BioArray HEA BeadChip™

Extended Red Blood Cell Antigen Typing by DNA Analysis

BioArray HEA BeadChip™ is a high-throughput molecular assay that detects 38 red blood cell antigens and phenotypic variants.

### FEATURES AND BENEFITS

#### ENHANCED CAPABILITIES
- Characterize donor units across eleven blood group systems
- Leverage DNA analysis to inform approaches to complex patient work-ups (DAT+, multiple antibodies, warm autoantibodies)

#### QUICK TURNAROUND
- Complete HEA protocol in less than 5 hours post extraction
- Obtain xHEA typing results within a single shift

#### HIGH THROUGHPUT
- 8-test slide or 96-test plate configurations
- Generate over 3000 results across 38 red blood cell antigens and phenotypic variants in a single test

### ASSAY OVERVIEW

Molecular Immunohematology (MIH) is a rapidly emerging technology within Transfusion Medicine. Red blood cell antigen expression may be altered by variations in DNA sequences. Novel molecular techniques have been developed to identify the single nucleotide polymorphisms (SNPs) responsible for many of these variations.

The BioArray BeadChip™ system is a high throughput molecular assay that tests for a wide range of SNPs affecting antigen expression. The BioArray Elongation mediated Multiplexed Analysis of Polymorphisms (eMAP) technology identifies the presence or absence of these polymorphisms via multiplex PCR reaction. On the BioArray BeadChip™ system, genomic DNA targets isolated from whole blood are amplified, captured and fluorescently labeled by elongation on allele specific probes immobilized on synthetic microparticles. The fluorescence of each bead is analyzed on the Array Imaging System (AIS) to determine positive and negative reactions. BioArray Solutions Information System (BASIS) software calculates the adjusted intensity of every reaction to assign a genotype and predicted phenotype for each polymorphism.

The BioArray HEA BeadChip™ Kit detects 24 red blood cell polymorphisms associated with 38 antigens and phenotypic variants in a single test. For donor testing, extended antigen typing can help identify samples as rare, weak, or containing altered phenotypes to more deeply characterize a donor registry. Recently and poly-transfused patients can also benefit from extended typing by DNA analysis.

### Assay Extended Antigen (xHEA) Coverage

<table>
<thead>
<tr>
<th>Antigen</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rh</td>
<td>C/c, E/e, VS, V</td>
</tr>
<tr>
<td>Kell</td>
<td>K/k, Js*/Js^<em>, Kp^</em>/Kp^*</td>
</tr>
<tr>
<td>Duffy</td>
<td>Fy^<em>/Fy^</em>, Fy^, GATA</td>
</tr>
<tr>
<td>Kidd</td>
<td>Jk^*/Jk^o</td>
</tr>
<tr>
<td>MNS</td>
<td>M/N/S/s, U-, Uvar</td>
</tr>
<tr>
<td>Lutheran</td>
<td>Lu^*/Lu^o</td>
</tr>
<tr>
<td>Dombrock</td>
<td>Do^*/Do^-, Hy^+/Hy^-, Jo(a+)/Jo(a^-)</td>
</tr>
<tr>
<td>Landsteiner Wiener</td>
<td>Lw^*/Lw^o</td>
</tr>
<tr>
<td>Diego</td>
<td>Di^+/Di^-</td>
</tr>
<tr>
<td>Colton</td>
<td>Co^+/Co^-</td>
</tr>
<tr>
<td>Scianna</td>
<td>Sc1/Sc2</td>
</tr>
<tr>
<td>Hemoglobin S</td>
<td>HbS</td>
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</tbody>
</table>
PRODUCT LINE OVERVIEW

The BioArray product line provides a platform of solutions for molecular immunohematology. Our assays are currently available as Research Use Only (RUO) for a wide range of red blood cell and platelet compatibility cases.

WE KNOW BLOODBANKING

→ BioArray’s high throughput BeadChip assays are innovative tools in Transfusion Medicine that enhance donor and patient matching capability and complement our Echo and NEO automated serological testing systems.

WE ARE SETTING THE STANDARD IN MOLECULAR IMMUNOHEMATOLOGY

→ With 5 years of development and over 200,000 tests completed, BioArray’s core assay, HEA, has been refined and proven at many of the world’s leading Centers of Excellence in Transfusion Medicine.

WE ARE FOCUSED ON THE NEEDS OF OUR CUSTOMERS AND THEIR PATIENTS

→ BioArray’s BeadChip assays deliver deep insight into antigen typing and provide the information needed to solve complex red blood cell and platelet compatibility cases.

RED BLOOD CELL ASSAYS

→ HEA 38 Human Erythrocyte Antigens and phenotypic variants

→ RHD RHD variant alleles

→ RHCE RhCE variant alleles

PLATELET ASSAYS

→ HPA 22 Human Platelet Antigens

→ HLA-A / HLA-B Class I Human Leukocyte Antigens

To learn more about Extended Red Blood Cell Antigen Typing by DNA analysis, contact your sales rep or visit www.immucor.com/bioarray/

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