HPA- & HNA-Ready Gene
THE SSP-PCR SYSTEM
Genotyping of the Human Platelet & Human Neutrophil Antigen Systems
CE certified
Ready Gene is inno-train’s product line for genotyping the HPA-, HNA-, HLA- and blood group loci by molecular SSP-PCR method. The evaluation is performed by standard agarose gel electrophoresis. As an internal PCR control each tube contains primers for amplification of the Human Growth Hormone (HGH). If no specific product is present after PCR, the amplificate of this positive control must be clearly detectable.

**THE HPA-SYSTEM**

Human Platelet Antigens (HPA) are glycoproteins expressed on the thrombocyte membrane. Antibodies against the Human Platelet Antigens can cause immune reactions in the recipient’s blood leading to the lysis of the transfused thrombocytes. In these cases the patient has to be provided with platelet concentrates without the antigen structure which is recognized by the antibody. HPA-1, HPA-2, HPA-3, HPA-4, HPA-5, HPA-6, HPA-9 and HPA-15 each exist in two variant antigen structures known as „a“ and „b“ These biallelic forms are caused by SNPs, which result in single amino acid changes between the two different gene products.

![Technique Table](reference: www.ebi.ac.uk/ipd/hpa)

Platelet antibodies can cause among others autoimmune thrombocytopenia (AITP), neonatal alloimmune thrombocytopenia (NAIT), post transfusion purpura (PTP) and passive alloimmune thrombocytopenia.

After transfusions of platelet concentrates, in case of mismatch constellations between donor and patient the recipient of the blood unit may produce antibodies. This activation against foreign platelet antigens would prevent an increase in the number of platelets in subsequent transfusions.

By detecting the genotype of the patients concerned the specificity of the antibodies that are present can be predicted. Furthermore genotyping of patients and platelet donors is an important requirement for compatible platelet transfusion.
With two different kit designs different HPA alleles depending on your requirement profile can be detected. The **HPA-Ready Gene plus** system is an enlargement of the standard **HPA-Ready Gene** kit with four additional reactions. Besides the HPA-1 a/b, HPA-2 a/b, HPA-3 a/b, HPA-4 a/b, HPA-5 a/b and HPA-15 a/b the alleles HPA-6 a/b and HPA-9 a/b can be detected.

**HPA-Ready Gene FOR GENOTYPING:**

![Image: HPA-Ready Gene](image1)

**HPA-Ready Gene plus**

![Image: HPA-Ready Gene plus](image2)

**HPA-1 a/b Ready Gene FOR HPA-1 a SCREENING:**

Neonatal alloimmune thrombocytopenia (NAIT) is mostly triggered by anti-HPA-1a antibodies. Genotyping of the mother with regard to HPA-1 makes it possible to predict possible neonatal alloimmune thrombocytopenia.

With **HPA-1 a/b Ready Gene** you have the possibility of typing pregnant women specifically for their genotype. With the flexible format you can perform one screening assay and also an individual tests.

Both mixes are aliquoted in different colored 8-well PCR strips so that individual or several HPA-1a/b tests can be performed in parallel.

**ORDER INFORMATION**

<table>
<thead>
<tr>
<th>ARTICLE NO.</th>
<th>HPA-Ready Gene SYSTEM</th>
<th>REACTIONS/TEST</th>
<th>TESTS/KIT</th>
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<td>For detection of platelet antigens HPA-1 a/b, -2 a/b, -3 a/b, -4 a/b, -5 a/b, -6 a/b, -9 a/b, and 15 a/b.</td>
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<td>For detection of platelet antigens HPA-1 a and HPA-1 b. For screening purposes.</td>
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Human Neutrophil Antigens (HNA) are glycoproteins expressed on the cell surface of neutrophil granulocytes. Alloimmune reactions against neutrophils can lead to a serious blood transfusion complication called Transfusion Related Acute Lung Injury (TRALI). Furthermore during pregnancy an alloimmune reaction can be triggered by the mother producing antibodies against the antigens of the HNA-system of the child. The transfer of these antibodies into the fetal circuit leads to the destruction of the neutrophil granulocytes (Neonatale Immune Neutropenia, NIN).