



# HLA TYPING SERVICE

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## What is HLA?

Initiation of an immune response occurs when human leucocyte antigens (HLA) located at the cell surface present peptides to CD8+ cytotoxic lymphocytes and CD4+ T helper cells. The genes encoding these antigens are the most varied in humans and it is well established that an individual's HLA profile determines their capacity to mount a protective immune response to a foreign protein. There are many thousands of different HLA types and thus the capacity to mount an immune response can be dramatically different between individuals within a cohort selected from a single population.

## Areas where HLA Typing is of proven importance

### *Transplantation*

The beneficial effects of HLA matching in terms of transplant outcome are well described and matching therefore forms the basis of organ allocation in the majority of organ sharing schemes.

### *Disease Association*

HLA is associated with an increasing number of diseases; the table below lists a small number of these and the associated HLA specificity. Screening for HLA genes can thus add confidence to a clinical diagnosis

Disease	HLA-Specificity / Gene
Autoimmune Chronic Hepatitis	HLA-DR3
Addison's Disease	HLA-DR3
Ankylosing Spondylitis	HLA-B27
Birdshot Chorioretinopathy	HLA-A29
Coeliac Disease	HLA-DQ2
Diabetes Mellitus, Type I	HLA-DQ6
Graves Disease	HLA-DR3
Hemochromatosis	HLA-A3
Multiple Sclerosis	HLA-DR3
Narcolepsy	HLA-DR15 / DQB1*0602
Post Infectious Arthritis	HLA-B27
Rheumatoid Arthritis	HLA-DR1, DR4
Psoriasis Vulgaris	HLA-Cw6
Reiter's Syndrome	HLA-B27

## **Allergy and drug hypersensitivity**

HLA is emerging to have a role in certain allergies and hypersensitivity; the table below lists some examples.

<b>Allergy / Hypersensitivity</b>	<b>HLA-Specificity / Gene</b>
<b>Coeliac Disease</b>	<b>HLA-DQ2, DQ8</b>
<b>Peanut Allergy</b>	<b>HLA-DR8</b>
<b>Atopy</b>	<b>HLA-A1, B8, DR3</b>
<b>Abacavir</b>	<b>HLA-B*57:01</b>
<b>Carbamazepine</b>	<b>HLA-B*15:02</b>
<b>Heavy Metal Allergies</b>	<b>Various</b>

## **Anthropology**

HLA-typing is a valuable tool in the study of the geographic / evolutionary origins of human populations. HLA types vary widely among different ethnic populations allowing genetic 'relatedness' between modern day population groups and population migration patterns to be established.

## **Vaccine Development**

Responsiveness / non-responsiveness to vaccination has been linked with HLA genetic heterogeneity in a number of studies.

### **HLA typing should be considered in the following situations:**

- Profiling of cohorts for clinical drug / vaccine trials
- Profiling of cohorts for candidate allergen testing
- Characterisation of cell lines used in investigations of immune function
- Studies of population genetics
- Investigations of identity / relatedness in genetic genealogy



responsive service  
and support

## VH Bio's HLA Typing Service

The service we offer extends from assistance in deciding the level of typing required by your project, through technical analysis of provided samples to post-analytical advice regarding data outputs.

All work will be carried out in our UK Gateshead facility by professional scientific staff with a combined experience of more than 40 years in the field.

We can offer a range of turnaround times and are able to offer a very fast (48 hour) throughput depending on the number of samples and advance notification.

We participate in all relevant UK EQA schemes and maintain a good record of achievement within these. We are ISO 9001:2008 and UKAS certified and are currently pursuing CPA accreditation of our service. Our aim is to deliver a high confidence and responsive service to our clients at realistic cost.

Investigations are performed using DNA based technologies.

Dependent upon the needs of the investigation determination of a HLA type can be based on analysis for a single antigen, providing a present/absent outcome or can be performed across several or all HLA A\*, B\*, C\*, DRB1\*, DRB3\*, DRB4\*, DRB5\*, DQA1\*, DQB1\* DPA1\* and DPB1\* loci to deliver a more detailed and comprehensive report.

Typing can also be done at different levels of resolution.

We can additionally perform investigations of other polymorphic genetic systems including MICA and KIR typing and analysis of cytokine gene polymorphisms. We can also offer HLA antibody screening of serum samples.

The service is offered for R&D / non-diagnostic purposes only and results must not be utilised to inform patient management decisions. Working with our partner laboratories within the NHS we can however arrange for diagnostic testing and would welcome enquiries about this.

## Contact

**To discuss your project and requirements for HLA typing or HLA antibody screening please contact our HLA Laboratory Manager, Alison Wortley (email: [awortley@vhbio.com](mailto:awortley@vhbio.com) or tel: +44 (0) 7973553758).**

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