

Non - invasive prenatal screening and it´s relation to forensic practice

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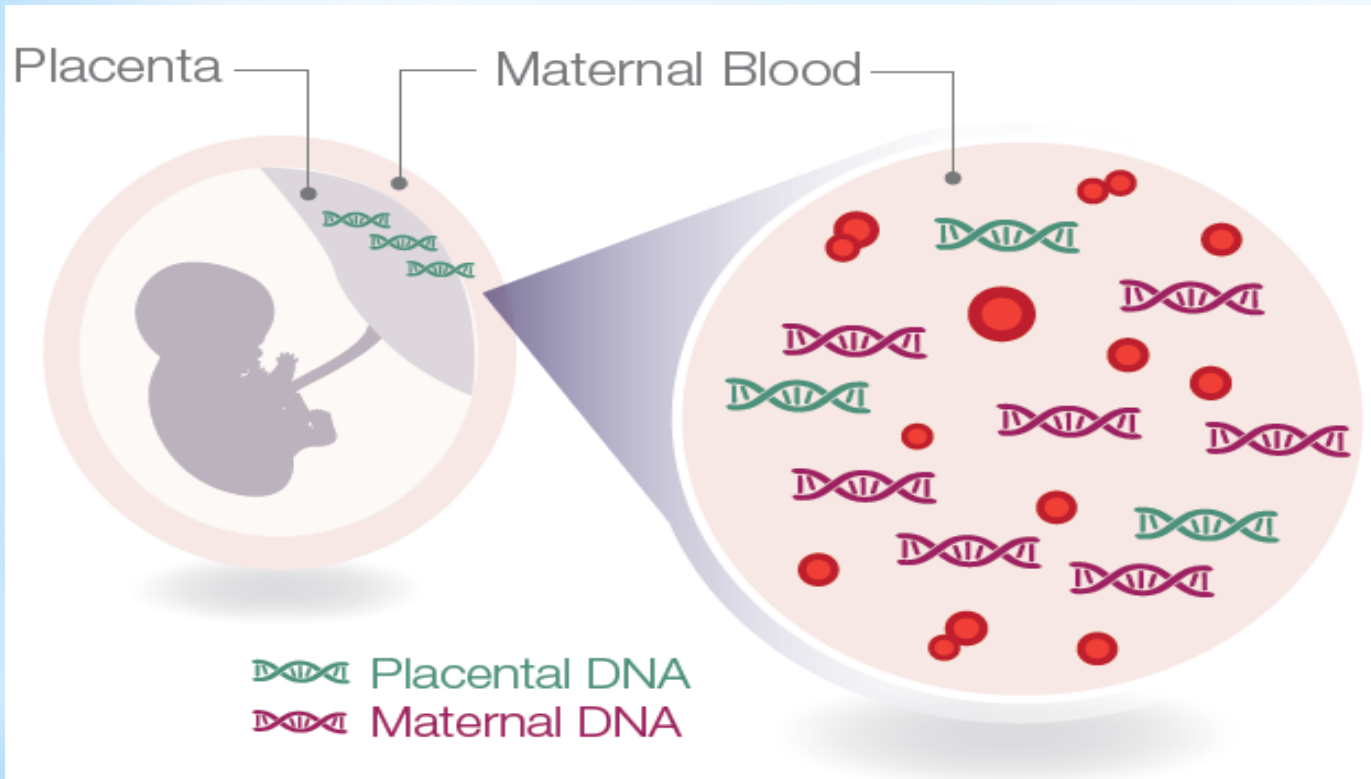


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Cell-free DNA (cfDNA)








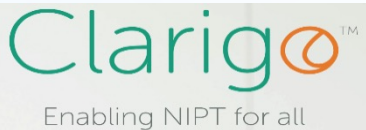


- NIPT = cell free placental DNA
≠ cell free fetal DNA



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Different methodologies used in NIPT

Statistical	SNP analysis
       	

Statistical evaluation

Chromosom 21

Chromosom 3



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Statistical evaluation

Chromosom 21

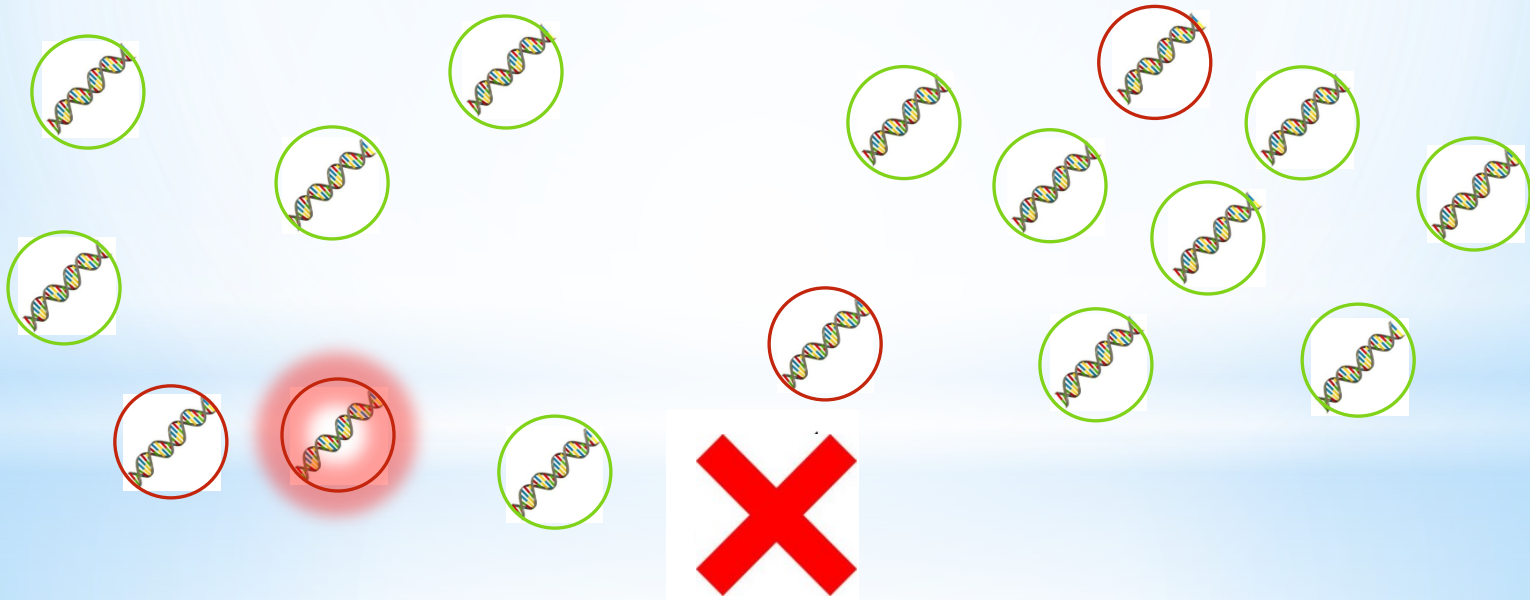
Chromosom 3

Expected amount: 20 %

80 %

Determined amount: 25 %

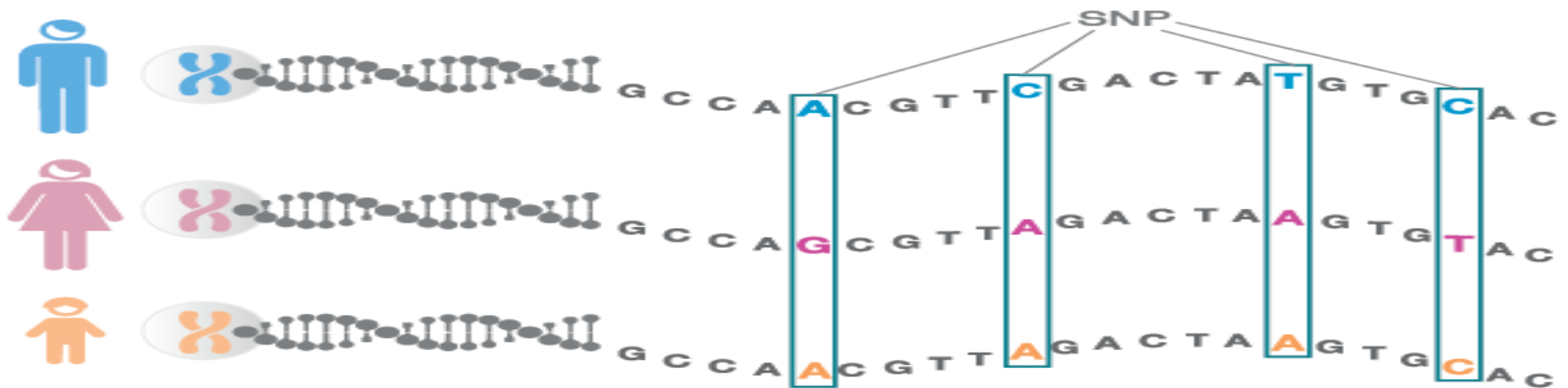
75 %



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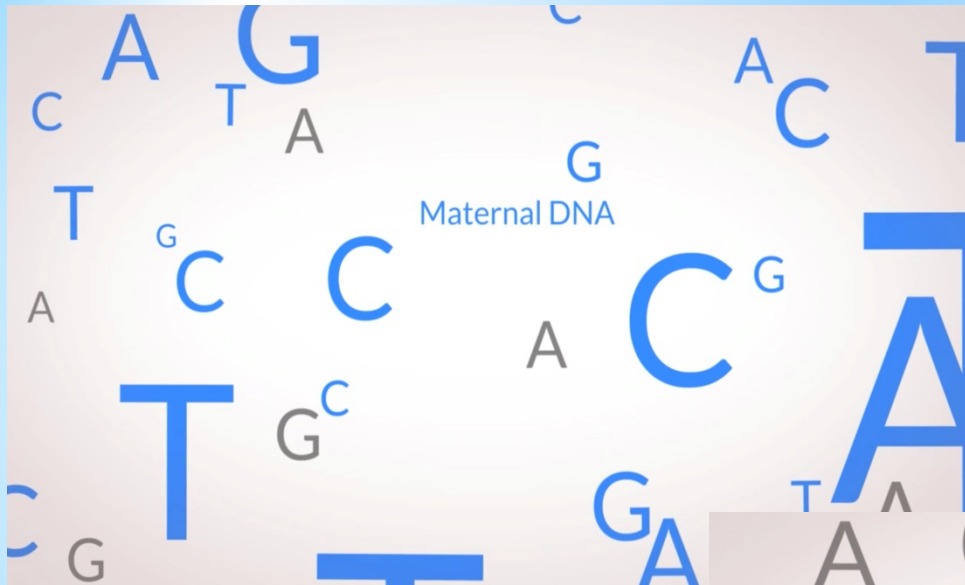
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SNP= single nucleotide polymorphism



- variants on DNA level, arise from exchange of individual bases (nucleotides) - A, T, C, or G
- **common** changes in DNA, present in every person
- **enables DNA „fingerprinting“**: differentiates between maternal and fetal cfDNA fragments

Panorama® test



- Based on analysis of 14 000 SNPs
- samples with FF $\geq 2,8$ % can be evaluated
- validated from 9th week of pregnancy



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Advantages of using SNPs in clinical practice

Panorama® uniquely differentiates the maternal and fetal fraction of cfDNA

- ✓ accurate determination of FF
- ✓ differentiation of the maternal proportion of cfDNA
- ✓ accurate gender determination
- ✓ can cope with the vanishing twin/triploidy/complete moles

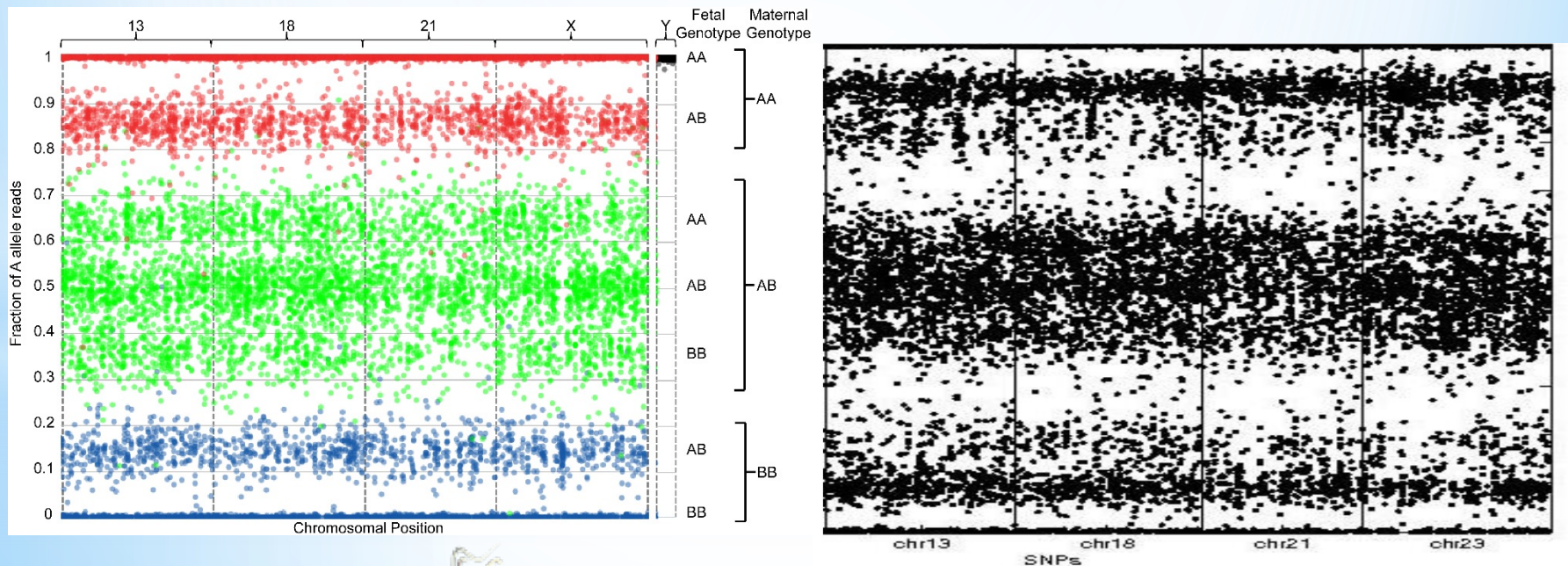


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Panorama® testing

- until 2019 available only for singleton pregnancies (with own oocyte)
- from 2020 also available for mixed haplotypes - twin spontaneous pregnancies, donated oocytes and surrogacy
- the result is issued only if the haplotype corresponds to the personal history



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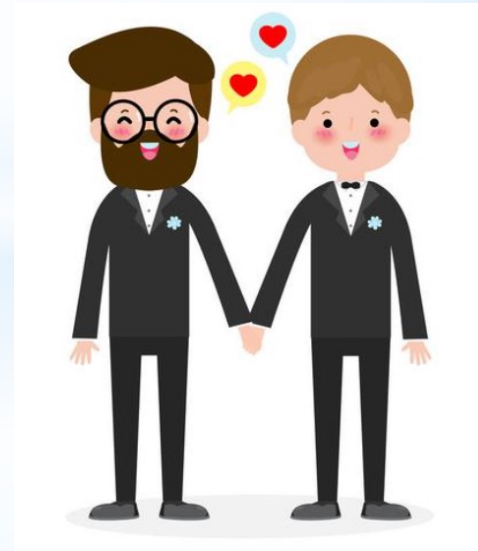
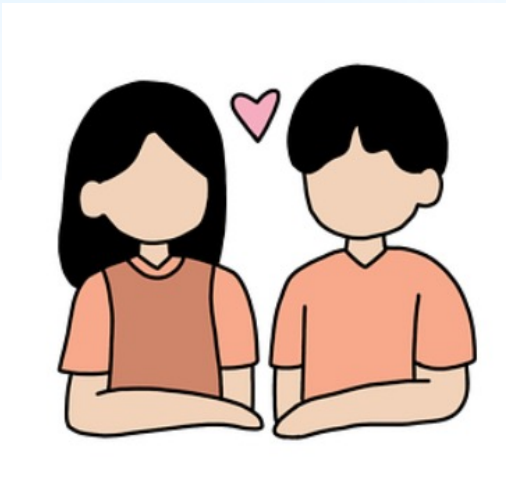
Surrogacy in Czech Republic

- is covered in act No. 89/2012 Collection, Civil Code
- contains § 804 - institute of surrogacy
- surrogacy is therefore legal, but must be indicated (health reasons)

but also:

- § 775 NCC: „The mother of the child is the woman who gave birth to it“

An unusual case of surrogate mother



Take home message?...change is needed

- surrogacy is not sufficiently anchored in law in Czech Republic
- couples in need of a surrogacy are not adequately protected
- adepts offering surrogacy are not registered anywhere
- affected couples do not take the cases to court due to emotional distress
- some procedures in IVF are covered by public health insurance, excessively...

Thank You for Your attention !