

OPEN SCIENCE

- in the cross field between universities and companies

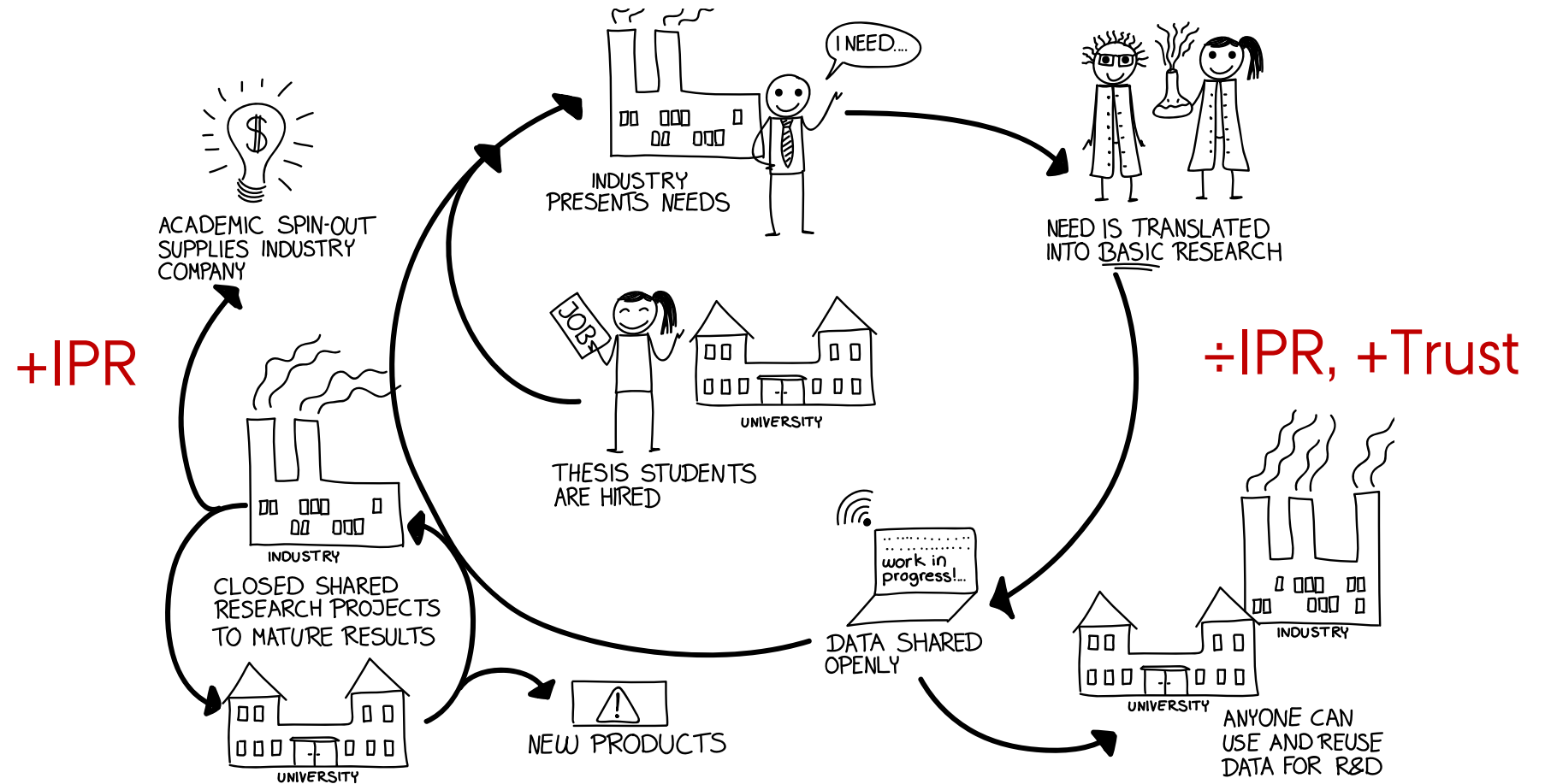
An Open Platform to accelerate Science,
Nucleate Ideas, and Meet Collaborators

**novo
nordisk
fonden**

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THE OPEN SCIENCE MODEL



Sub networks:

[SPOMAN](#) (Smart POlymer Materials and Nano-composites community)

[ODIN](#) (Open Discovery Innovation Network) Life Science community

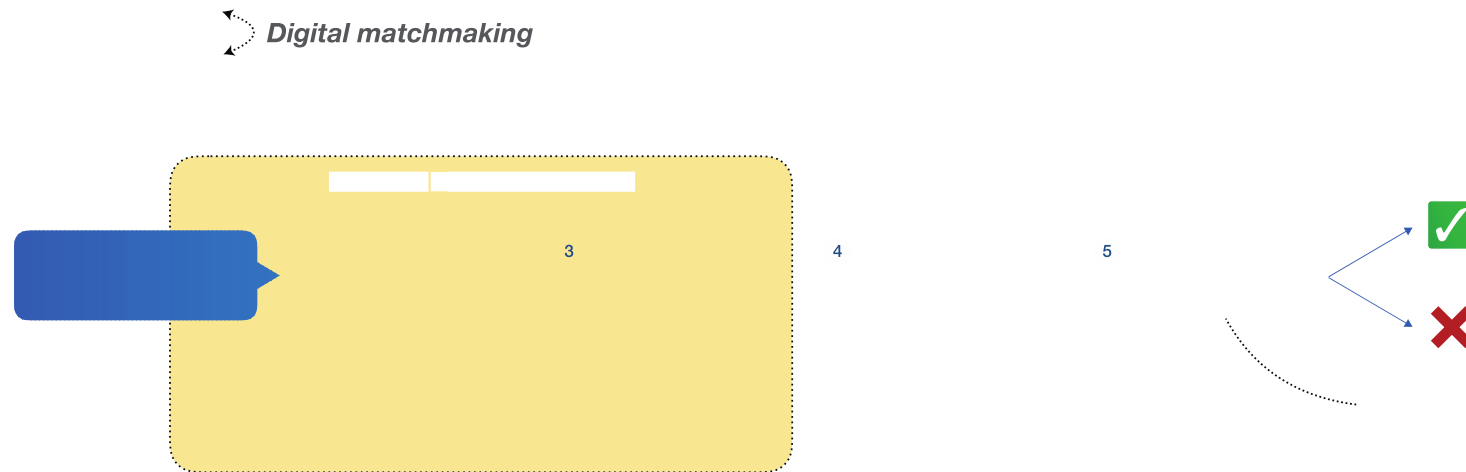
[Plant2Food](#) (fire universiteter, op til 200 M DKK) accelerating the transition to plant-based food

Open Discovery Innovation Network (ODIN)

- Application to the Novo Nordisk Foundation: 55 M DKK for a 3-year pilot with the potential of expanding initiative for longer duration
- A platform for **open, precompetitive** collaboration with industry with no IP (up to TRL 3 = Experimental proof of concept obtained).
- Thematic foci: biomarkers and target validation
- Participants from 3 Aarhus University Faculties (NATURAL SCIENCES, HEALTH, TECH) and 9 pharma- and biotechcompanies (incl. Novo Nordisk, Leo Pharma, Lundbeck, Boehringer Ingelheim & Astra Zeneca)
- No membership, all results are public domain

How it works:

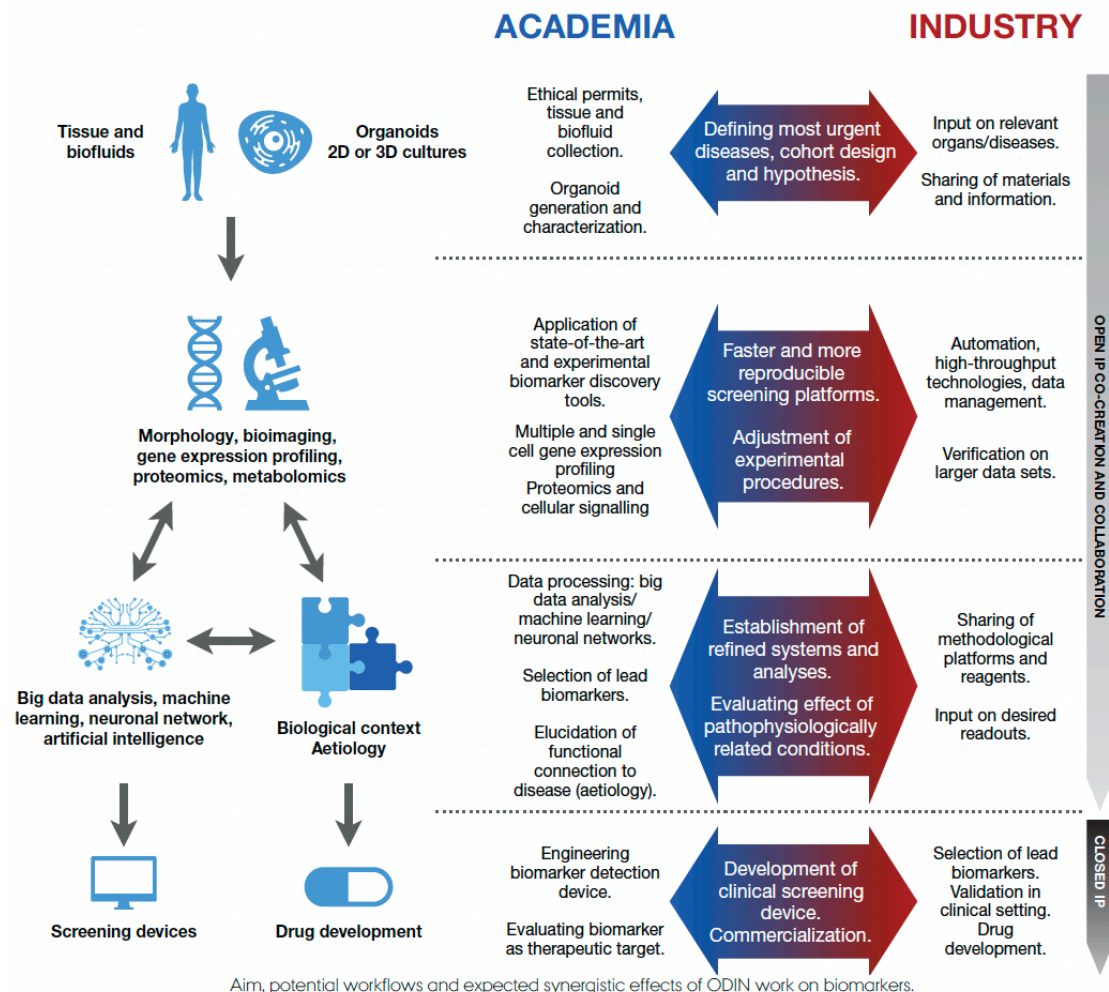
- 1) University researchers and industrial investigators share challenges, ideas, knowledge, results, data and select technologies in shared research projects.
- 2) Any member can propose new projects propose and seek partners and input through a structured ideation (biannual oDIN meetings).



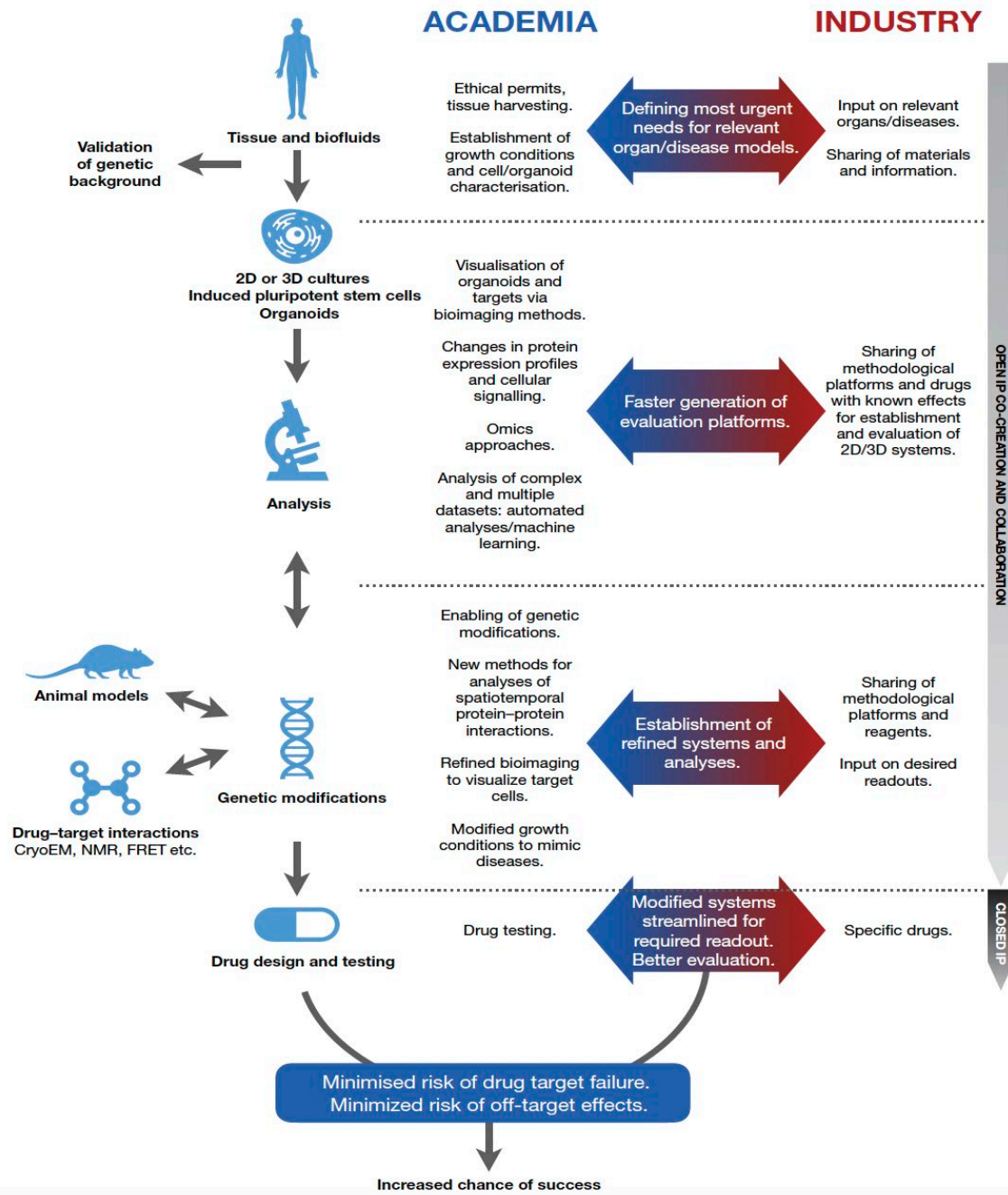
- 3) Results are shared through publications and an open database
- 4) Although all results from oDIN projects are public domain, anyone can use the results for commercial purposes and protect the specific applications oDIN knowledge and results.

Scientific scopes in oDIN 1.0

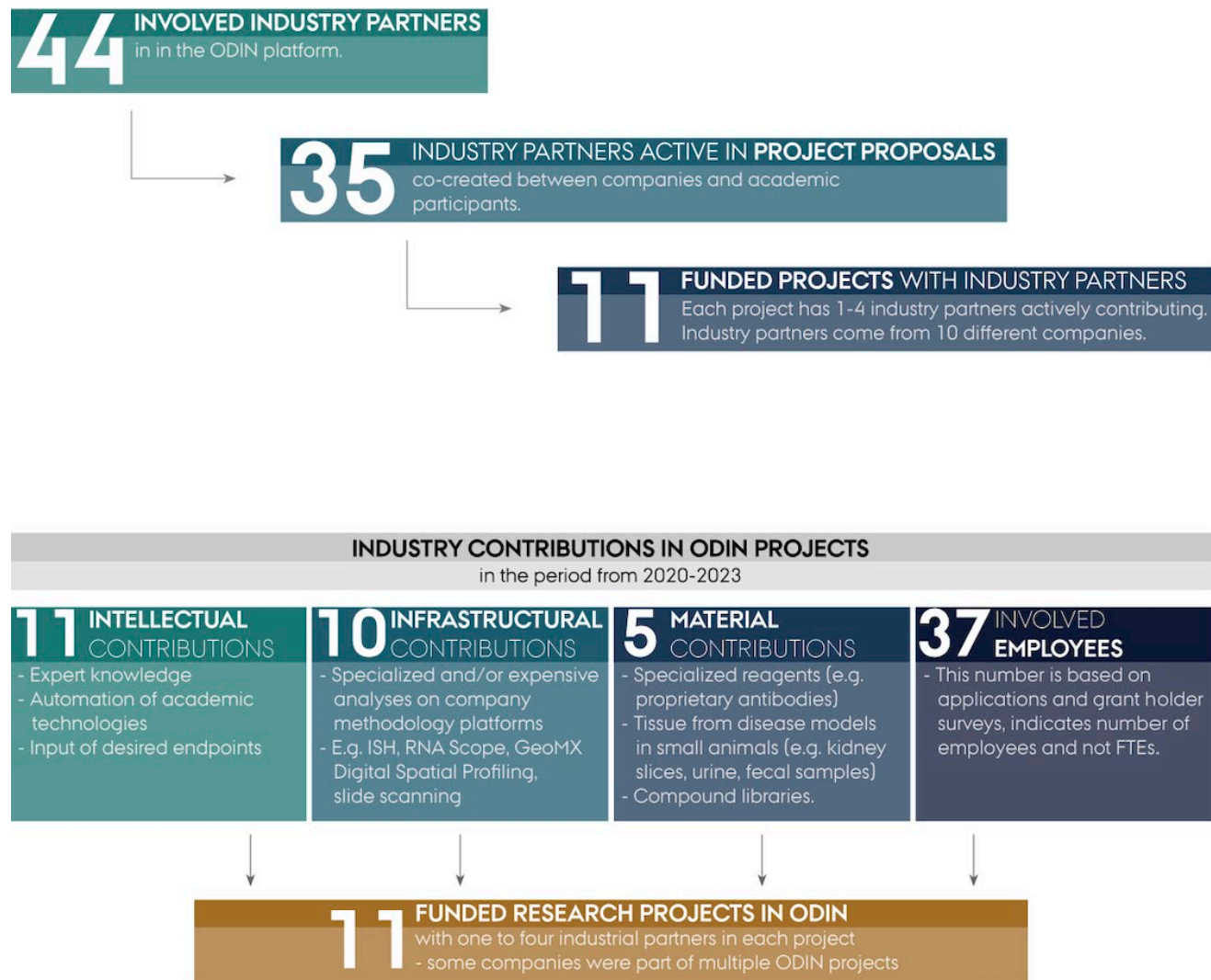
BIOMARKERS:



TARGET VALIDATION:



Industry involvement in oDIN 2020-2023



ODIN 1.0 implemented

- 5 + 6 = 11 projects granted (about 5 mill average)
- NAT, TECH and HEALTH
- 44 companies involved

ODIN 2.0 in process

- 5 universities (AU, KU, DTU, SDU og AAU) + interested industrial partners
- Under negotiations

Liver biopsies are invasive and potentially dangerous procedures required for a reliable diagnosis of the non-alcoholic fatty liver disease – NAFLD



DEPARTMENT OF BIOMEDICINE



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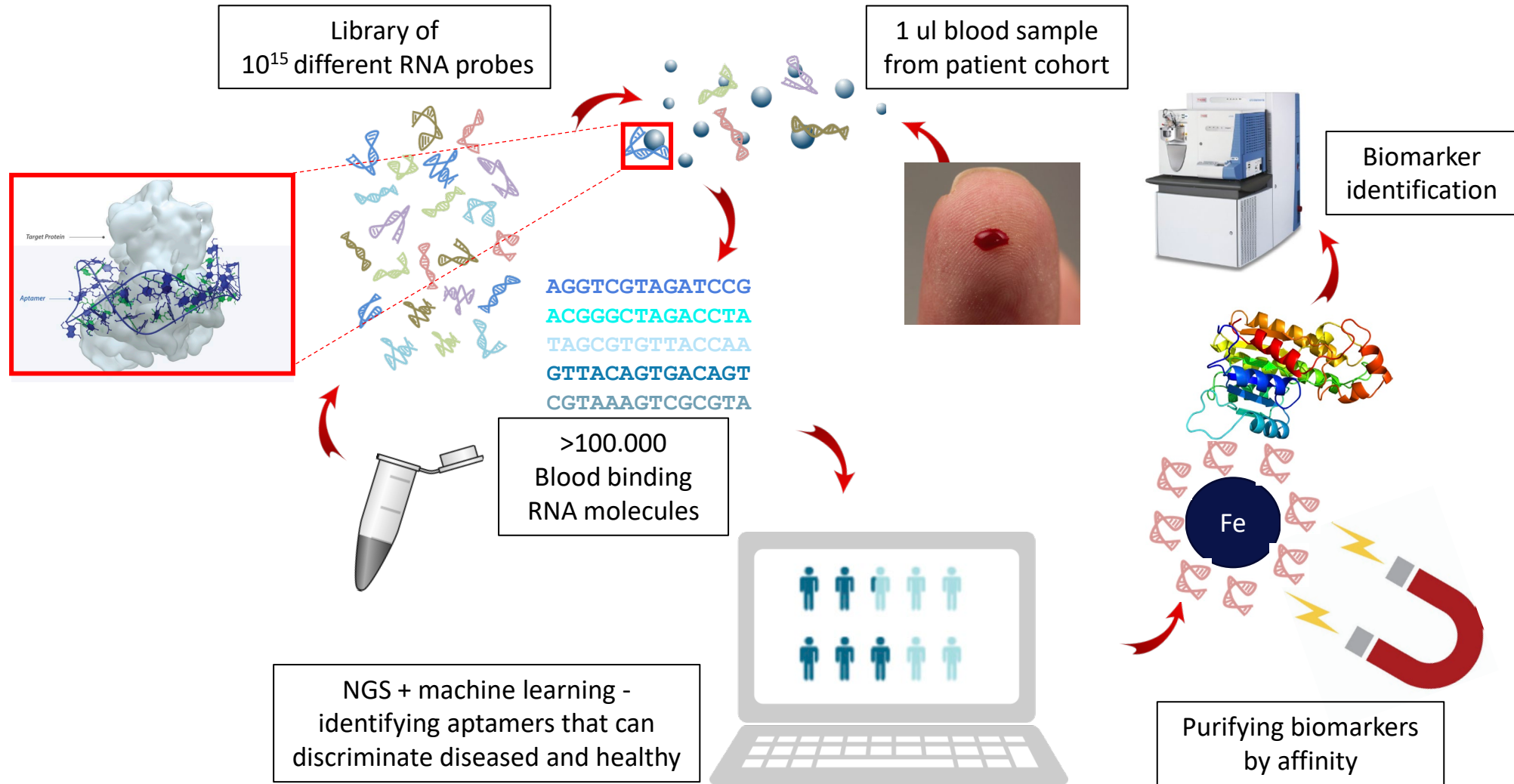


Søren Fjelstrup
iNANO

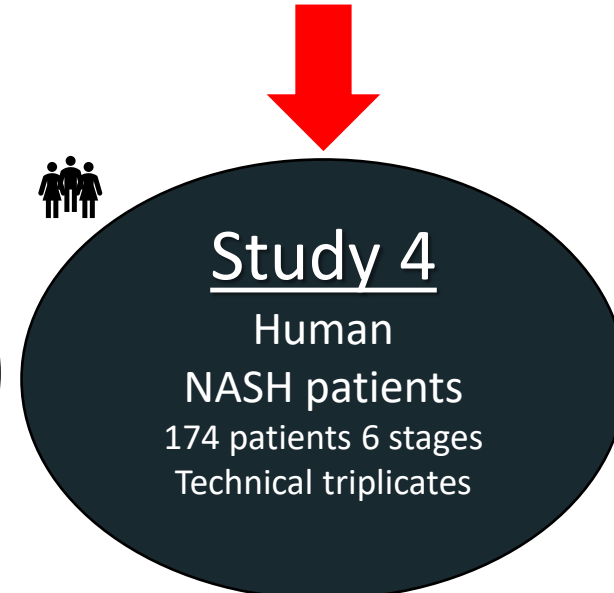
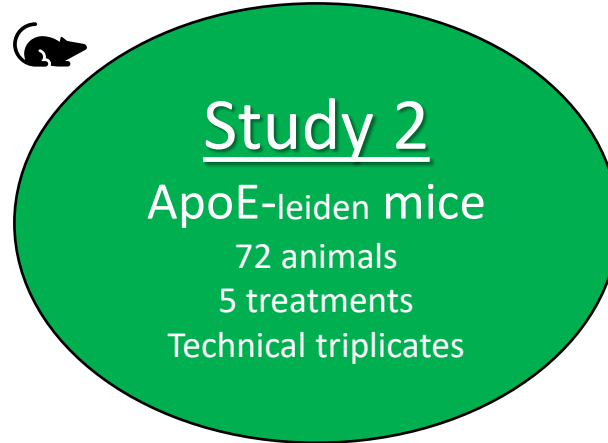
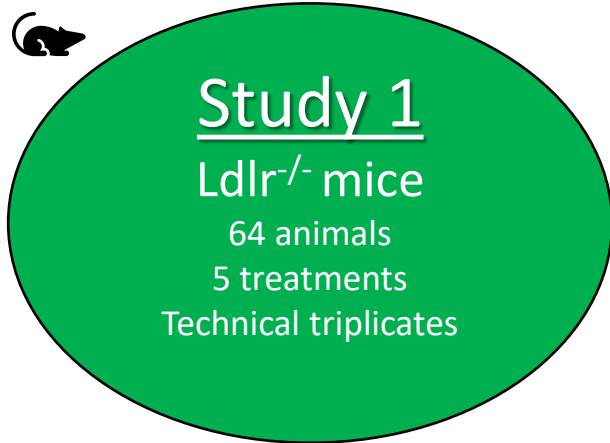
oLIVER



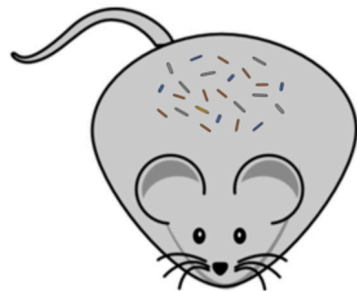
APTASHAPE – a method for profiling biomarkers in biofluids



Aptashape applied to treatment of Cardiovascular diseases – Animal and human models



ApoE^{-/-}
+ western diet



Wild type
mouse



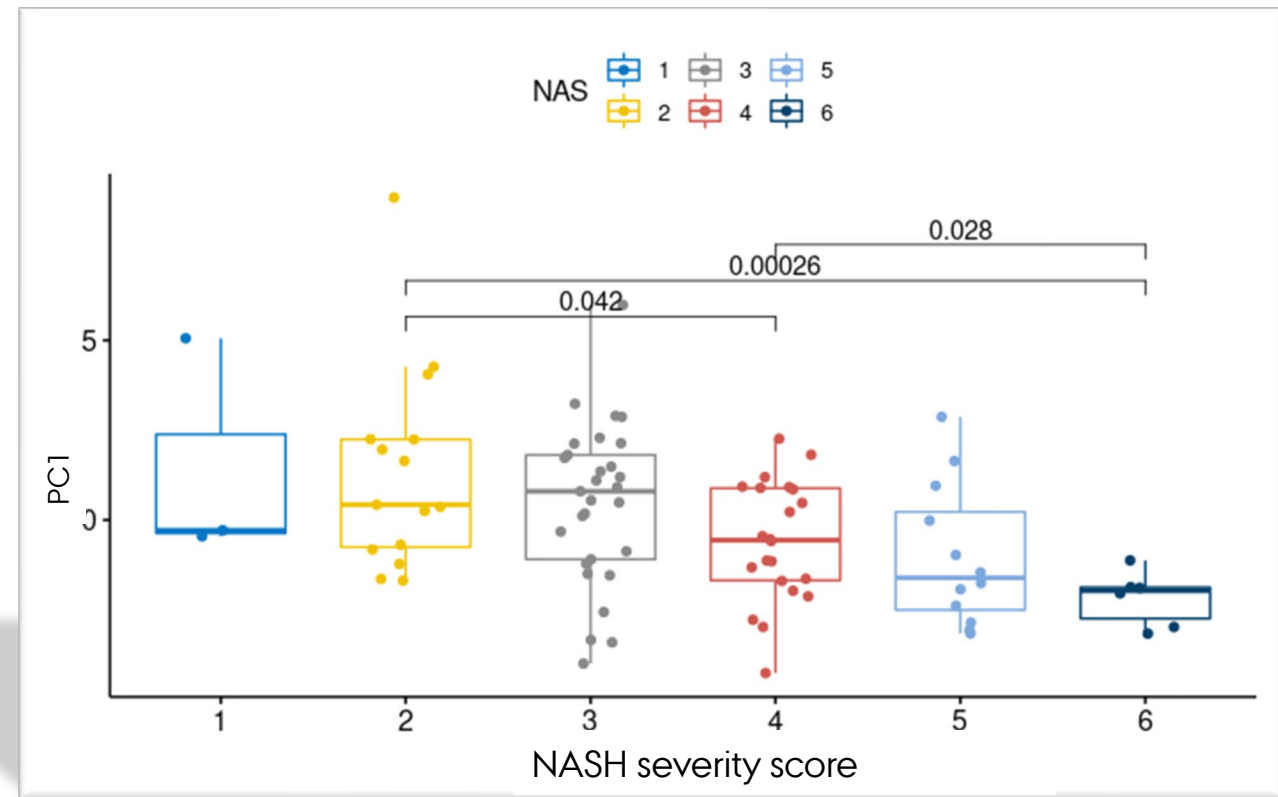
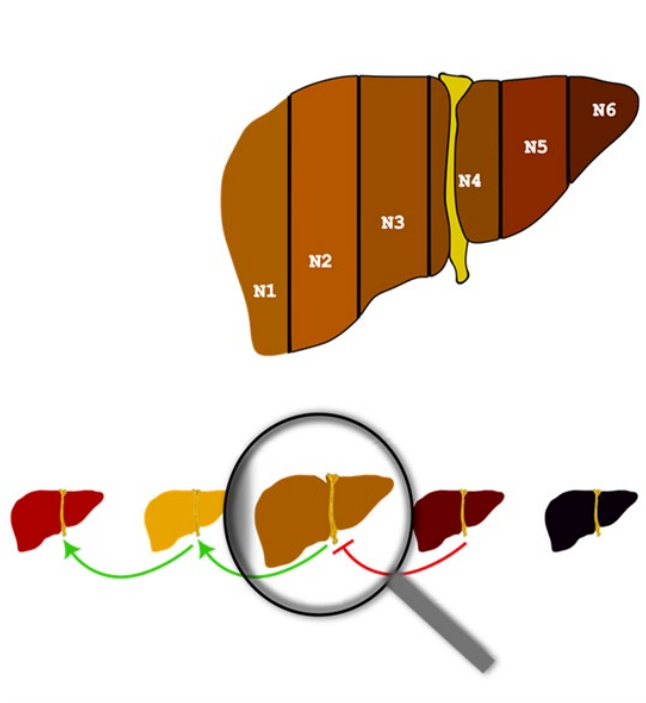
- Chow diet (lean diet)
- Western diet/Liraglutide* treatment
- Western diet/Semaglutide* treatment
- Western diet/Vehicle
- Western (fat diet)

*Novo Nordisk GLP-1 hormone receptor agonists

APTASHAPE – human fatty liver disease diagnostics

Cohort: 174 liver FLD patients (Clinical samples from Henning Grønbaek, Skejby Hospital)

Clinically identification of NASH status 1-6



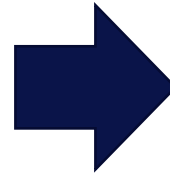
Impact on other projects

- Continued collaboration with Novo Nordisk, Omiics
- New collaborations with Eir Diagnostics, Bioporto
- Tested on other diseases (bladder, colon, liver cancers, COVID-19, Multiple Sclerosis, Alzheimer, Kidney fibrosis)
- New funding (>7 mill from DFF, NNF, Carlsberg Foundation)
- One Spinout established - one under establishment

Commercialization (closed science): bedside diagnosis tool

Weeks

Minutes



Make a synthetic pool of 100 most discriminating aptamers
Measure binding to each of them



Open Science - Pros and Cons

Pros:

- Facilitates collaborations between basic science industrial and clinical entities
- Eases GDPR issues (but not completely true)
- Faster dissemination (open data platforms like bioRxiv and oDIN platforms)
- Enable validation by others
- Industry attracts talent (good from company point of view)

Cons:

- Potentially damage IP – especially smaller companies more vulnerable
- Risk of being scooped by other groups
- Industry attracts talent (bad from academic point of view)



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