

# Prevention of foetal/neonatal alloimmune thrombocytopenia (FNAIT) in Polish new-borns

Acronym – PREVFNAIT

# Partners in PREVFNAIT project

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# Project frames

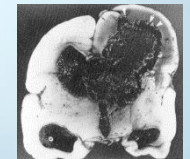
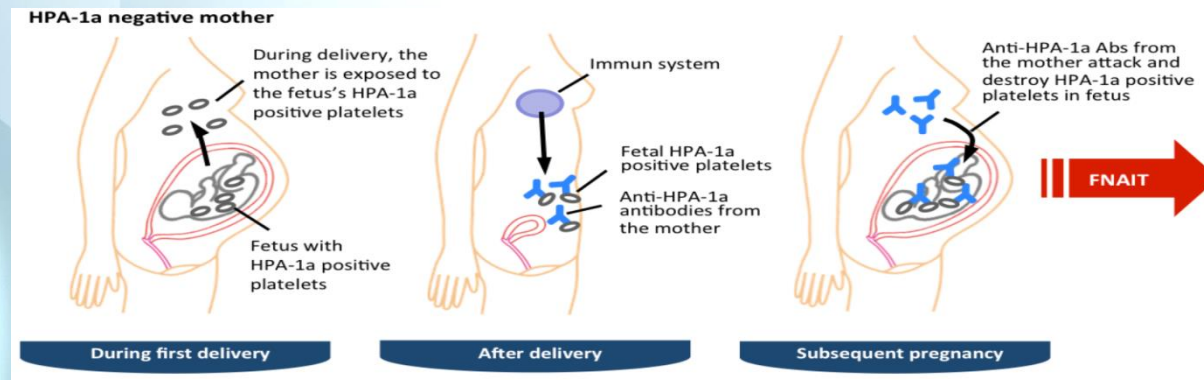
Project duration = 41 months  
(2013.10.01-2017.03.31)

Funding = 3.9 mln PLN



# Background

- FNAIT - affects 4000 fetuses and new-borns a year in EU-27
  - intracranial haemorrhage, foetal death or lifelong disability
- FNAIT - most commonly develops when a mother *negative for the platelet antigen HPA-1a* has been immunized by her *HPA-1a positive* foetus



- FNAIT - highly underdiagnosed, inadequately prevented and treated in Poland as well as other countries
- Screening program for pregnant HPA-1a negative mothers facilitates identification of women at risk: treatment, immunoprophylaxis – in the future

# PREVFNAIT

- **pregnant women in Poland** are screened for HPA-1a antigen to identify mothers at risk of immunization

They are then subjected to detailed diagnostics

- which allows timely treatment of FNAIT

at Department of Obstetrics and Gynaecology of Medical Centre of Postgraduate Education, Warsaw

**cost covered by the Polish National Health Care System**

# PREVFNAIT

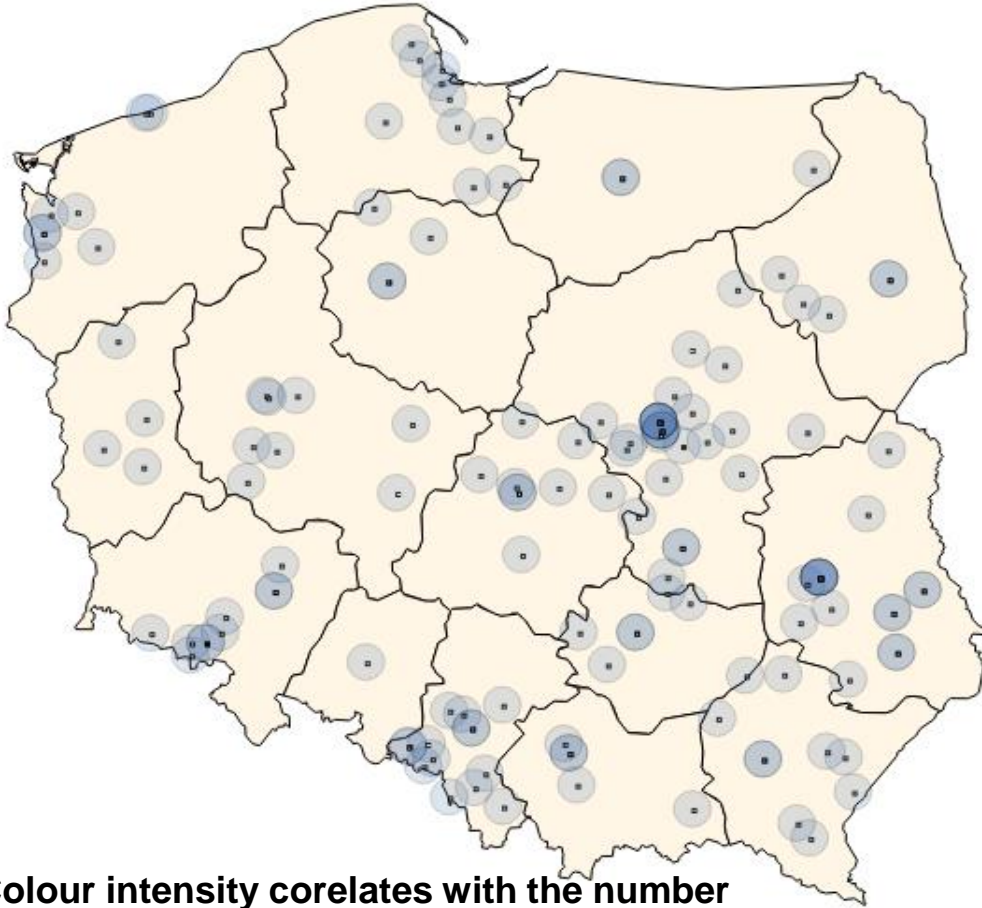
## Objectives

- demonstrate feasibility and promote HPA-1 screening
- increase FNAIT awareness among women and gynecologists in Poland
- determine the prevalence of the HPA-1bb genotype, HPA-1a immunization, FNAIT
- establish a biobank with time-course samples and clinical information from women (for future research and collaboration)



# Results (1) -

>300 collection sites throughout the country



Colour intensity correlates with the number of women screened



## Results (2)

### Recruitment and screening of pregnant women

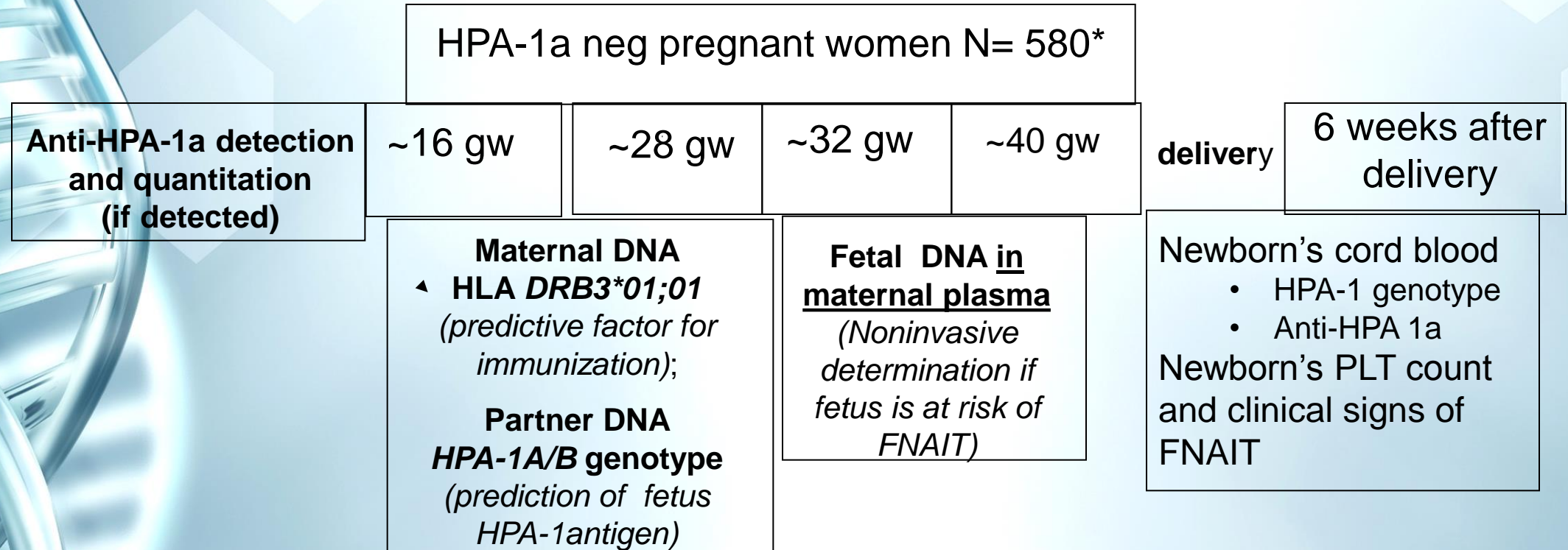
- 23 386 women screened
- 580 HPA-1a neg. **women at risk of FNAIT identified (2.5%)**
- High-throughput screening of pregnant women established based on automated methods:
  - FACS technology
  - DNA analysis





# Results (3)

## Diagnosics of HPA-1a negative mothers, partners and newborns - established and performed



gw – gestation week

**medical consultation is provided for every women at any time**

\*follow up of some women has not been terminated



# Results (4)

## Polish-Norwegian Biobank - established

- First professional, semiautomated collection of samples from HPA-1a negative woman, their partners and babies of the Polish population;
- Follow up samples are stored:
  - in Poland
    - **plasma, DNA, whole blood from all HPA-1a negative women**
  - in Norway
    - **plasma, DNA, whole blood - from all HPA-1a negative women**
    - **living mononuclear cells** from all HPA-1a negative/ *HLA DRB3\*01:01* positive women (risk group of FNAIT)
    - **Placenta samples** from HPA-1a negative/ anti-HPA-1a positive women
- Extremely important for further international cooperation - considering the orphan status of the FNAIT disease

## Results (5)

# Samples from PREVFNAIT biobank in Polish-Norwegian study - in progress

- analysis of the molecular background of the lack of reactivity of monoclonal Sz21 used for HPA-1a screening in women with discrepant pheno- and genotyping results
  - **involvement of two mutations in *ITGB3* confirmed by FACS analysis of synthetic *ITGB3* constructs expressed in insect cells**

Original paper in preparation



# Results (6)

## Integration between Polish and Norwegian Partners

- Workshops in Poland and in Norway; skype- meetings
- Oral and poster presentations during Congresses
  - International
  - Polish
- Thesis
  - MSc – 2 – terminated
  - PhD – in progress
- Papers in peer-review journals
  - Published – 4
  - Submitted – 2
  - In preparation - 2

Grant applications for further research

- 1 accepted
- 2 submitted

# PREVFNAIT - achievements

- HPA-1 screening is feasible
  - access to screening program throughout Poland is organised
  - low cost testing method is elaborated
- Diagnostics of HPA-1a negative women at risk of alloimmunization and FNAIT is developed for timely treatment, if required
- The Polish-Norwegian biobank is established to continue FNAIT research
- Close Polish-Norwegian cooperation was started and will be continued

# Our study would be impossible without:

close cooperation of dr Marzena Dębska and prof. Ramulad Dębski from Department of Obstetrics and Gynecology of Medical Centre of Postgraduate Education, Warsaw; who provided treatment for women with anti-HPA 1a antibodies

support provided by the:

- Clinics and Hospitals of Gynaecology and Obstetrics throughout Poland
- diagnostic laboratories (Diagnostics, Alab, Brus and others)
- Regional Blood Transfusion Centers - in Kalisz, Lublin, Kielce, Łódź, Białystok and others

enthusiasm, experience and hard work of the staff of :

- Leukocyte Immunology Laboratory - K Maślanka, A Gierszon, P Łopacz, E Sokół, M Pilat
- Blood Group Genetics Laboratory - S Purchla -Szepioła, J. Skulimowska, M Krzeminiowska, H Łubkowska, IHTM
- .....as well as nurses, midwives, gynecologists, obstetricians and neonatologists in cooperating institutions

## WE THANK THEM ALL CORDIALLY!

