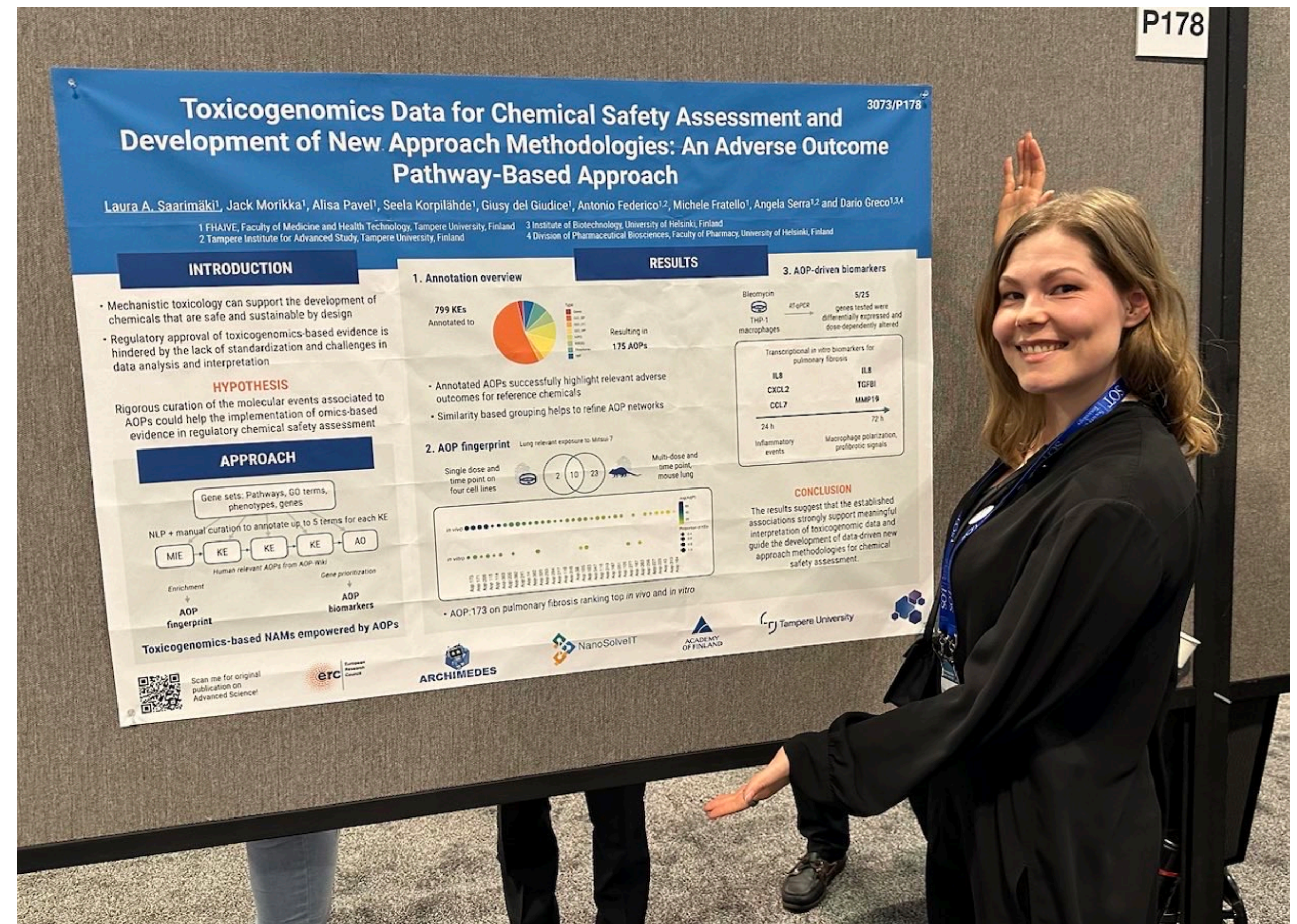
Laura Saarimäki, MSc, Doctoral Researcher



# Why am I here speaking to you..?



- Laura Saarimäki, PhD student
- Worked in FHAIVE/GrecoLab since 2018
- From summer student to MSc student (grad. 2019) to PhD (just submitted thesis)
- Moved from more wet towards computational  
- nice overview of FHAIVE activities





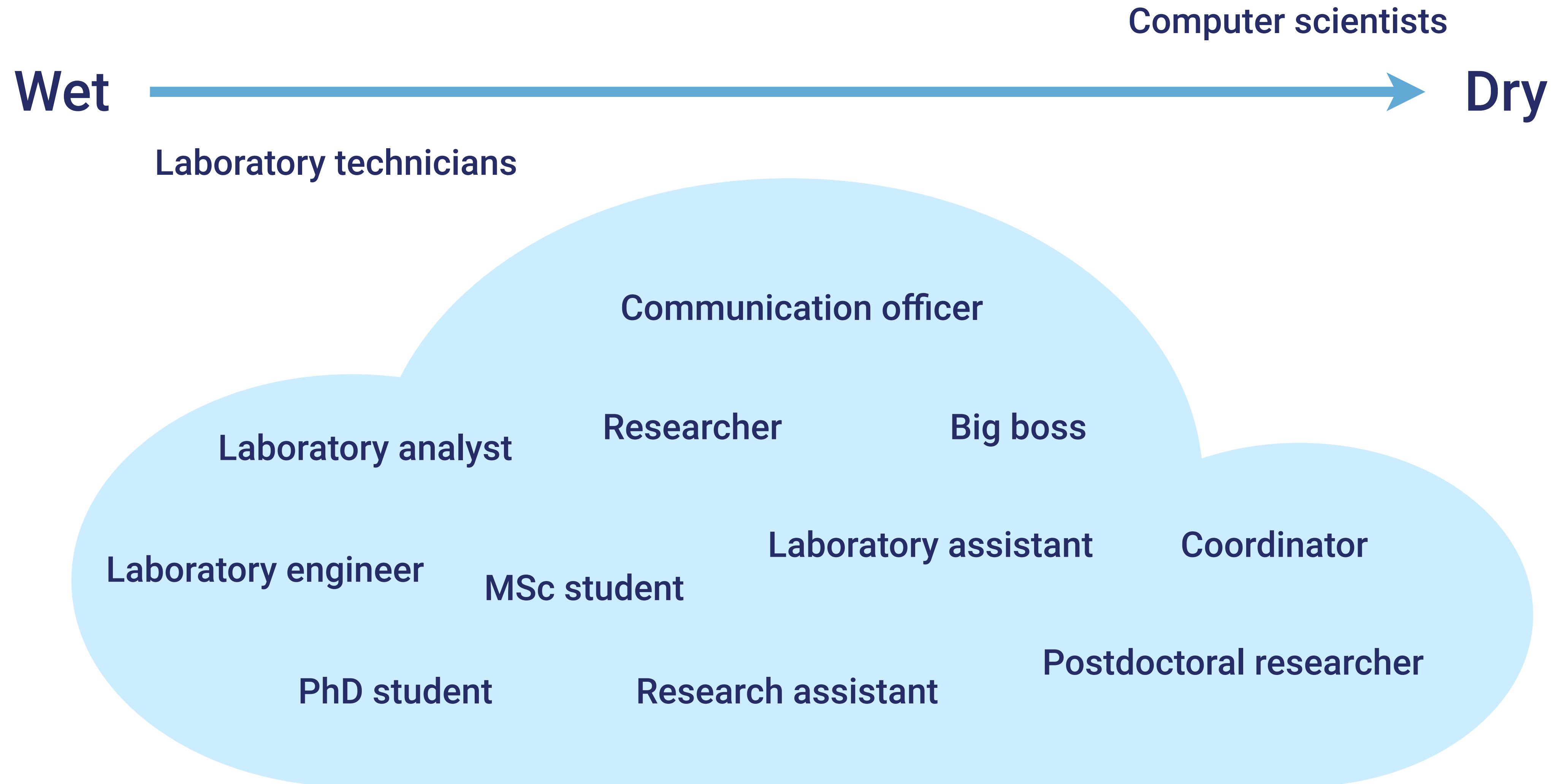
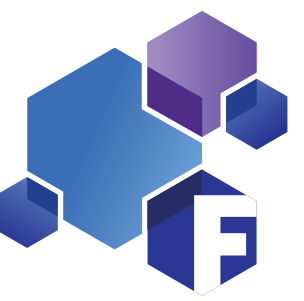


- FHAIVE stands for Finnish Hub for Development and Validation of Integrated Approaches
- FHAIVE is the GLP national reference laboratory of Finland for validation of alternative methods (ECVAM)
- Coordination of the Finnish 3R Centre
- Chemical safety, drug safety and efficacy, drug repositioning, biologics



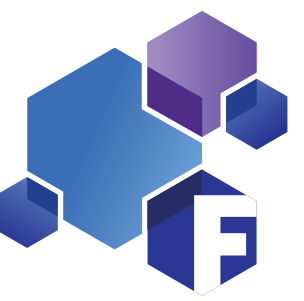


# Working at FHAIVE

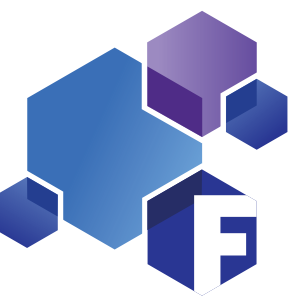




# FHAIVE in numbers



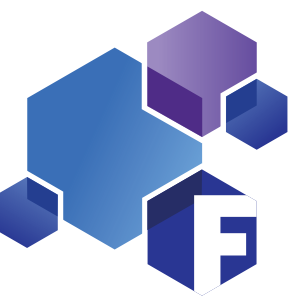




# So what do we do?







# The chemical soup

**144,000+**

man-made chemicals

**250 billion**

tonnes / year

**2,000+**

new chemicals / year

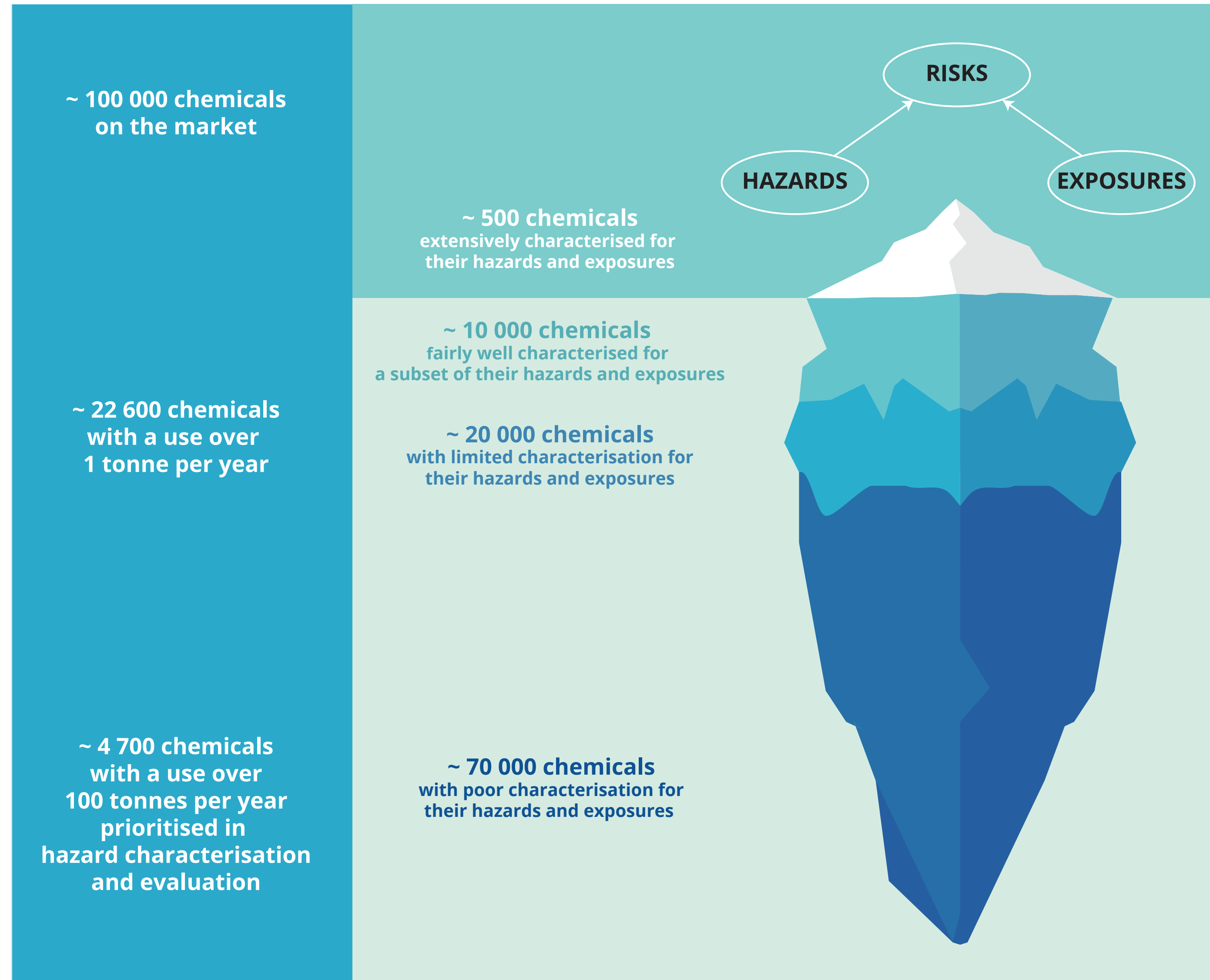
1 new chemical every

**4 hours**





# The situation in Europe





# Current paradigms in Toxicology

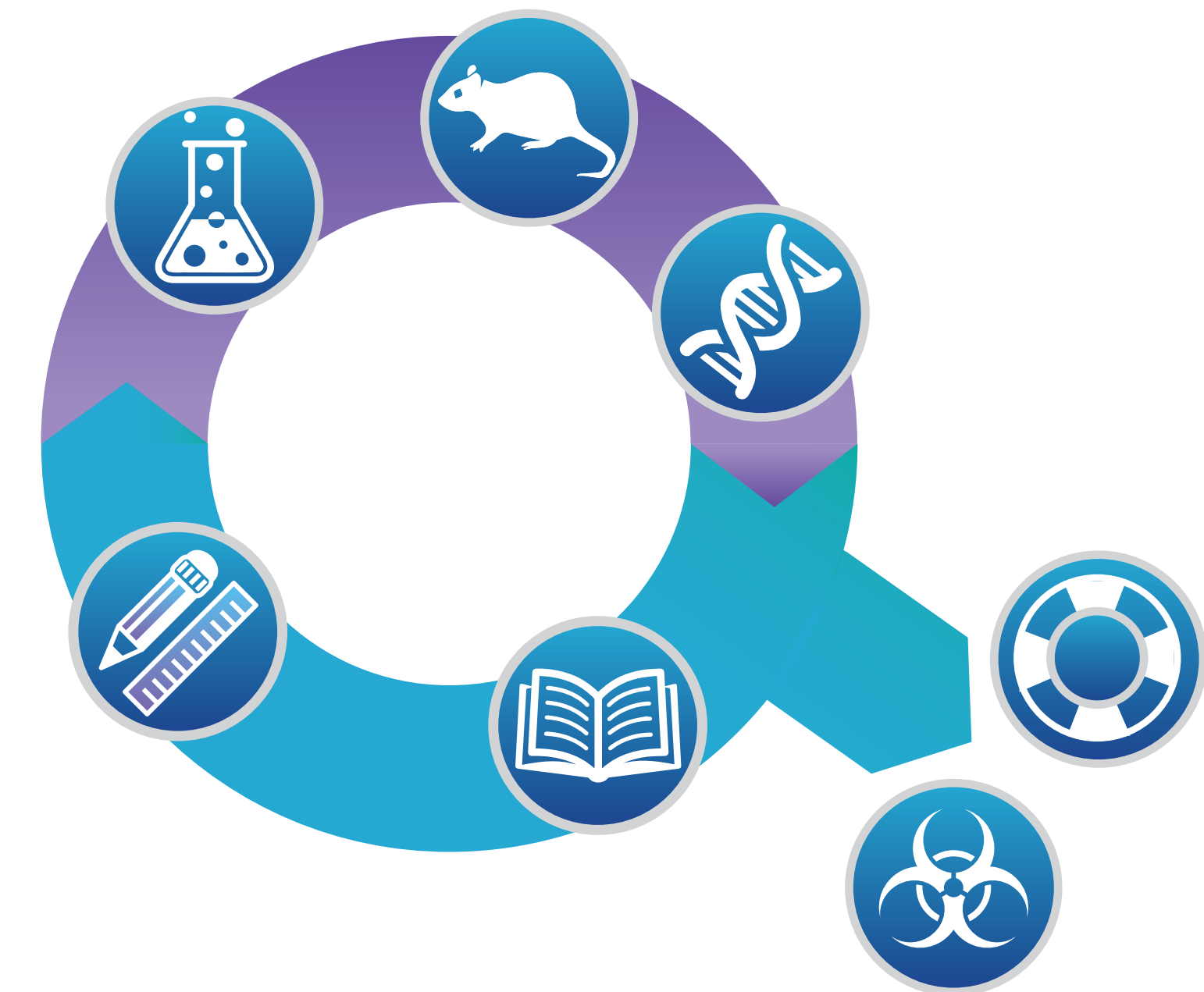


## Traditional toxicology



- One chemical at a time
- Focuses mainly on phenotypic effects
- Limited knowledge to design new compounds

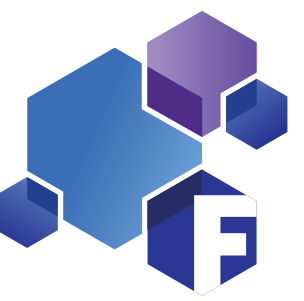
## Systems toxicology



- Focuses also on mechanisms
- Knowledge to design new compounds
- Lacks standardisation, not regulatory accepted

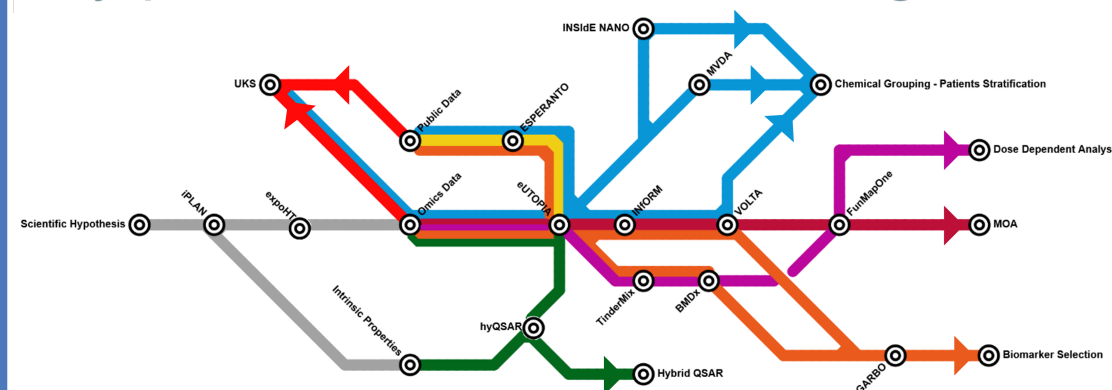


# Some FHAIVE success stories



## NEXTCAST

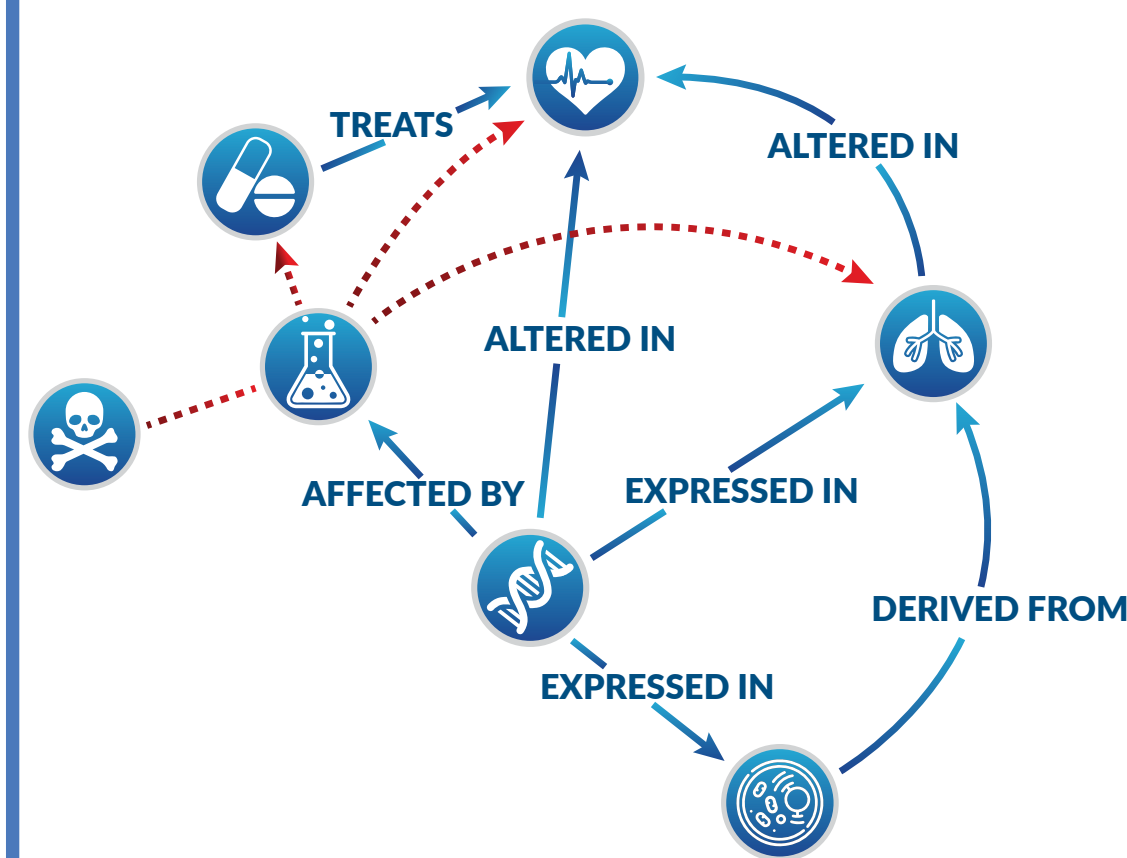
bypass to knowledge



### NEXTCAST

Integrated software for drug discovery and chemical safety assessment

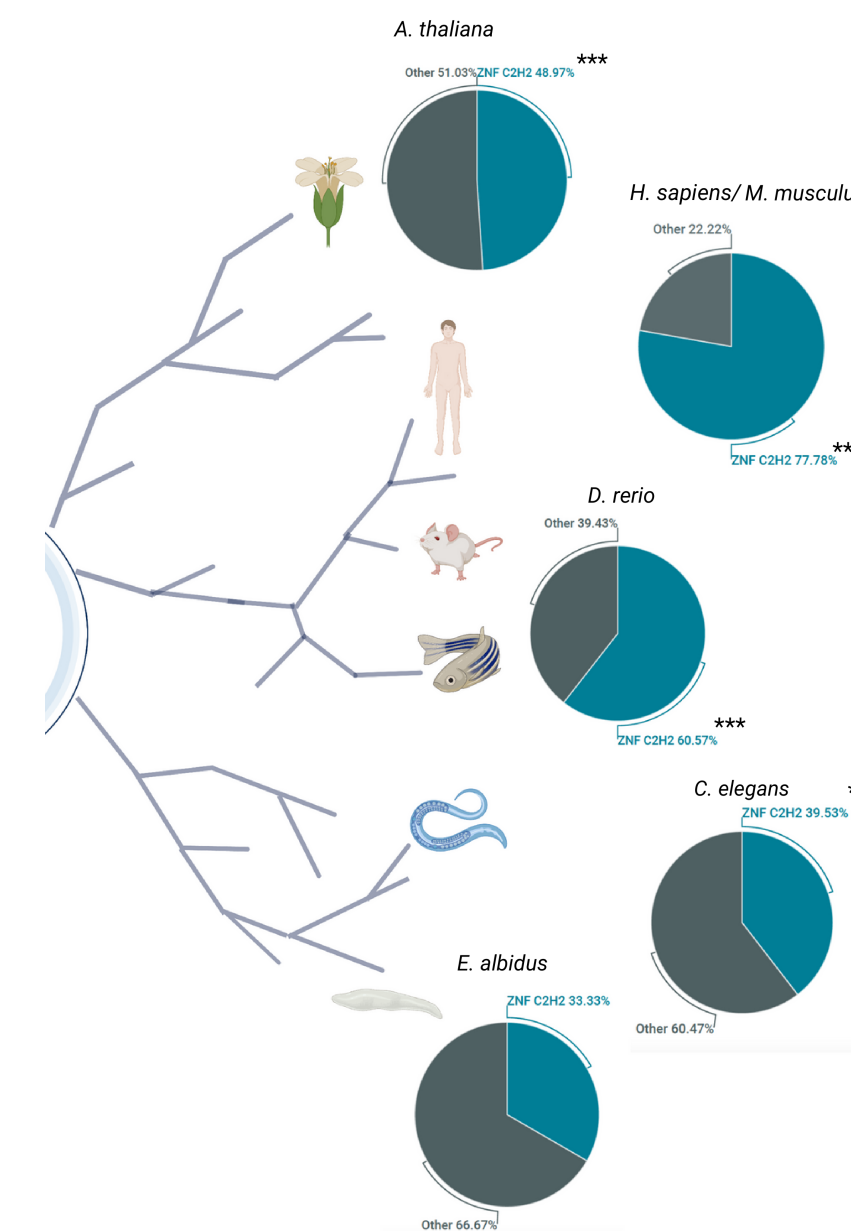
*Serra et al. CSBJ 2022*



### UNIFIED KNOWLEDGE SPACE

The biggest knowledge graph (60M+ data points) in toxicology and pharmacology

*Pavel et al. CSBJ 2021*

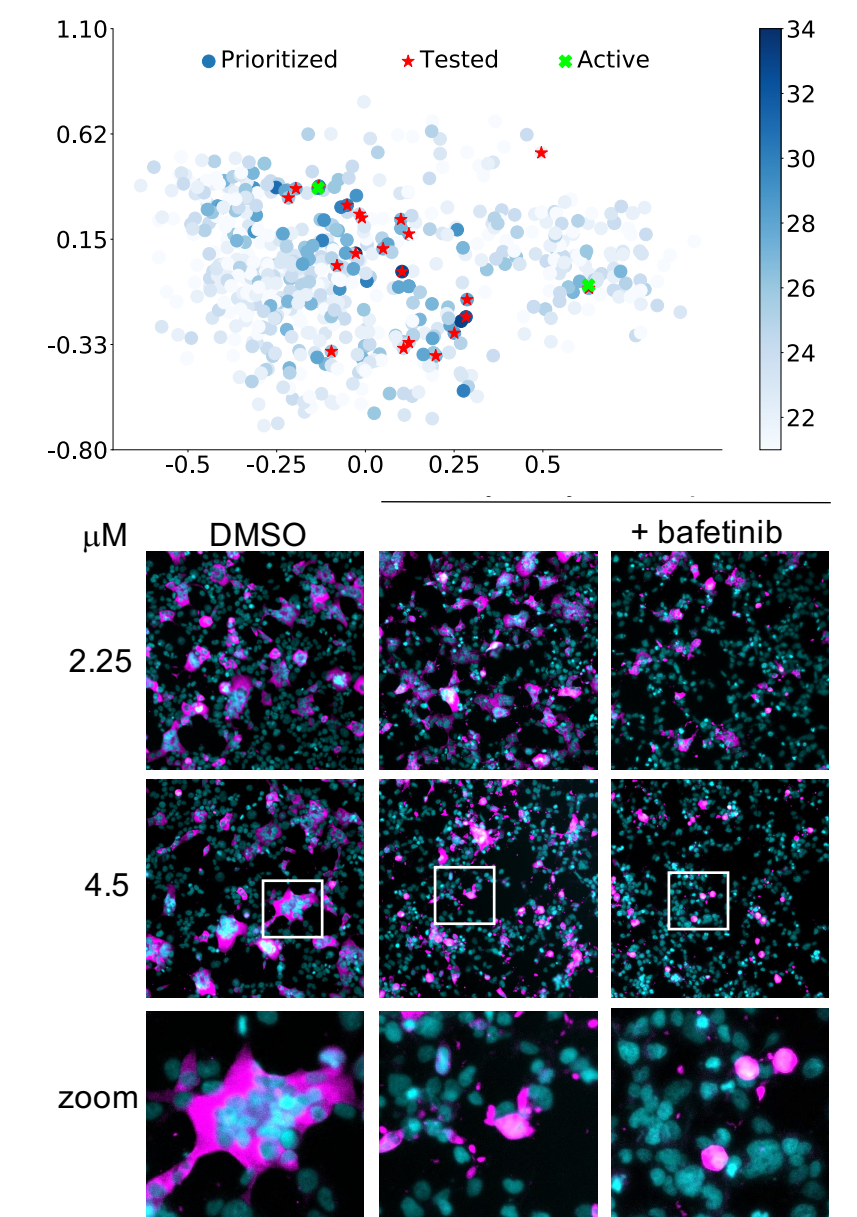


### ONE HEALTH MODEL

The first multi-species model that explain molecular responses to nano-articulate

*del Giudice et al. Nature Nano 2023*

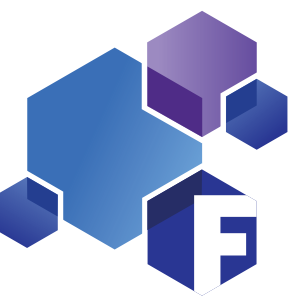
## Not only toxicology!



### NOVEL COVID DRUGS

Identification and validation of COVID-drugs by a novel integrated, fast and cheap method *Serra et al. Brief. Bioinfo. 2022*





# What can FHAIVE offer?

- Opportunities in the lab: Summer jobs, thesis work, research assistant, researcher (without the need to do a PhD or to test it out), PhD, PostDoc...
- Note that short term contracts (e.g., summer jobs) not possible in the wet lab!
- Collaborations with international academic partners and industry
  - Pharma, regulators...



# Why FHAIVE



- **YOU ARE PASSIONATE ABOUT SCIENCE**

- **YOU LOOK FOR A PAID JOB**

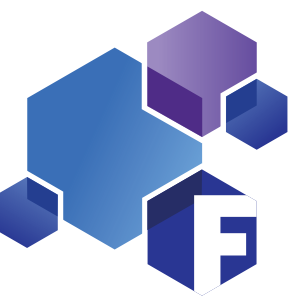
- **YOU WANT TO HAVE AN ACADEMIC CAREER**

- **YOU WANT TO HAVE A CAREER IN CHEMICAL OR PHARMACOLOGICAL OR BIG DATA OR AI INDUSTRY**

- **YOU WANT TO HAVE A CAREER IN A REGULATORY AGENCY (e.g. TUKES, ECHA, EFSA, EMA, OECD)**

- We do cutting-edge science
- We work in a highly multi-disciplinary field
- Cell & molecular biology, toxicology, pharmacology, big data science, AI, bioinformatics, bioengineering...
  
- We have significant amount of funding (15M€ for 2023-28)
- We have many projects (active 15)
- We pay all our MSc. students.
- >75% MSc theses are published as papers
  
- Our students finish their PhD in 4,5y with avg. 20 articles
- At least one thesis article is in high impact journals
- We collaborate a lot internally, opportunities to contribute
- Our network of international collaborators is huge
  
- We collaborate with many big industries
- **ASTRAZENECA, SANOFI, NOVARTIS, PFIZER, BASF, SOLVAY...**
- We are a GLP facility
  
- We are subcontractors of EFSA
- We collaborate with ECHA and TUKES
- We are part of several OECD expert groups





# Let's discuss

