

STATENS
SERUM
INSTITUT



THE DANISH NATIONAL BIOBANK

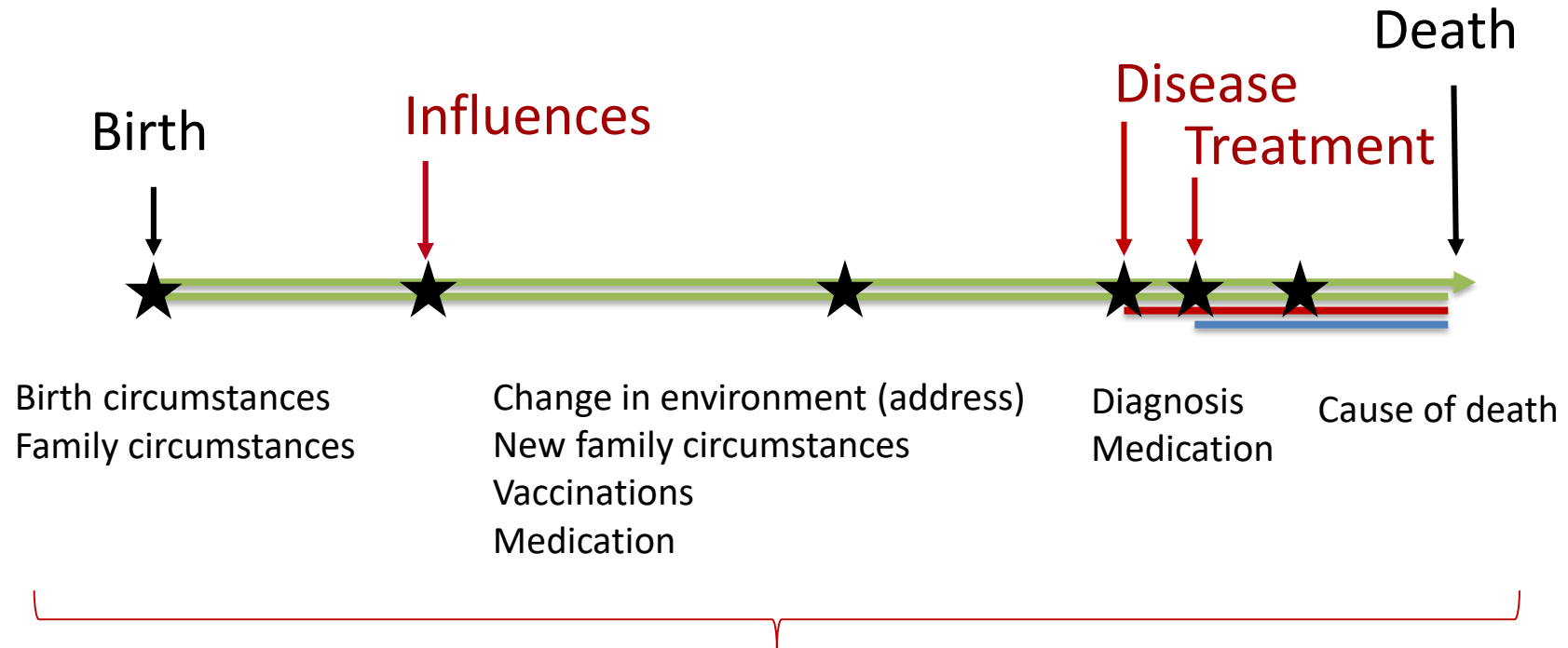


DANMARKS
NATIONALE
BIOBANK



The biobank research potential

From Cradle to Grave Disease migration through generations

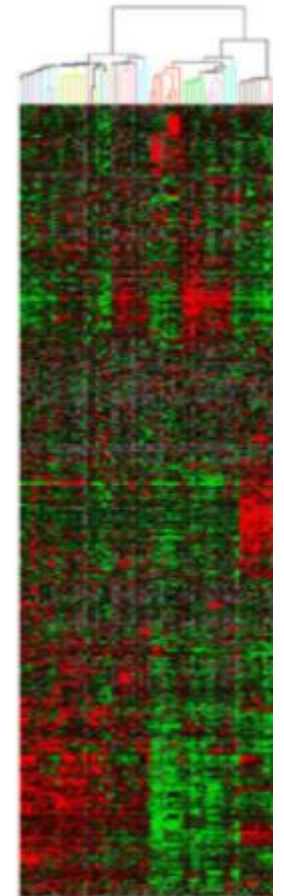
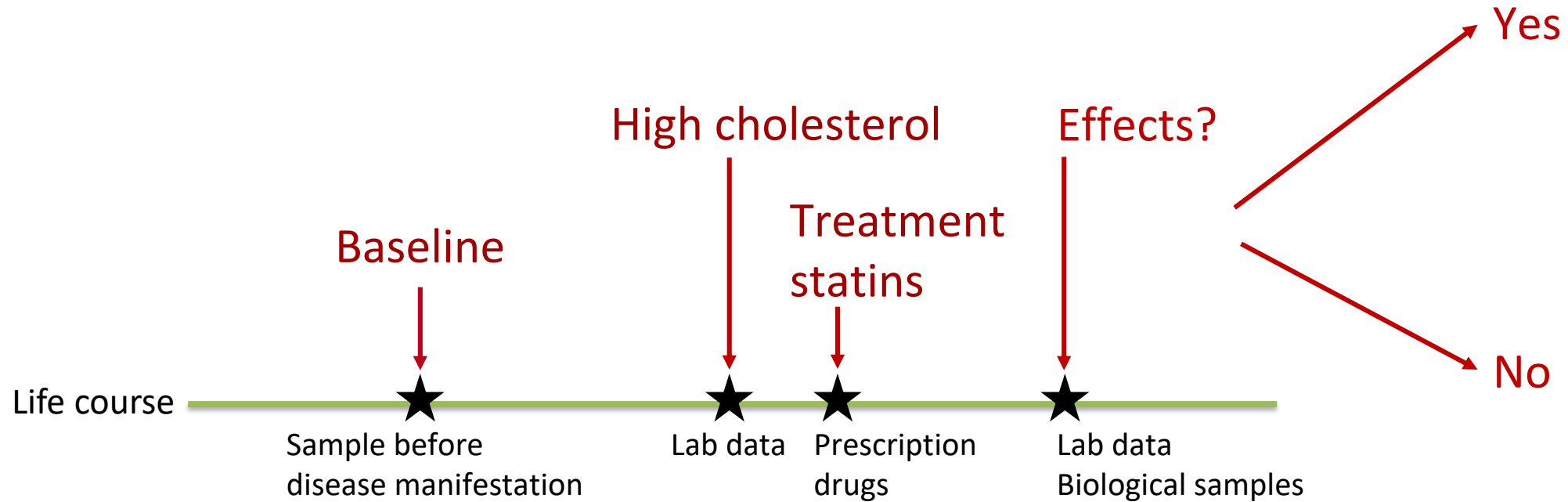


Unique Danish register data linked by **Personal Identity Number**

★ Biological samples (biomarkers, genetics, functional studies)

The biobank research potential

Who benefits from statin treatment?



>12 million biological samples in store

-and growing by 1 million per year

COVID-19 samples

Testcenter Danmark:

	Total samples	COVID-19+
Throat swab	1.225.755	202.308
Blood samples	30.974	1352

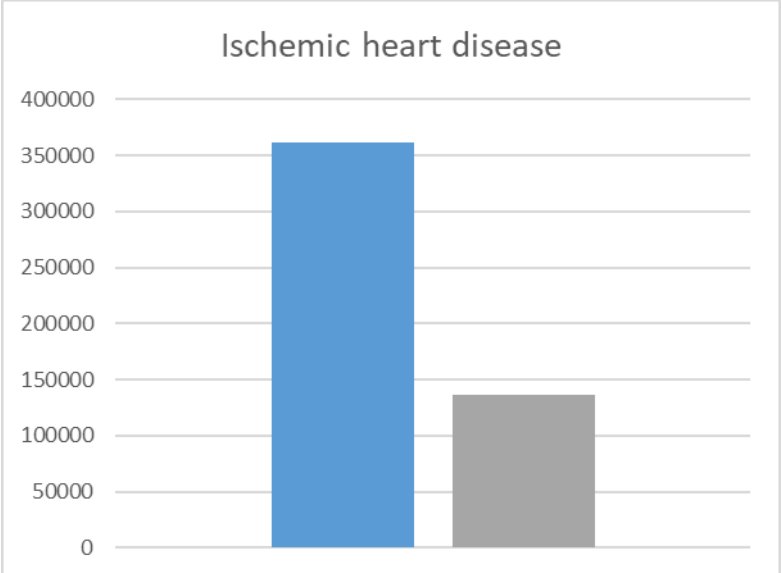
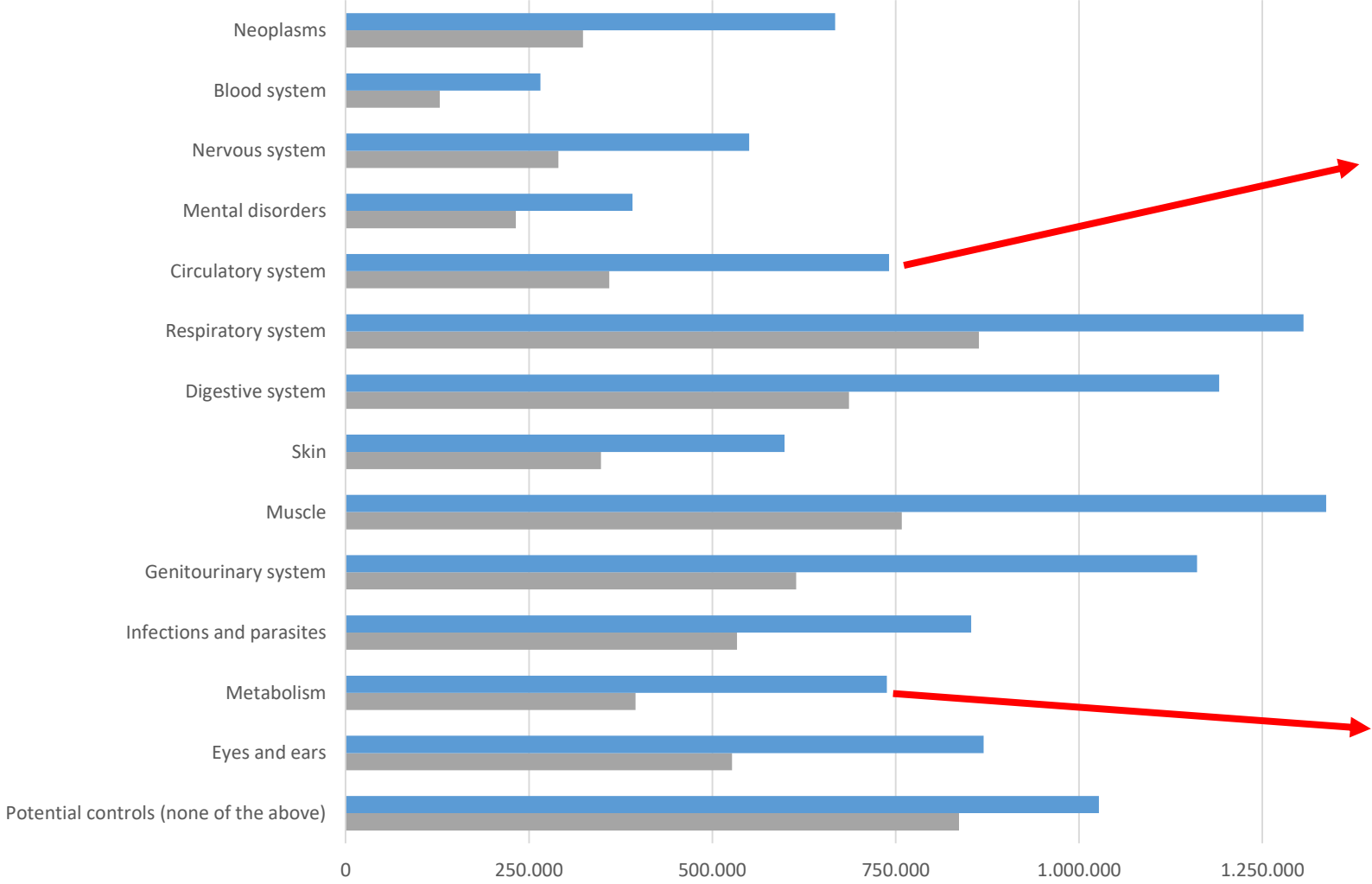
Other samples:

	COVID-19+
DNA	10.070
Plasma	22.025
Serum	15.429

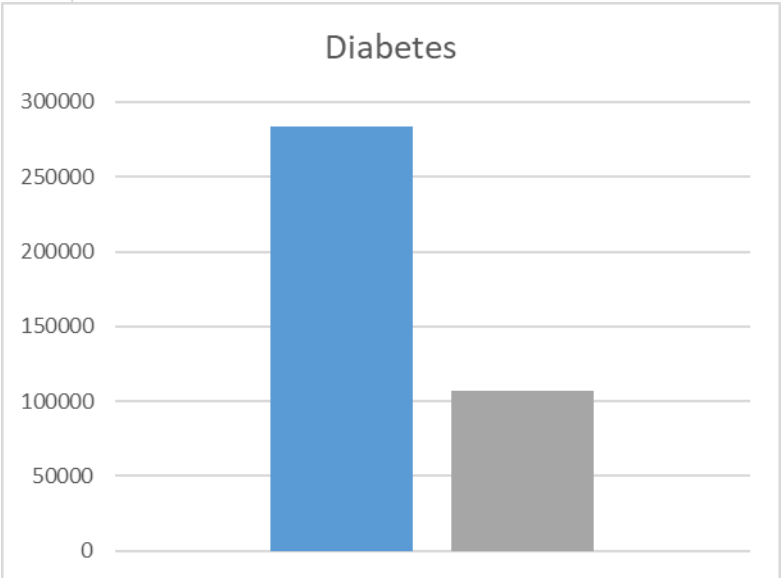
Biological samples in the Danish National Biobank	Samples	Individuals
Serum	3.317.536	951.521
Dried blood spot samples	2.565.821	2.091.587
Plasma	1.488.350	442.752
Whole blood	830.524	320.872
DNA	678.237	451.455
Buffy Coat	346.033	126.527
Urine	320.456	126.054
Saliva	90.407	42.554
Red blood cells	85.349	41.738
Amniotic fluid	66.407	56.505
Cord Blood Mononuclear Cells	65.032	65.032
Proteins extracted from DBS	39.168	38.979
Spinal fluid	28.596	16.498
Samples derived from swabs	25.856	20.745
DNA from faeces	18.900	18.900
Peripheral Blood Mononuclear Cells (PBMC)	12.980	1.023
Tape Stripping	6.301	629
Skin swab	4.066	688
Placenta Biopsy	3.026	820
Hair	2.851	1.088
RNA	1.746	620
Throat virus	1.415	1.004
Throat bacteria	1.413	1.003
Breast milk	1.223	607
Biopsy	1.008	558
EDTA Stem Cells	667	198
SAM (Synthetic Absorptive Matrix)	666	333
Faeces	568	280
Airway virus	426	227
Nasal Scrape	318	317

Own biological samples and diagnosis

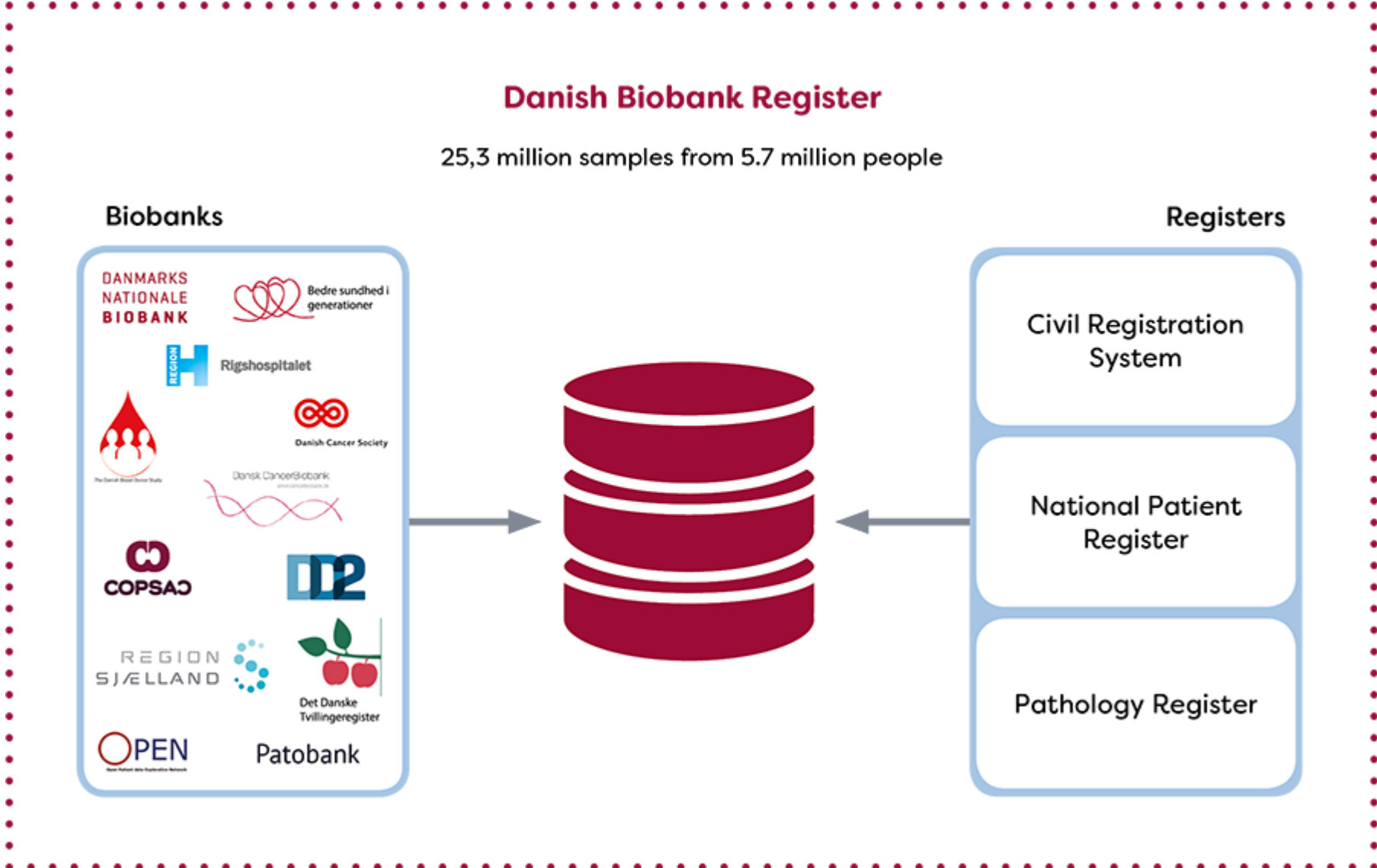
Samples by disease category




■ Number of samples
■ Number of individuals



The Danish Biobank Register



Alzheimer's disease (ICD8:29010, ICD10:DF00, DG30)



Person Person Person

Gender
Any

Search for diagnosis
Choose code type
Search codes (e.g. KMAA-KMAD)

Biobanks
Danish National Biobank

Sample Types

Blood
Deselect all
 Buffyccoat
 Whole blood

Tissue
Deselect all
 Dry frozen

Other types
Deselect all
 DNA
 Feces
 Cervical cytolog
 Semen

Year of birth
From 1850 To

Age at sample take
From 0 To

Diagnosis period
From 1850 To

Select codes
29010 (MORBUS ALZHEIMER)

Select all Ur

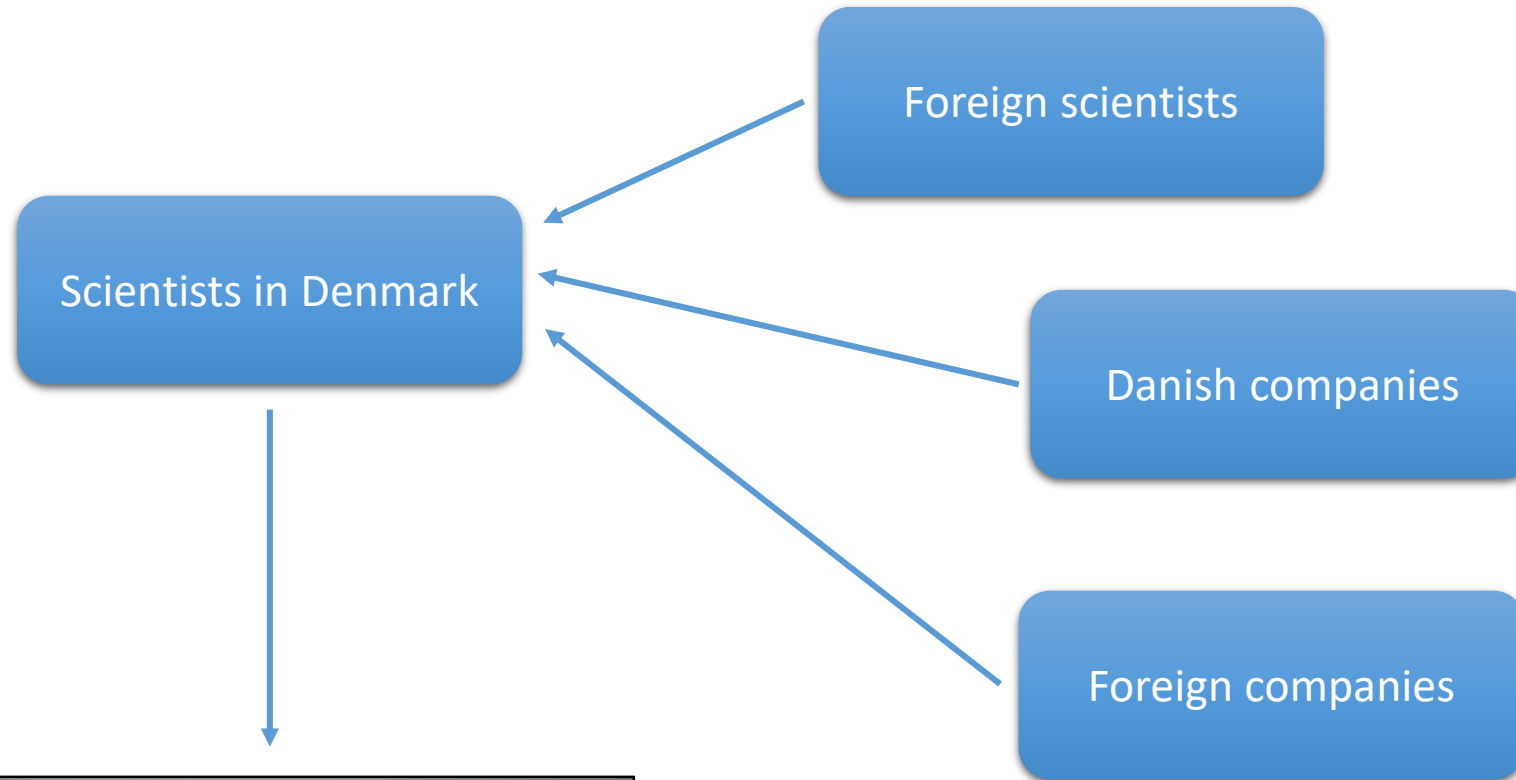
1. [Project] - [Sample Type] - [NumberOfSamples]

		Project
		Diagnostic samples (Danish National Biobank)
Sample Type	Amniotic fluid	
	Bone marrow	
	Breast milk	
	Buffyccoat	
	Cervical cytology	
	Clot	1292
	DNA	9520
	Dry frozen	
	Feces	*
	FFPE	
	Filter paper	
	Fine needle aspiration	
	Nasopharyngeal swab	*
	OCT embedded	
	Other cytologies	
	PBMC	
	Plasma	9207
	RNA	
	RNAlater treated	
	Semen	
Serum	10202	
Spinal fluid	1443	
Throat swab	1047	
Urine	*	
Whole blood		

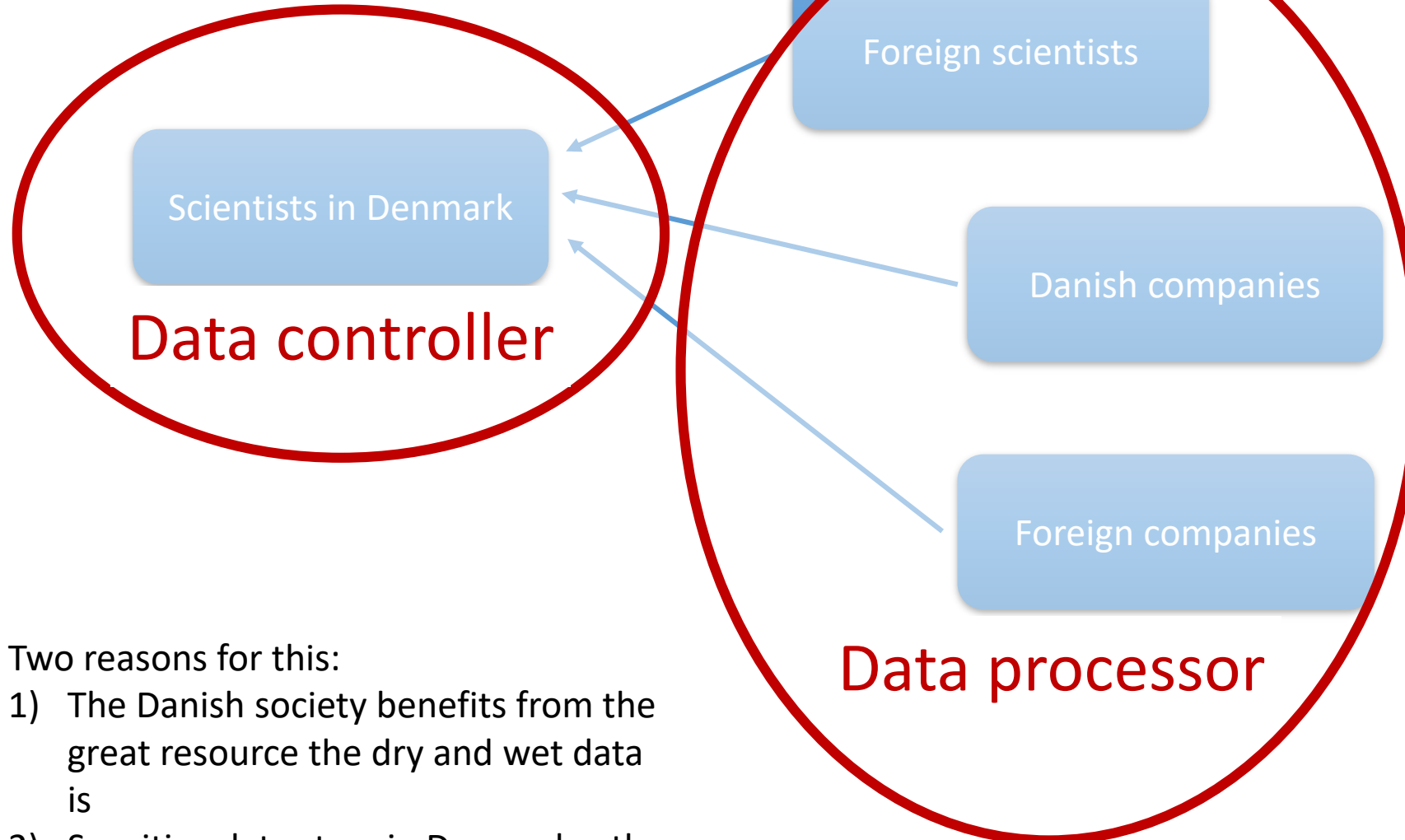
2. [Project] - [Sample Type] - [NumberOfIndividuals]

		Project
		Diagnostic samples (Danish National Biobank)
Sample Type	Amniotic fluid	
	Bone marrow	
	Breast milk	
	Buffyccoat	
	Cervical cytology	
	Clot	834
	DNA	5165
	Dry frozen	
	Feces	*
	FFPE	
	Filter paper	
	Fine needle aspiration	
	Nasopharyngeal swab	*
	OCT embedded	
	Other cytologies	
	PBMC	
	Plasma	4979
	RNA	
	RNAlater treated	
	Semen	
Serum	6905	
Spinal fluid	1328	
Throat swab	840	
Urine	*	
Whole blood		

Who can gain access?



Who can gain access?



Two reasons for this:

- 1) The Danish society benefits from the great resource the dry and wet data is
- 2) Sensitive data stays in Denmark – the controller must secure everything is handled correctly and according to Danish law

Communication



@NationalBiobank

National Biobank DK @NationalBiobank · 29. mar.
 Highlighting the important role of software engineers and software sustainability in modern bioresearch. DNB head of IT: @Bartwilkowski + @kaiblin and @phantomas1234 of @DTUbiosustain hosted an un-conference this week. #givesoftwareitsdue

National Biobank DK retweeted **Nature Genetics** @NatureGenet · 1. maj
 Maternal and fetal genetic effects on birth weight and their relevance to cardio-metabolic risk factors (Warrington et al) go.nature.com/2fTFTCE

Legend for SEM-adjusted fetal P value:
 - $P < 5 \times 10^{-8}$ (red line)
 - $5 \times 10^{-8} \leq P < 0.0001$ (blue line)
 - $0.0001 \leq P < 0.05$ (purple line)
 - $P \geq 0.05$ (grey line)

Legend for SEM-adjusted maternal P value:
 - $P < 5 \times 10^{-8}$ (red square)
 - $5 \times 10^{-8} \leq P < 0.0001$ (blue square)
 - $0.0001 \leq P < 0.05$ (purple square)
 - $P \geq 0.05$ (grey square)



Danish National Biobank
 45 followers
 2w · Edited · Anyone

Pleased to welcome our new Minister of Health, Magnus Heunicke to the National Biobank. The Minister had a brief tour of our highly automated facility and got acquainted with staff and robots alike

33 · 675 Views
 Like Comment Share

Danish National Biobank
 45 followers
 2w · Edited · Anyone

Happy to announce our #PhD course "The Future of Biobanking" this fall in collaboration with Københavns Universitet - University of Copenhagen, Lund University, University of Helsinki and CNIO - Spanish National Cancer ...see more

THE FUTURE OF BIOBANKING

PhD course
 13th-15th November 2018, Statens Serum Institut, 5. Artillerivej, 2300 Copenhagen S

Symposium
 13th-14th November 2018, Møkkens Vej 6, Schwelegårdsvej 1, Lund

Overview
 The objective of this 5-day PhD course is to introduce and deepen the students' understanding of the many facets related to biobanking. Offered as a cooperative PhD course by the Danish National Biobank, University of Copenhagen, Lund University and the Spanish National Cancer Research Centre, the course aims to provide students with core sets of tools to better understand the world of biobanking, and future perspectives in the field.

Goals
 The goal is to provide an interdisciplinary perspective on the historical, philosophical, ethical, legal, social, technical and cultural aspects related to the collection, storage and dissemination of human biological samples and health information. After completion of the course the students will have a broad understanding of biobanking, as well as the challenges associated with collaboration between the different stakeholders. The course will also provide the students with the opportunity to network with students from Sweden and Denmark, as well as with a broad spectrum of international operators. The course also offers a work visit to the Danish National Biobank.

Course requirements
 • Master's degree or equivalent
 • Interest in biobanking
 • At least 80% attendance is compulsory
 • Successful completion of course assignments

Course credits
 3 ECTS credits

Course method
 • 3 day intensive seminar which includes a 3-day symposium and an on-site visit
 • Assigned reading package
 • Active participation in lab discussions and work groups
 • Course assignment in working group

On-site visit
 Danish National Biobank (Copenhagen)

For further information and registration for the course please send an email to: phd@dnb.dk

Podcast for researchers

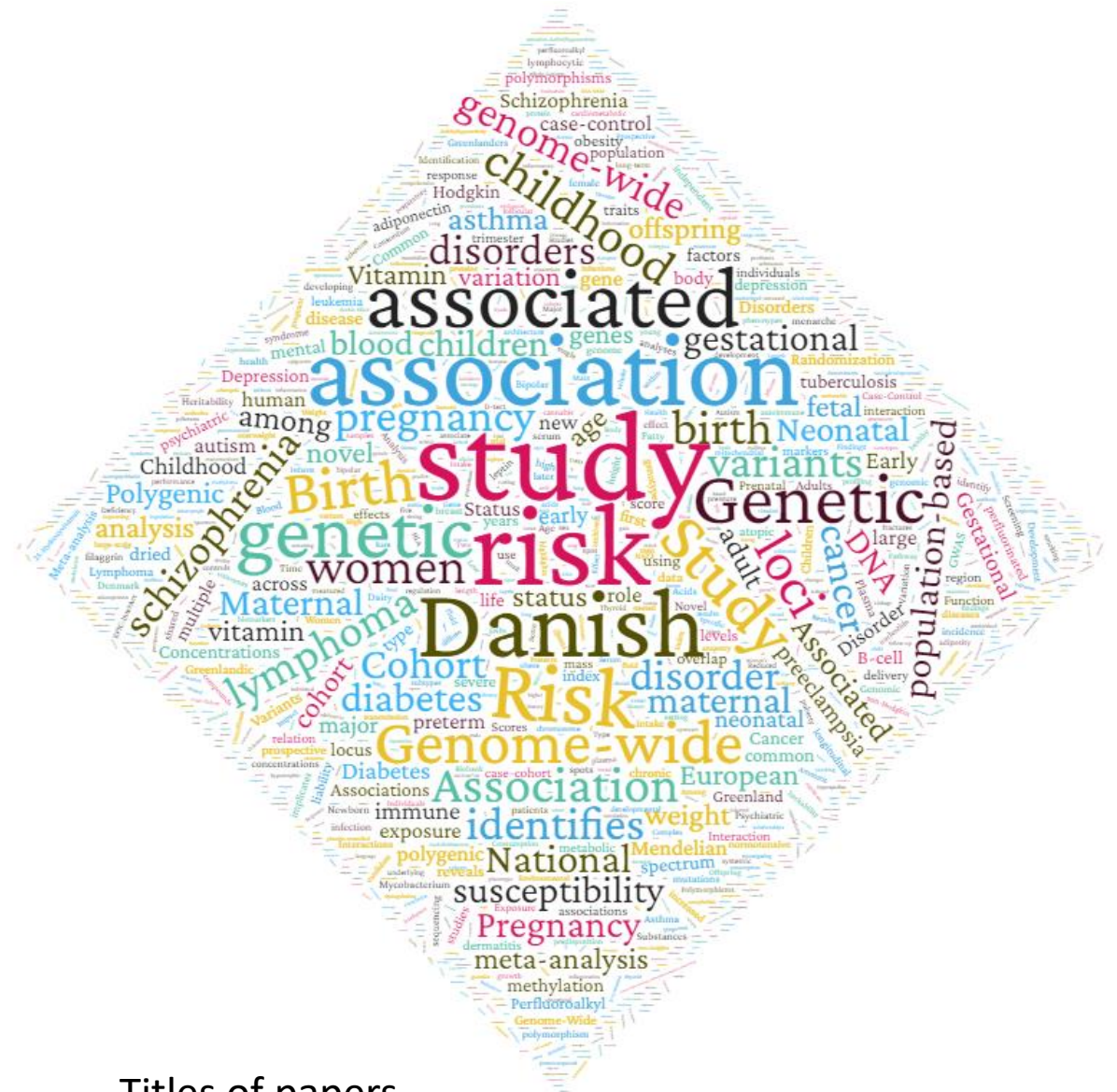
Future of Biobanking
 Step inside the Danish National Biobank

10:53
 1:0x
 10:14 / 27:54

375 publications (2020) average impact factor 9,7



Journals



Titles of papers



www.danishnationalbiobank.com

Main sponsors



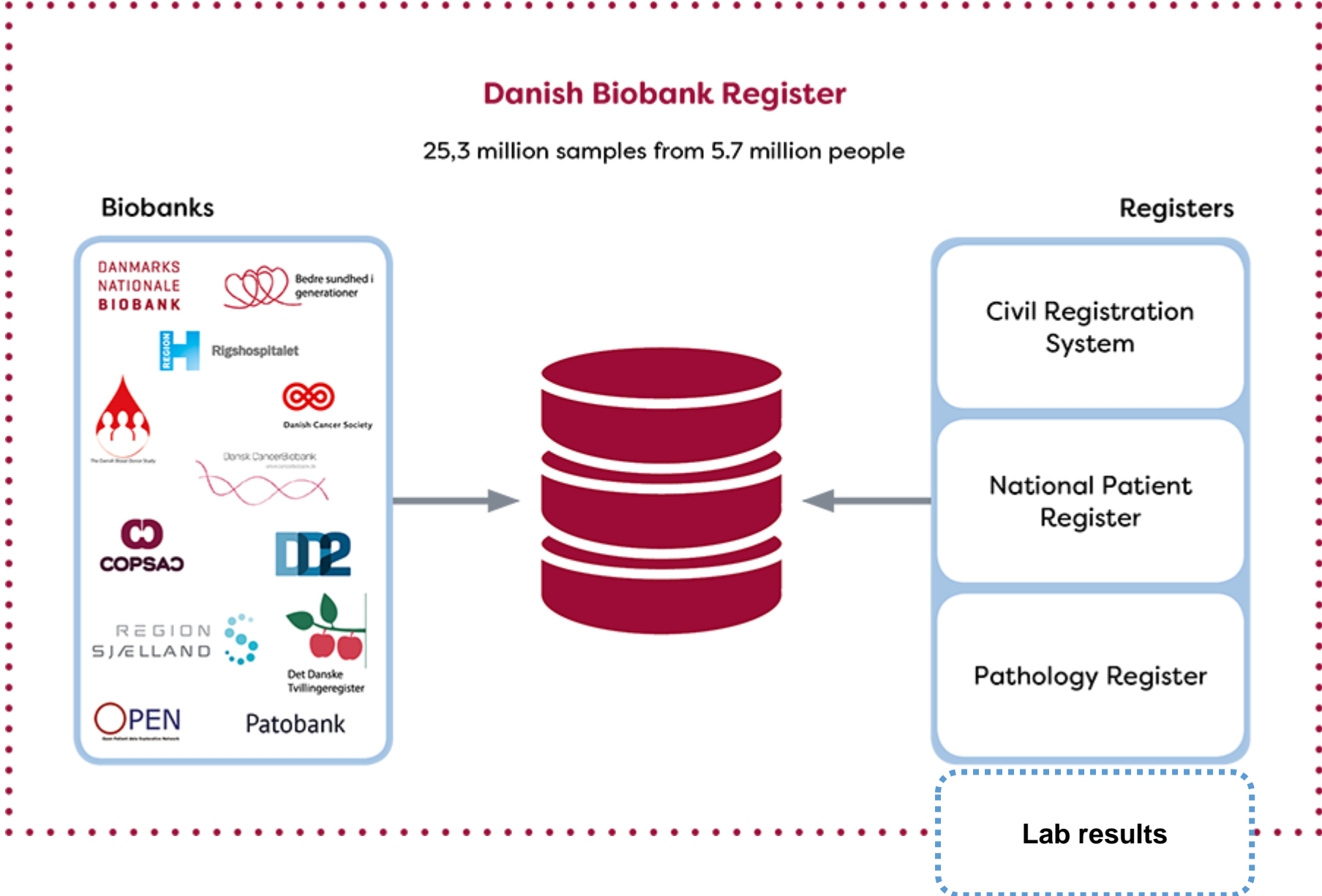
Uddannelses- og
Forskningsministeriet

novo nordisk fonden

LUNDBECKFONDEN



The Danish Biobank Register – new initiatives

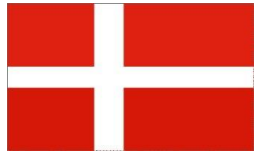


Lab Results Register

The Laboratory Results Database

Nationwide 89 labs

Estimated > 1,000,000,000 results



code name count

NPU03230	P—Kalium-ion; stofk. = ? mmol/L	45,361,842
NPU03429	P—Natrium-ion; stofk. = ? mmol/L	44,974,530
NPU02319	B—Hæmoglobin(Fe); stofk. = ? mmol/L	44,039,825
NPU02593	B—Leukocytter; antalk. = ? × 10 ⁹ /L	39,190,374
NPU19651	P—Alanintransaminase; kat.k.(IFCC 2002) = ? U/L	38,719,016
NPU19748	P—C-reaktivt protein; massek. = ? mg/L	35,995,222
NPU18016	P—Creatininium; stofk. = ? µmol/L	34,493,035
NPU27783	P—Basisk phosphatase; kat.k.(37 °C; proc.) = ? U/L	33,726,472
NPU03568	B—Thrombocytter; antalk. = ? × 10 ⁹ /L	33,279,989
NPU19673	P—Albumin; massek.(proc.) = ? g/L	28,724,226
NPU03577	P—Thyrotropin; arb.stofk.= ? × 10 ⁻³ IU/L	23,545,661
NPU01370	P—Bilirubiner; stofk. = ? µmol/L	23,414,712