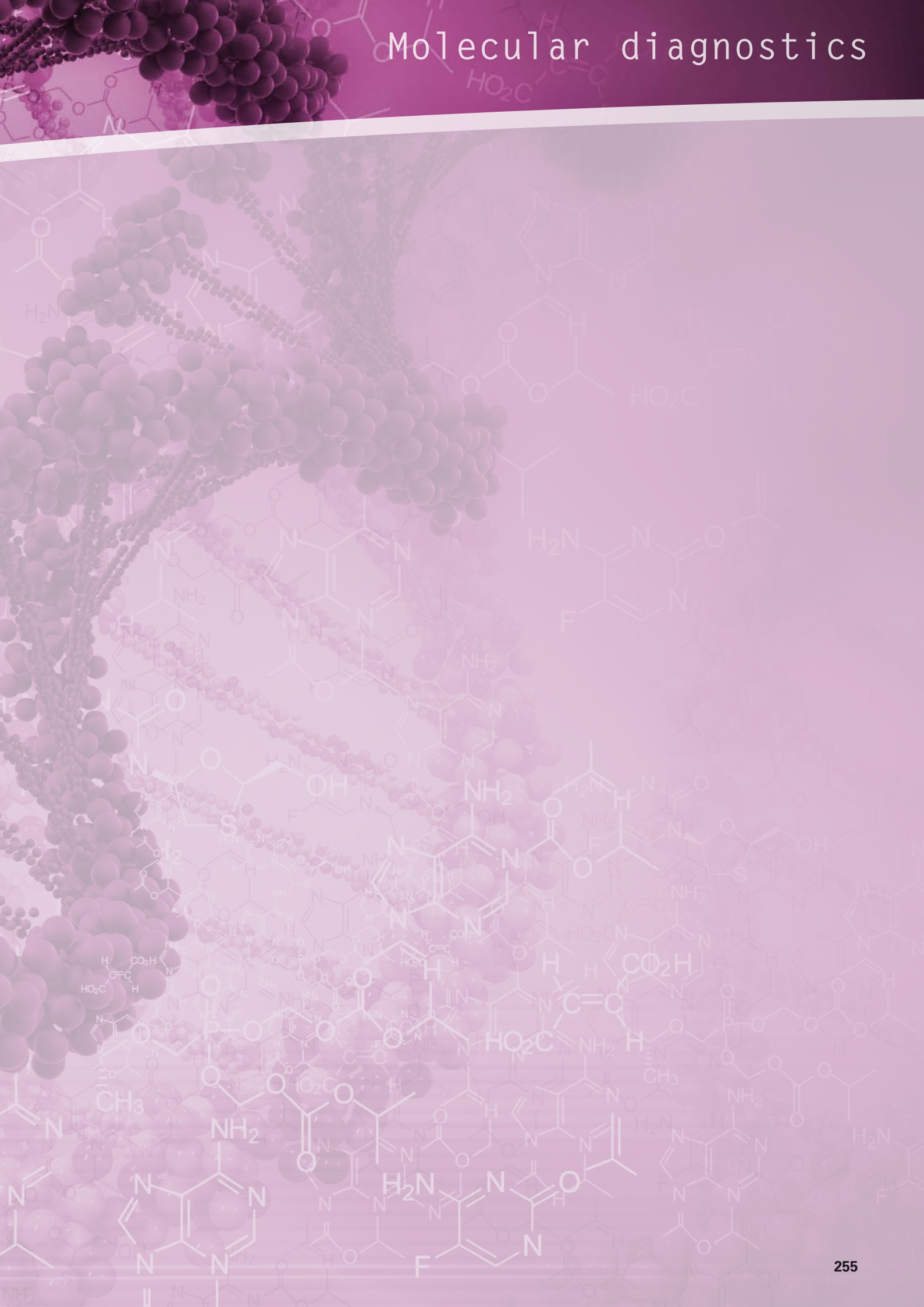
Molecular diagnostics



For more information on this subject scan the QR code or enter the Quick Link code q130 at www.euroimmun.com

HLA-B27

Clinical information: Human leukocyte antigens (HLA) are tissue antigens of the human major histocompatibility complex (MHC). HLA-B belongs to the HLA antigens of class I (also called MHC I antigens) which are present on all nucleus-containing cells of the body. Their function is the control of the T-cell-mediated immune response. Due to an extreme genetic polymorphism there are a large number of HLA phenotypes. For HLA-B over 1000 different alleles have been described. The HLA-B*27 allele alone has 130 subtypes (B*27:01 to B*27:105), which differ only in a few bases. The membrane-bound HLA-B27 protein is associated with the occurrence of several autoimmune diseases, such as ankylosing spondylitis (Bechterew's disease). Around 3 to 6 % of HLA-B*27 carriers develop ankylosing spondylitis. Around 90 % of ankylosing spondylitis patients are carriers of this tissue antigen, in particular subtypes B*27:02, B*27:04 and B*27:05. The subtypes B*27:06 and B*27:09 on the other hand are not associated with ankylosing spondylitis. Therefore, subtype differentiation is necessary for confirmation of diagnosis in particular populations.

Diagnostics: HLA-B27 can be determined accurately and precisely with molecular biological methods via the detection of the corresponding allele (HLA-B*27) in the genomic DNA of the patient. The method competes with the lymphocytotoxicity tests used up until now. In contrast to these methods, live cells are not required for the EUROArray test. The shipment and storage of samples are considerably simplified. Blood samples can be collected and processed together, for example, once a week. Because of cross reactions with antibodies (with e.g. HLA-B7) and potential false-negative results in immunophenotyping when HLA-B*27 expression is low, molecular genetic determination of HLA-B*27 is more specific and sensitive than serological methods. The PCR method using allele-specific primers has the potential to provide reliable results, particularly for the various HLA-B*-27 subtypes.

The HLA-B*27 primers for this test system have been chosen and optimised so that all currently known HLA-B*27 subtypes are detected. Furthermore, when a positive result is obtained, it is indicated whether subtypes HLA-B*27:06 or HLA-B*27:09 could be involved. These two subtypes are not associated with ankylosing spondylitis. With the unique direct procedure, the DNA no longer needs to be isolated. The blood sample is treated with two extraction reagents and can then be used directly in the PCR. Data analysis, data interpretation and electronic archiving are fully automated using the **EUROArrayScan software**. Numerous controls on the **EUROArray HLA-B27** verify the correctness of the results. For every reaction it is verified that human DNA was present in the PCR and that the primers for the amplification were functional, which is particularly relevant when negative HLA-B27 results are obtained. All of these controls ensure a reliable test result with just one PCR reaction.

Product overview

Parameter	Sample material	Application	Order number	Page
HLA-B27 Direct	Whole blood/ genomic DNA	Molecular biological in vitro determination of disease-associated HLA-B*27 alleles in human genomic DNA in the diagnosis of rheumatic diseases, in particular ankylosing spondylitis (Bechterew's disease)	MN 5110-####-V	272

To view all EUROIMMUN products for this subject scan the QR code or enter the Quick Link code q080 at www.euroimmun.com

For more information on this subject scan the QR code or enter the Quick Link code q133 at www.euroimmun.com

HLA-DQ2/DQ8

Clinical information: The determination of HLA-DQ2/DQ8 is important to diagnostically exclude coeliac disease, an autoimmune disease which occurs in predisposed individuals as a reaction to gluten sensitivity. Almost 100 % of coeliac disease patients possess the genetic risk factors HLA-DQ2 or HLA-DQ8. These are heterodimeric surface receptors consisting of an alpha and a beta chain.

The determination of HLA-DQ2 and HLA-DQ8 is, above all, significant for the following: doubtful biopsy results, ambiguous serology (especially in children under 2 years old), patients on a gluten-free diet with inconclusive diagnosis, clarification of the genetic predisposition of first-degree relatives of coeliac disease patients, and differentiation from other intestinal diseases. Around 95 % of coeliac disease patients have the HLA-DQ2 genotype, which is subdivided into HLA-DQ2.5 and HLA-DQ2.2. HLA-DA2.5 is composed of the allele HLA-DQA1*0501 (or DQA1*0505) coding for the alpha chain and the allele HLA-DQB1*0201 (or DQB1*0202) coding for the beta chain. HLA-DQ2.2 consists of the allele HLA-DQA1*02 coding for the alpha chain and the allele HLA-DQB1*0202 coding for the beta chain. Those patients who are not HLA-DQ2 positive exhibit the genotype HLA-DQ8, which is determined by the presence of the alleles HLA-DQA1*0301 and HLA-DQB1*0302.

Diagnostics: The detection of the two leukocyte antigens is important in the diagnosis of coeliac disease, since almost 100 % of coeliac disease patients are positive for either DQ2 or DQ8. Although these markers are not particularly specific – between 20 and 40 % of the healthy population also carries one of these two antigens – the absence of these risk factors is an important exclusion criterion as they possess a negative predictive value of near to 100 %. If neither DQ2 nor DQ8 are detected in a patient, then coeliac disease can be as good as excluded.

The **EUROArray HLA-DQ2/DQ8** has been specifically designed for the **determination of HLA-DQA1 and HLA-DQB1 alleles**. It is therefore particularly easy to perform compared to other molecular biological methods for the detection of these alleles – no in-depth molecular biology knowledge is required. The PCR primers in this test system have been chosen and optimised so that all relevant HLA-DQA1 and HLA-DQB1 allele are detected. Data analysis, data interpretation and electronic archiving are fully automated using the **EUROArrayScan software**. The exact analysis of the alpha and beta subunits of the DQ2 and DQ8 molecules ensures reliable and unambiguous results. In combination with antibody diagnostics (see page 86): anti-endomysium IIFT; anti-tissue transglutaminase ELISA and the new highly specific tests Anti-Gliadin (GAF-3X) ELISA and EUROPLUS Anti-Gliadin (GAF-3X) IIFT, the EUROArray HLA-DQ2/DQ8 offers accurate and reliable diagnostics for coeliac disease and dermatitis herpetiformis.

Product overview

Parameter	Sample material	Application	Order number	Page
HLA-DQ2/DQ8	Genomic DNA	Molecular genetic in vitro determination of disease-associated HLA-DQA1 and HLA-DQB1 alleles in human genomic DNA in the diagnosis of gluten-sensitive enteropathy (coeliac disease, sprue) and dermatitis herpetiformis.	MN 5310-####	272

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For more information on this subject scan the QR code or enter the Quick Link code q131 at www.euroimmun.com

HLA-B57:01

Clinical significance: Genetic testing for HLA-B*57:01 is useful for preventing hypersensitivity reactions against the HIV chemo-pharmaceutic agent abacavir. All HIV-infected patients should be tested for the presence of the HLA-B*57:01 allele before starting treatment with drugs containing abacavir sulphate.

Symptoms of a hypersensitivity reaction are fever, exanthema, pruritus, occasionally gastrointestinal and respiratory problems, joint pain and increased liver/kidney parameters with a progressive course up to death, especially with re-exposure. Depending on the ethnic group, a significant part of the treated patients are affected. Reactions have proven to occur in 8 to 16% of black South Africans, 20 to 22% of Hispanics and 48 to 61% of Caucasians. Around 8% of people carry the HLA-B*57:01 allele. The prevalence ranges between 0.1% (Japanese) and 19.6%, (e.g. South Africans).

Diagnostics: The EUROArray HLA-B57:01 Direct enables a molecular biological HLA-B*57:01 determination which is quick and easy to perform – no extensive knowledge of molecular biology is required. The primers and probes employed in this test system were selected and optimised such that all HLA-B*57:01 alleles known worldwide can be detected in a single reaction. The direct method enables the direct use of whole blood samples. Therefore, a time- and cost-consuming DNA isolation is no longer required. The evaluation, generation and archiving of results are carried out fully automatically with the EUROArrayScan software.

Product overview

Parameter	Sample material	Application	Order number	Page
HLA-B57:01 Direct	Whole blood/ genomic DNA	Molecular genetic in vitro determination of HLA-B*57:01 alleles in human genomic DNA, associated with hypersensitivity reactions during treatment with abacavir.	MN 5210-####-V	272

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For more information on this subject scan the QR code or enter the Quick Link code q132 at www.euroimmun.com

HLA-Cw6

Clinical information: Human leukocyte antigens (HLA) are tissue antigens (membrane-associated glycoproteins) of the human major histocompatibility complex (MHC), which is localised on the short arm of chromosome 6. HLA-C belongs to the HLA antigens of class I (also called MHC I antigens), along with HLA-A and HLA-B. These are the classic HLA antigens, which are represented on all nucleus-containing cells of the body. Their function is the control of the T-cell-mediated immune response. The determination of the HLA specificities or the HLA alleles is of particular importance due to the existence of HLA-associated diseases.

HLA-C*06 alleles are the genetic component for the predisposition to the autoimmune reactions that result in psoriasis. There is a strong genetic component to psoriasis; around 40 % of cases are familial. Monozygotic twins show a concordance rate of 62 to 70 % and dizygotic twins of 21 to 23 %. Recent total-genome association studies have confirmed that of all gene sites HLA-C shows the highest association with psoriasis, and HLA-C*06 can be considered as by far the most powerful genetic marker for the disease. Around 67 % of psoriasis patients carry the HLA-C*06 allele compared to a prevalence of around 10 to 20 % for the HLA-Cw6 antigen in the general population. Caucasians with the HLA-C*06 allele have a 10-fold increased risk of developing psoriasis.

Diagnostics: The **EUROArray HLA-Cw6** has been specifically designed for the determination of HLA-C*06 alleles. It is therefore particularly easy to perform compared to other molecular biological methods for the detection of HLA-C*06. Molecular biological methods compete with antibody-based microcytotoxicity tests and flow-through cytometrical procedures, which detect the HLA antigen on the cell surface. Because of the cross reactions that occur with antibodies and potential false-negative results in immunophenotyping when HLA-Cw6 expression is low, molecular genetic determination of HLA-C*06 is more specific and sensitive than serological methods, as long as a well designed and validated test is used.

In chronic inflammatory skin diseases the determination of HLA-C*06 is of great significance for differential diagnostics, since the presence of the HLA-Cw6 antigen is associated in particular with type 1 psoriasis vulgaris (OR 16.0) and psoriasis guttata (OR 33.6), but only is comparatively weakly associated (OR 2.6) with type 2 psoriasis vulgaris. In type 1 psoriasis vulgaris around 83 % of patients carry the HLA-C*06 allele, whereas in type 2 the proportion of HLA-Cw6-positive patients is only 44 %. Type 1 psoriasis vulgaris has a more severe course than type 2 psoriasis vulgaris. In this test system (EUROArray HLA-Cw6) the PCR primers have been chosen and optimised so that all relevant HLA-C*06 subtypes are detected. Data analysis, data interpretation and electronic archiving are fully automated using the **EUROArrayScan software**. For every reaction the presence of isolated human genomic DNA is verified. Moreover, the functionality of the primers for HLA-Cw6 is verified, providing additional security with negative results.

Product overview

Parameter	Sample material	Application	Order number	Page
HLA-Cw6	Genomic DNA	Molecular genetic in vitro determination of disease-associated HLA-C*06 alleles in human genomic DNA in the diagnosis of psoriasis with skin manifestation (in particular type 1 psoriasis vulgaris, psoriasis guttata, type 2 psoriasis vulgaris), joint manifestation (in particular psoriatic arthritis) etc.	MN 5410-####	272

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For more information on this subject scan the QR code or enter the Quick Link code q135 at www.euroimmun.com

Factor V / Factor II / MTHFR

Clinical information: Deep and superficial venous thrombosis and thromboembolism of the brain, lung and coronary vessels are among the most frequent causes of death in western industrialised countries. These conditions result from a combination of genetic and exogenous factors. More than half of all thromboembolic cases are caused by genetic risk factors, particularly if the disease occurs before the age of 45 without any noticeable external factors or at an atypical location. The most important and most frequent genetic risk factors for thrombosis/embolism are the factor V Leiden (1691G>A) mutation and the factor II 20210G>A mutation. Furthermore, two polymorphisms in the methylene tetrahydrofolate reductase (MTHFR) gene are associated with an increase in the homocystein level (hyperhomocysteinaemia), which is also a risk factor for thrombosis.

The mutated factor V can be only insufficiently inactivated by activated protein C (APC). This so-called APC resistance results in an increased thrombosis tendency. The factor II (prothrombin) 20210G>A mutation is associated with both venous and arterial thrombosis. Due to the increased prothrombin plasma concentration, the heterozygous form alone causes an approximately 3 times higher risk of deep venous thrombosis. Variants 677T and 1298C of the MTHFR gene result in a reduced enzyme activity. This can develop into hyperhomocysteinaemia, which is a risk factor e.g. for thrombosis. The cumulative risk (factor V Leiden plus factor II 20210G>A mutation) of venous thrombosis is 20 times higher. These two mutations often occur together in thrombophilia patients, which confirms their additive genetic effect. If these genetic risk factors are accompanied by other genetic predisposing gene variants such as mutations in the MTHFR gene, the total risk of thromboembolism, in particular cardiac infarction, is increased further.

Diagnostics: The **EUROArray FV / FII+ / MTHFR Direct** has been optimised to provide secure determination of the most important genetic thrombosis risk factors. It is extremely easy to perform. With the unique direct procedure, the DNA no longer needs to be isolated. The blood sample is treated with two extraction reagents and can then be used directly in the PCR. The PCR primers and microarray probes have been carefully selected so that the aforementioned mutations in the factor V (1691G>A) and/or factor II genes (20210G>A) are clearly identified. Data analysis, data interpretation and electronic archiving are fully automated using the **EUROArrayScan software**. When a positive result is obtained, the system differentiates between homozygous and heterozygous mutations. The EUROArray FV / FII+ / MTHFR Direct ensures the highest possible reliability of results, in particular for rare genotypes. The test system includes unique controls that indicate whether the analysed DNA contains further known mutations in direct vicinity of the investigated sequence variants that may affect the binding to the probes and, consequently, the test result. Different EUROArray test systems are available for the determination of the FV Leiden and FII 20210G>A mutations and the polymorphisms 677C>T and 1298A>C in the MTHFR gene. Thus, the determinations can be performed separately or together in one test run, depending on the analysis request.

Product overview

Parameter	Sample material	Application	Order number	Page
FV/FII+/MTHFR Direct	Whole blood/ genomic DNA	Molecular biological in vitro determination of point mutations or single-nucleotide polymorphisms in the factor V gene (factor V Leiden, 1691G>A), factor II (prothrombin) gene (20210G>A) and/or MTHFR gene (677C>T and 1298A>C) in human genomic DNA to assess the genetic thrombosis risk	MN 5820-####-V	272
FV/FII+ Direct	Whole blood/ genomic DNA		MN 5821-####-V	272
FV Leiden Direct	Whole blood/ genomic DNA		MN 5822-####-V	272
FII+ Direct	Whole blood/ genomic DNA		MN 5823-####-V	272
MTHFR Direct	Whole blood/ genomic DNA		MN 5824-####-V	272

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For more information on this subject scan the QR code or enter the Quick Link code q134 at www.euroimmun.com

HFE gene (haemochromatosis)

Clinical information: Hereditary haemochromatosis is the most frequent autosomal (gender-independent), recessive inherited metabolic disorder. It results from increased resorption of iron in the upper small intestine. In affected individuals the augmented iron uptake from food leads to an increase in the total iron content in the body from approximately 2 to 6 g (normal value) to up to 80 g with deposition of the iron in the liver, pancreas, spleen, thyroid gland, pituitary gland, heart and joints. In untreated patients irreversible damage occurs, resulting in an increased risk of cardiomyopathy, arthropathy, diabetes mellitus, liver cirrhosis and liver and pancreas carcinoma.

Two mutations in the HFE gene are directly associated with this disease. They lead to a loss or reduction of the physiological function of the Hfe protein. The two mutations result in the amino acid substitutions C282Y and H63D, which represent the most frequent haemochromatosis-associated mutations (90 %). The penetrance of the mutations is dependent on age and gender. Thus the disease does not manifest in all carriers of these mutations. The strongest disease association is observed in patients with a homozygous C282Y mutation, whereby the penetrance is much lower in young women than in men due to menstruation. While 80 % of men under 40 with this gene defect develop haemochromatosis, less than 40 % of women do so. The penetrance increases to 95 % of men and 80 % of women for the population group of over 40 year olds. Besides C282Y and H63D, there are two additional rare mutations in the HFE gene that are also associated with the development of haemochromatosis. These cause either a change in the amino acid sequence (S65C) of the Hfe protein or early termination of protein synthesis (E168X).

New studies show that 90 to 100% of haemochromatosis patients exhibit homozygous gene defects. However, even a mutation in one HFE allele is sufficient to cause at least minor abnormalities in iron metabolism. In Germany more than 200,000 people currently suffer from hereditary haemochromatosis. This condition is one of the most frequent genetically caused diseases in northern Europe.

Diagnostics: The **EUROArray Haemochromatosis (2 SNP+) Direct** is optimised for reliable determination of the two most common haemochromatosis-associated mutations, C282Y and H63D, in the HFE gene. A more comprehensive investigation encompassing in addition the more rarely occurring mutations is offered by the test system **EUROArray Haemochromatosis (4 SNP+) Direct**, which provides analysis of C282Y, H63D, S65C and E168X. Both analyses are extremely easy to perform. With the unique direct procedure, the DNA no longer needs to be isolated. The blood sample is treated with two extraction reagents and can then be used directly in the PCR. The PCR primers and microarray probes in these test systems have been chosen so that the mutations in the HFE gene described above are clearly identified. Data analysis, data interpretation and electronic archiving are fully automated using the **EUROArrayScan software**. When a positive result is obtained, the system differentiates between homozygous and heterozygous mutations. The EUROArray Haemochromatosis (4 SNP+ or 2 SNP+) Direct ensures the highest possible reliability of results, in particular for rare genotypes. The test system includes unique controls that indicate whether the analysed DNA contains further known mutations in direct vicinity of the investigated sequence variants that may affect the binding to the probes and, consequently, the test result.

The determination of mutations in the HFE gene allows a predisposition for hereditary haemochromatosis to be identified already in childhood. Suitable preventative measures (e.g. reduced consumption of high-iron-containing foods) can then be implemented.

Product overview

Parameter	Sample material	Application	Order number	Page
Haemochromatosis (4 SNP+) Direct	Whole blood/ genomic DNA	Molecular genetic in vitro determination of two or four mutations in the HFE (high iron) gene in human genomic DNA in the detection or exclusion of the genetically caused iron overload disorder hereditary haemochromatosis in cases of conspicuous patient or family anamnesis	MN 5520-####-V	272
Haemochromatosis (2 SNP+) Direct	Whole blood/ genomic DNA		MN 5521-####-V	272

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For more information on this subject scan the QR code or enter the Quick Link code q136 at www.euroimmun.com

Human papillomavirus

Clinical information: Genital human papillomaviruses (HPV) are the most frequently sexually transmitted viruses. Transmission of HPV infection from mother to newborn during birth is also possible. The worldwide HPV prevalence is estimated to be 2 to 44% in women and 4 to 45% in men. However, the prevalences vary considerably between population groups, depending on culture and sexual activity. HPV only infect epithelial cells, where they replicate in the cell nuclei. HPV can cause unregulated tumour-like growth of the host cells, which can be either benign, with warts forming at the site of infection, or malignant, as in cervical carcinoma.

So far, 30 genital HPV types have been described. They are divided into two groups according to their oncogenic potential: high-risk and low-risk HPV. While high-risk HPV are involved in the development of carcinoma and can be detected in over 99% of cervical carcinomas, low-risk HPV alone are only found in non-malignant tissue changes. The WHO has officially classified genotypes 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 and 66 as oncogenic and thus as high-risk HPV. HPV 16 can be detected in 50 to 60% and HPV 18 in 10 to 20% of cervical carcinomas. However, other HPV, such as 26, 53, 68, 73 and 82 have also been found in cervical carcinoma and should therefore also be considered as high-risk HPV. Low-risk viruses include HPV 6 and 11, the main causative agents of genital warts (Condylomata acuminata, fig warts). Further low-risk types are 40, 42, 43, 44, 54, 61, 70, 72, 81 and 89 (CP6108). Although infections with low-risk HPV are not potentially lethal, the consequences of the infection, e.g. benign genital warts, can represent a physical and mental impairment for the patient. In Germany, around 1% of people between 15 and 49 years of age are affected.

For assessment of the course of HPV infection and the risks involved it is not only important to differentiate between high-risk and low-risk viruses but also to discriminate between the different viruses in the high-risk group.

Diagnostics: Alongside cytology (Pap smear), direct detection methods for HPV play a very important role in the early diagnosis of cervical carcinoma. They are based on the detection of viral DNA, mainly using PCR, or the detection of viral RNA produced by the host cells. Whereas the Pap smear is used to investigate cervical cells for pathological changes, a PCR-based test is able to detect an HPV infection before morphological cell changes have occurred.

While HPV tests based on conserved genes require only a few primer systems, the detection of the oncogenes E6/E7, which vary considerably in the different HPV, is much more complicated. The disadvantage of using conserved genes for HPV detection is that the genes may be lost during integration of viral DNA into the host DNA. PCR systems based on these sequences can therefore lead to false negatives despite viral DNA being present. The **EUROArray HPV** is based on the detection of oncogenes E6/E7, which allows the highest possible sensitivity.

The use of subtype-specific primer systems and probes in the **EUROArray HPV** allows the detection and typing of all 30 currently described genital HPV in one test run – namely 18 high risk HPV (16, 18, 26, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 68, 73, 82) and 12 low risk HPV (6, 11, 40, 42, 43, 44, 54, 61, 72, 81, 89, 70). The **EUROArray**

HPV is extremely easy to peform in comparison to other molecular biological methods – no in-depth molecular biology knowledge is required. Data analysis, data interpretation and electronic archiving are fully automated using the **EUROArrayScan software**.

Product overview

Parameter	Sample material	Application	Order number	Page
Human papillomavirus (HPV)	DNA	Molecular diagnostic test procedure providing PCR-based direct detection of human papillomaviruses (HPV), which are involved in the development of neoplasms, in particular cervical carcinoma	MN 2540-####	272

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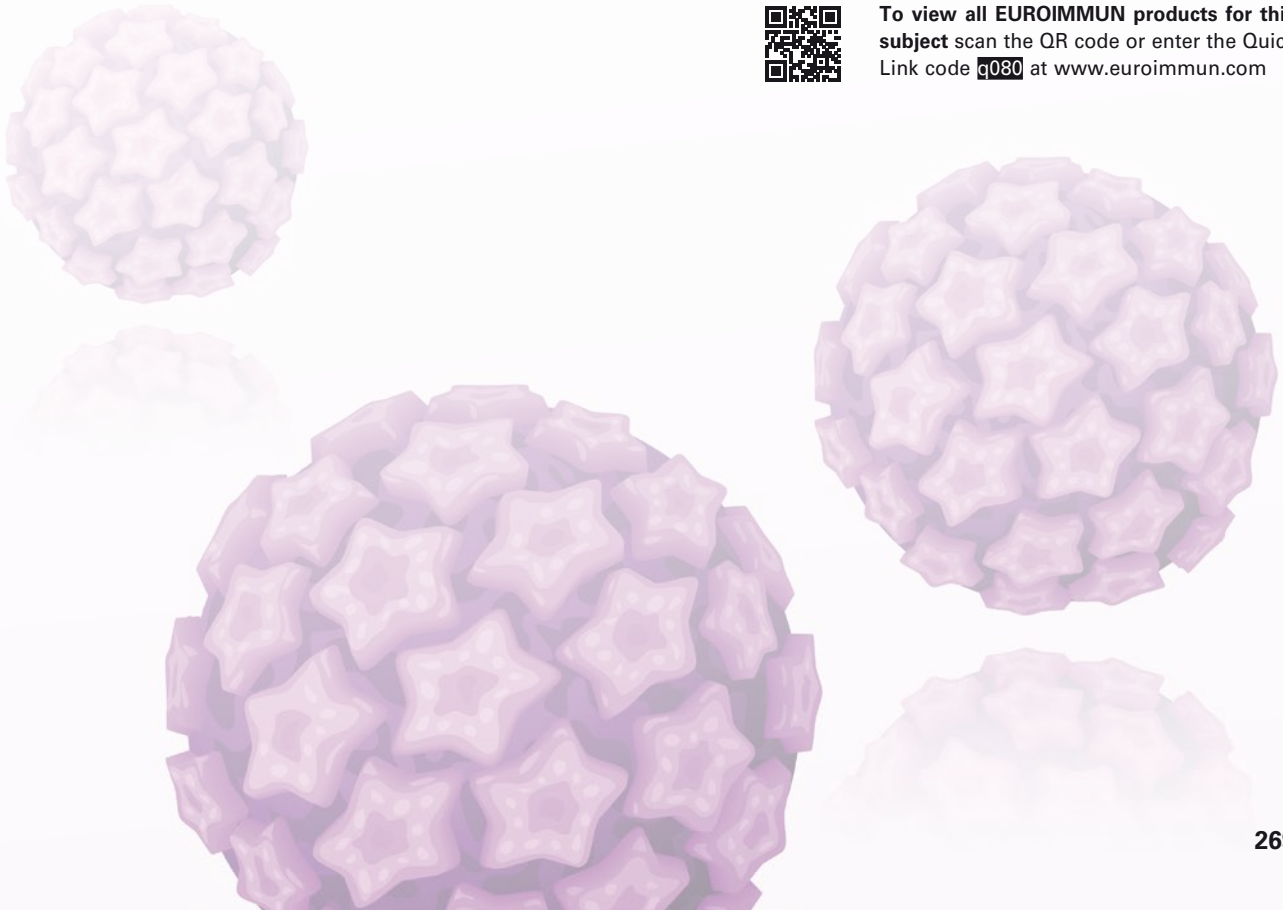
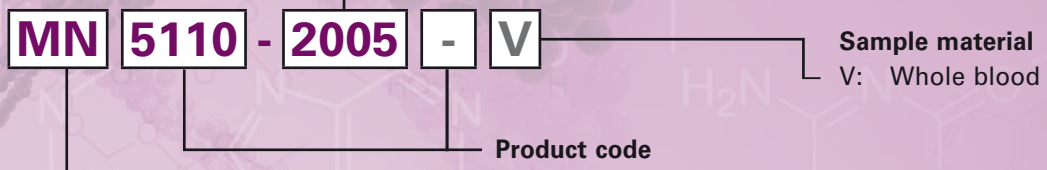


Products for molecular diagnostics



Format
- 0803: 8 slides with 3 fields each
- 0505: 5 slides with 5 fields each
- 1005: 10 slides with 5 fields each
- 2005: 20 slides with 5 fields each

Sample material
V: Whole blood

Product code

Product classification
- MN:Test system EUROArray (molecular genetic determinations)..... page 272
- MN:Test system EUROArray (molecular infectious diagnostics)..... page 272

For product orders the amount, product code and test name are required. **Test kits** comprise all reagents needed to perform the investigation.

EUROArray for Molecular Genetic Determinations (Test Systems)

Order No.	Description	Format
MN 5110-0803-V	EUROArray HLA-B27 Direct	08 x 03
MN 5110-0505-V		05 x 05
MN 5110-1005-V		10 x 05
MN 5110-2005-V		20 x 05
MN 5210-0803-V	EUROArray HLA-B57:01 Direct	08 x 03
MN 5210-0505-V		05 x 05
MN 5210-1005-V		10 x 05
MN 5210-2005-V		20 x 05
MN 5310-0803	EUROArray HLA-DQ2/DQ8	08 x 03
MN 5310-0505		05 x 05
MN 5310-1005		10 x 05
MN 5310-2005		20 x 05
MN 5410-0803	EUROArray HLA-Cw6	08 x 03
MN 5410-0505		05 x 05
MN 5410-1005		10 x 05
MN 5410-2005		20 x 05
MN 5520-0803-V	EUROArray Haemochromatosis (4 SNP+) Direct	08 x 03
MN 5520-0505-V		05 x 05
MN 5520-1005-V		10 x 05
MN 5520-2005-V		20 x 05
MN 5521-0803-V	EUROArray Haemochromatosis (2 SNP+) Direct	08 x 03
MN 5521-0505-V		05 x 05
MN 5521-1005-V		10 x 05
MN 5521-2005-V		20 x 05
MN 5820-0803-V	EUROArray FV / FII+ / MTHFR Direct	08 x 03
MN 5820-0505-V		05 x 05
MN 5820-1005-V		10 x 05
MN 5820-2005-V		20 x 05
MN 5821-0803-V	EUROArray FV / FII+ Direct	08 x 03
MN 5821-0505-V		05 x 05
MN 5821-1005-V		10 x 05
MN 5821-2005-V		20 x 05
MN 5822-0803-V	EUROArray FV Leiden Direct	08 x 03
MN 5822-0505-V		05 x 05
MN 5822-1005-V		10 x 05
MN 5822-2005-V		20 x 05
MN 5823-0803-V	EUROArray FII+ Direct	08 x 03
MN 5823-0505-V		05 x 05
MN 5823-1005-V		10 x 05
MN 5823-2005-V		20 x 05
MN 5824-0803-V	EUROArray MTHFR Direct	08 x 03
MN 5824-0505-V		05 x 05
MN 5824-1005-V		10 x 05
MN 5824-2005-V		20 x 05

EUROArray for Molecular Infectious Diagnostics (Test Systems)

Order No.	Description	Format
MN 2540-0803	EUROArray HPV	08 x 03
MN 2540-0505		05 x 05
MN 2540-1005		10 x 05
MN 2540-2005		20 x 05