

FETAL RHESUS FACTOR DETERMINATION

Targeted anti-D prophylaxis through determination of the fetal RhD status

MEDICOVER GENETICS

WHAT IS **FETAL RHESUS FACTOR DETERMINATION TEST**?

With non-invasive fetal Rhesus factor (RhD) determination, RhD negative pregnant women can have their blood tested to determine the RhD of their unborn child. Most people possess the RHD gene and are therefore RhD positive. About 17% of pregnant women are RhD negative.

IMPORTANCE OF GETTING TESTED

RhD negative women are at risk of RhD sensitization during pregnancy if the maternal immune system comes into contact with RhD positive erythrocytes.

Transfer of fetal erythrocytes into the maternal bloodstream occurs in every pregnancy, either without any external influence or through interventions such as amniocentesis. Due to the increase in the amount of erythrocytes during pregnancy, the risk of RhD sensitization increases from the 3rd trimester.

There is no risk of RhD sensitization if the father is RhD negative. There is a 50% probability that heterozygous carriers will pass on the RhD trait. This results in a total of approximately 35-40% of the RhD negative pregnant women giving birth to an RhD negative child and thus receiving unnecessary rhesus prophylaxis without a fetal RhD determination test. Following amendments to the German maternity guidelines of August 2020, every RhD negative pregnant woman with a single fetus pregnancy should be offered fetal Rhesus factor determination from maternal blood.

WHO COULD **BENEFIT** FROM THIS TEST?

- RhD negative pregnant women who want to know whether they require anti-D prophylaxis (with a RhD positive fetus).
- RhD negative pregnant women with evidence of anti-D antibodies (RhD sensitization).

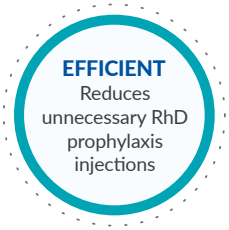
WHEN IS THE TEST PERFORMED?

The Fetal Rhesus Factor Determination test can be performed as early as the 12th week of pregnancy. A positive RhD result is considered reliable from this point.

However, to minimize the risk of a false-negative result, testing is recommended from the 19th week of pregnancy onward. If a negative result is obtained before the 19th week, it should be confirmed by repeating the test after the 17th week.

BENEFITS OF FETAL RHESUS FACTOR DETERMINATION TEST







METHOD

- Detection of cell-free fetal DNA from maternal plasma
- Analysis of the RHD sequences using real-time PCR with three target regions (exons) to detect as many variants of the RHD gene as possible
- Test (CE-IVD product) with high diagnostic sensitivity (>99%) and specificity (>98%)

MATERIAL AND TURNAROUND TIME

- One large tube (9-10 ml) of venous EDTA blood for short transport time (<48 hours) or one cell free DNA BCT® (Streck) tube for long transport time (<10 days) labeled with surname, first name and date of birth
- Pregnant woman must give informed and written consent
- Processing time: 5-8 working days after sample receipt

OUR REPRODUCTIVE PORTOFLIO

Our reproductive health portfolio covers every aspect of the reproductive journey and includes diagnostic and predictive testing, and encompasses many technologies to achieve optimal performance and efficiency.

PRECONCEPTION

Carrier Screening
Infertility Testing
Preimplantation Genetic Testing
Oocyte and Sperm Donor-Recipient Matching Program
Endometrial Microbiome Analysis

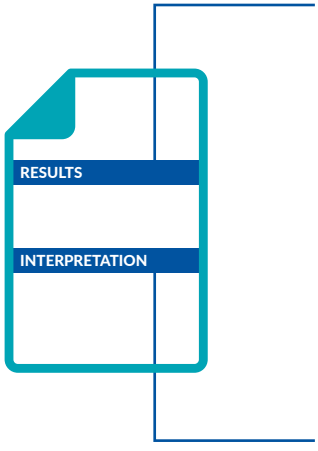
PRENATAL

Non-invasive Prenatal Testing
Invasive Prenatal Testing

NEONATAL & POSTNATAL

Chromosomal Analyses
Gene Panel Sequencing
Whole Exome Sequencing
Newborn Testing

WHAT ARE THE POSSIBLE **OUTCOMES** OF THE TEST?



POSITIVE RESULT

RHD sequences detected and the fetus is RhD positive. A positive result (positive RHD genotype) is to be considered definitive. Anti-D prophylaxis should be administered in the 28th-30th week of pregnancy.

NEGATIVE RESULT

No RHD sequences detected. The fetus is RhD negative or the amount of fetal DNA was too low. A negative result before the 19th week of pregnancy is to be considered provisional and must be confirmed at least two weeks later and after the 17th week of pregnancy. Anti-D prophylaxis is not necessary if the fetus is RhD negative.

Regardless of the result of the non-invasive fetal RhD determination test, the RhD trait is determined immediately after birth from umbilical cord blood for every baby born to a RhD negative mother in order to exclude rare false-negative results. If the baby is RhD positive, the RhD negative mother will be given a standard dose of anti-D immunoglobulin (300µg) within 72 hours of birth.

LIMITATIONS

- Only possible for single fetus pregnancy, not suitable for twin pregnancies
- Where the result is unclear (around 1%), anti-D prophylaxis is recommended
- Rare genetic rhesus variants can lead to false-positive results in 0.2-0.3% of cases
- False-negative results can be caused by a low level of fetal cell-free DNA, degradation of the cell-fee DNA or by hemolysis in the specimen tube

HOW TO **ORDER**



Recommend non-invasive fetal RhD determination to your patient



Collect the sample(s)



Send the sample(s) to **Medicover Genetics**



The sample(s) will be analysed at **Medicover Genetics** laboratories



Results will be sent to you

CONTACT US

If you have additional questions or concerns, please contact us at **info.genetics@medicover.com**

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