



## Experience from information letter sent to 301,363 patients with a sample in the Copenhagen Hospital Biobank

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Nordic Biobank Conference 2022

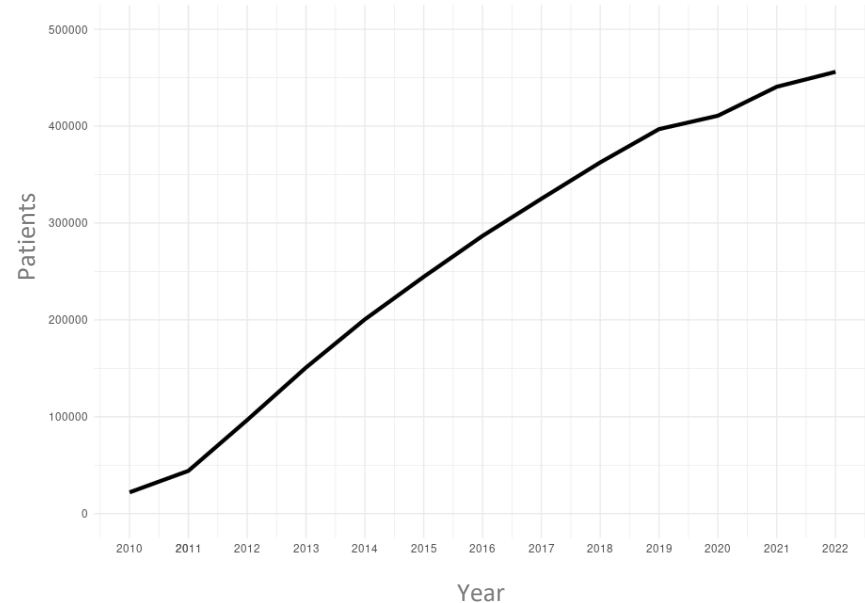
# Copenhagen Hospital Biobank

Systematic collection of left-over blood type/screen blood samples from patients (hospitalized and outpatients) in the Capital Region of Denmark

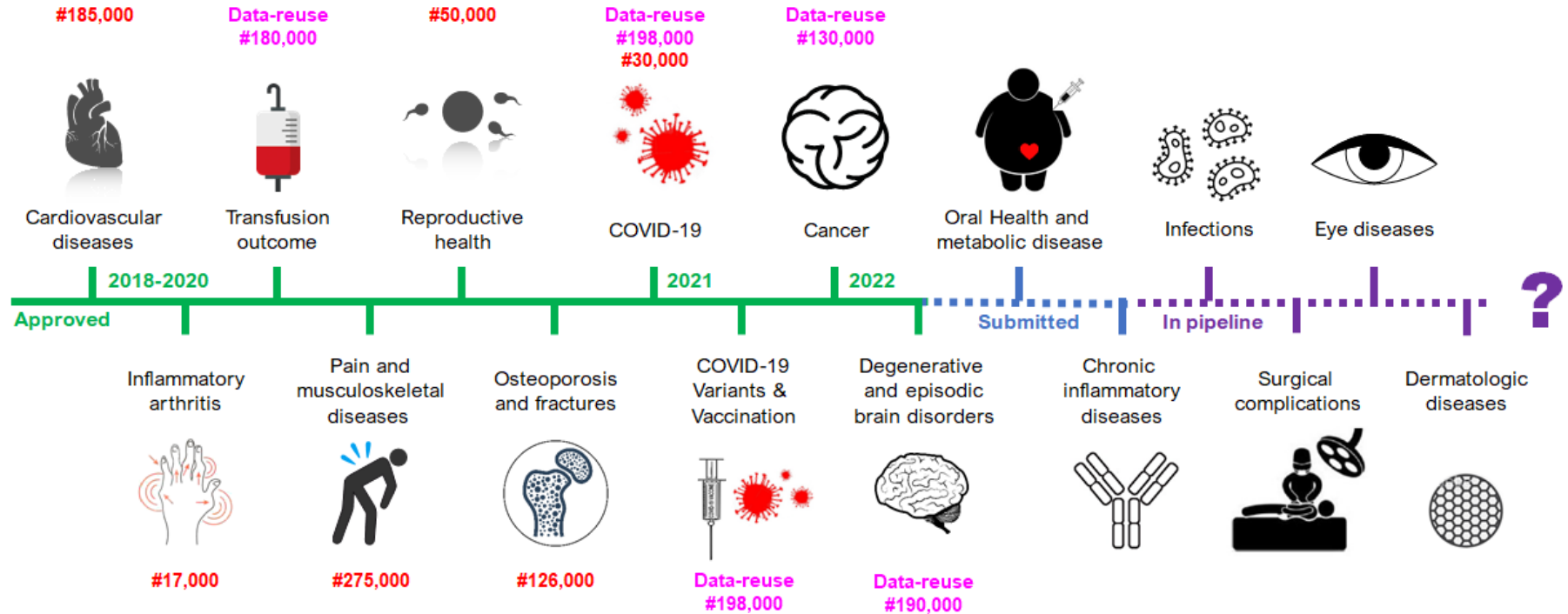
**>450,000 patients/unique samples**  
(~25,000 per year)

Purpose: Genetic research  
330.000 patients are genotyped

Inclusions



# Research



# Cardiac research

A genome-wide association study found that common variants near *BDKRB2* (bradykinin receptor  $B_2$  gene) are associated with increased risk for angioedema in ACE inhibitor-treated individuals



Jonas Ghouse, MD, PhD



ACE inhibitor related angioedema

### Association of Variants Near the Bradykinin Receptor $B_2$ Gene With Angioedema in Patients Taking ACE Inhibitors

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#### ABSTRACT

**BACKGROUND** Angioedema is a rare but potentially life-threatening adverse reaction associated with angiotensin-converting enzyme (ACE) inhibitors. Identification of potential genetic factors related to this adverse event may help identify at-risk patients.

**OBJECTIVES** The aim of this study was to identify genetic factors associated with ACE inhibitor-associated angioedema.

**METHODS** A genome-wide association study involving patients of European descent, all taking ACE inhibitors, was conducted in a discovery cohort (Copenhagen Hospital Biobank), and associations were confirmed in a replication cohort (Swedegene). Cases were defined as subjects with angioedema events and filled prescriptions for ACE inhibitors  $\geq 180$  days before the events. Control subjects were defined as those with continuous treatment with ACE inhibitors without any history of angioedema. Odds ratios (ORs) and 95% confidence intervals (CIs) were computed for angioedema risk using logistic mixed model regression analysis. Summary statistics from the discovery and replication cohorts were analyzed using a fixed-effects meta-analysis model.

**RESULTS** The discovery cohort consisted of 462 cases and 53,391 ACE inhibitor-treated control subjects. The replication cohort consisted of 142 cases and 13,445 ACE inhibitor-treated control subjects. In the discovery cohort, 1 locus, residing at chromosome 14q32.2, was identified that associated with angioedema at the genome-wide significance level of  $P < 5 \times 10^{-8}$ . The lead variant at this locus, rs34485356, is an intergenic variant located 60 kb upstream of *BDKRB2* (OR: 1.62, 95% CI: 1.38 to 1.90;  $P = 4.3 \times 10^{-4}$ ). This variant was validated in our replication cohort with a similar direction and effect size (OR: 1.60; 95% CI: 1.13 to 2.25;  $P = 7.2 \times 10^{-4}$ ). We found that carriers of the risk allele had significantly lower systolic ( $-0.46$  mm Hg per T allele; 95% CI:  $-0.83$  to  $-0.10$ ;  $P = 0.013$ ) and diastolic ( $-0.26$  mm Hg per T allele; 95% CI:  $-0.46$  to  $-0.05$ ;  $P = 0.003$ ) blood pressure.

**CONCLUSIONS** This genome-wide association study involving individuals treated with ACE inhibitors, we found that common variants located in close proximity to the bradykinin receptor  $B_2$  gene were associated with increased risk for ACE inhibitor-related angioedema. (J Am Coll Cardiol 2021;78:696–709) © 2021 by the American College of Cardiology Foundation.

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# Consent

The storage of samples **is not consented**, but patients are in general informed, that leftover blood- or tissue samples may be stored in biobanks for future research.

Patients are also informed about the general opt-out possibility of having their samples excluded from research use through the National Register on Tissue Application (“*Vævsanvendelsesregistret*”)

# Direct contact

Information letter was sent to > 300,000 in Nov. 2020:



To inform the patients that they have a sample in the Copenhagen Hospital Biobank



To increase the information and knowledge about the Copenhagen Hospital Biobank and to draw attention to the opt-out option



# Callcenter

## Contact:

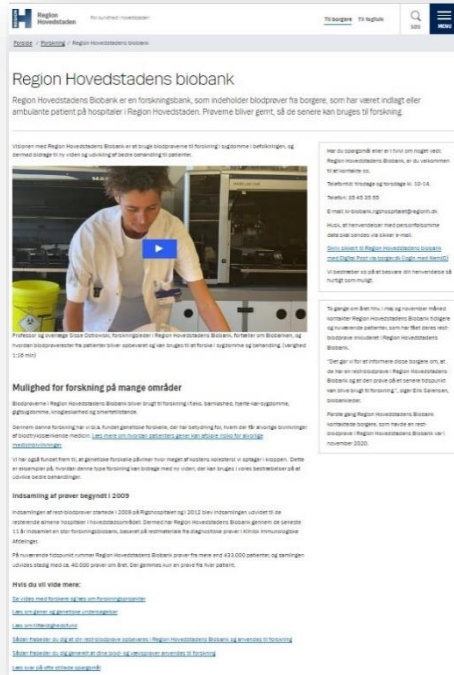
- Telephone
- Email /secure Email
- Hired 10 persons
- Established an opt-out database



# New homepage

[www.regionh.dk/biobank](http://www.regionh.dk/biobank)

- Introduction and how to contact the Copenhagen Hospital Biobank
- Watch videos with researchers and read about research projects
- Read about genes, genetic studies, incidental findings and data protection
- How to opt out of Copenhagen Hospital Biobank or research in general
- FAQ



# Information letters


116,278

A letter to patients whose sample in the Copenhagen Hospital Biobank had **not yet been used for research**

184,913

A letter to patients whose sample in Copenhagen Hospital Biobank was **already part of a scientifically approved research project**

Information letter was sent as an electronic message linked to the Danish personal registry (e-Boks) or as physical letters to 301,363

 262,487

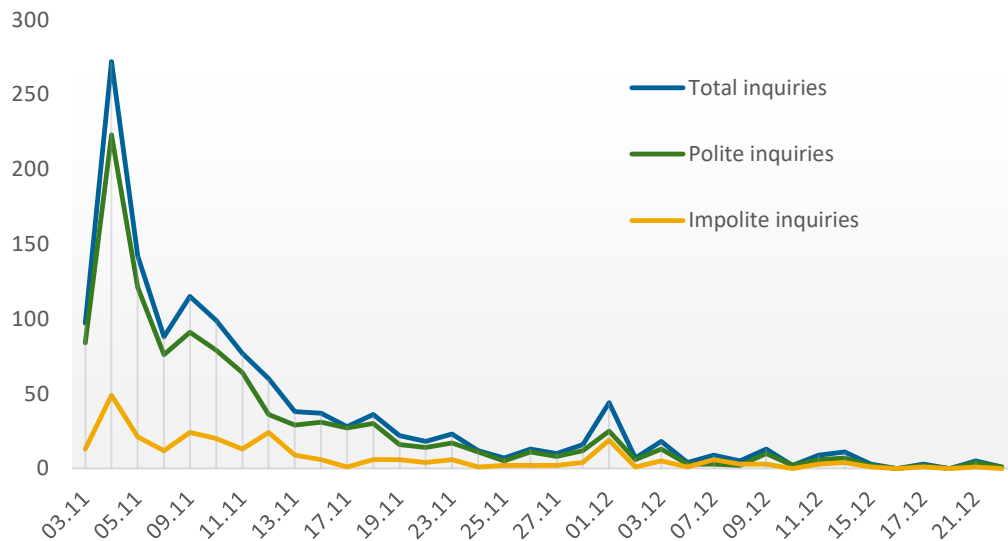
 38,704



# Inquiries

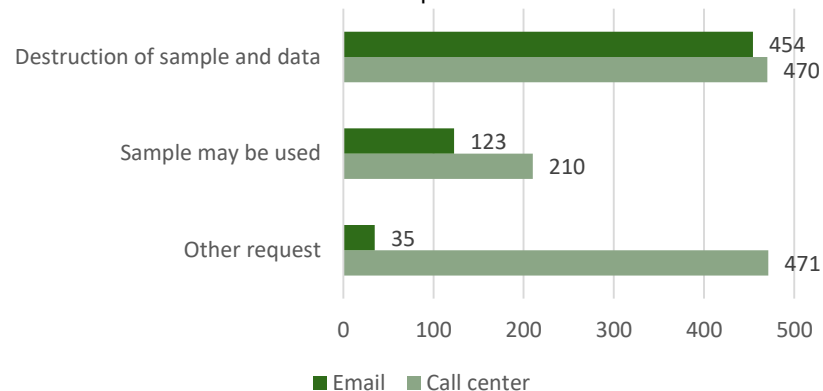
0.6% contacted the biobank (n=1,763)  
0.3% wanted their sample and data destroyed  
0.6% including National Register on Tissue Application

Calls per day



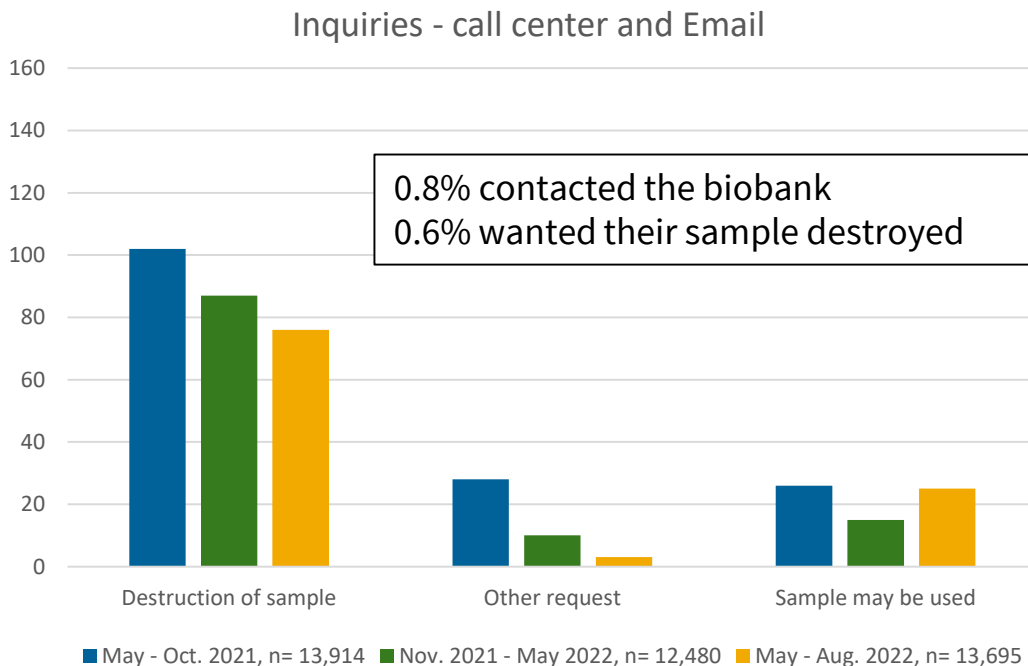
Inquiry type

Nov. 2020 - April 2021



~1,000 were registered in National Register on Tissue Application

# Information to newly included every 6 months








# Conclusion

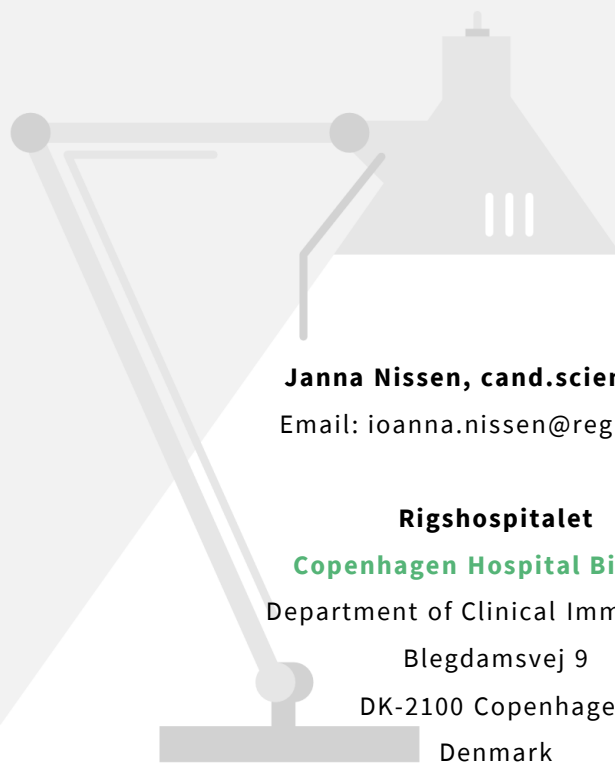
- Only 0.6% of contacted patients opt out of Copenhagen Hospital Biobank
- This emphasizes that Danish patients in general support and are willing to take part in research
- The information letters did not give rise to negative publicity

# Take home

  Established a permanent call center

## By sending out an information letter we have:

-  made the biobank and its research visible
-  increase the level of information
-  made the patients aware that their sample is included in the biobank
-  informed about the opt-out option
-  show a way to inform patients about samples in biobanks



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**Thank you!**