

## HLA Typing analysis using ScreenTape® is fast, efficient and safe.

The Lab901 ScreenTape System enables simple and convenient analysis of PCR-SSP amplicons for Human Leukocyte Antigen (HLA) genotyping. Allele-specific PCR combined with an automated electrophoresis instrument rapidly enables detection, interpretation and storage of tissue typing results.

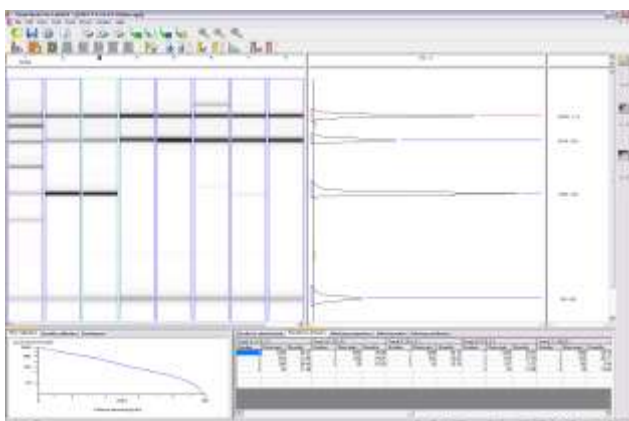


Figure 1: Results of a DQB1 Low resolution specific PCR.

**ScreenTape used**

D800

**Convenient set up**

No reagent preparation

No gel loading

No manual analysis

**Total time post PCR**

10 minutes

**Sample volume used**

1 µl

### Introduction

HLA genes, divided into class I and class II, code for cell surface molecules that play an essential function in the immune response by allowing the body to discriminate between self antigens and non-self antigens, typically pathogens. HLA typing is important for organ & bone marrow transplants and is commonly used in vaccine trials and as an aid to disease diagnosis. The HLA region is highly polymorphic; therefore, matching specific HLA alleles is necessary to improve the transplantation success rate between donor and recipient.

### Materials and Methods used in PCR

Genomic DNA samples were amplified using Dynal Allset™ SSP DQB1 'low resolution' typing set (Batch EK0582) according to the manufacturer's recommendations. Amplification time was 80 minutes.

### ScreenTape DNA Analysis Procedure

For a single genotype, seven allele-specific SSP amplicons from one sample were mixed 1:4 with Lab901 loading buffer and placed in the TapeStation along with D800 ScreenTape. After pressing 'START' on the Lab901 software, the amplicons were separated, imaged and sized within 10 minutes.

### Results

A single allelic DQB1 genotyping result by PCR-SSP technique is presented in figure 1. The gel image is presented simultaneously with tabulated results to simplify the determination of positive or negative PCR reactions. The loading buffer contains markers at 1000bp and 25bp, whilst each PCR-SSP reaction contains a ~607bp control amplicon shown in all reactions (lanes 2-7). Lanes 2 & 3 show specific bands at ~210bp that correlate to a DQB1\*05 & DQB1\*06 genotype.

**Benefits of using ScreenTape for PCR-based HLA Typing analysis**

The ScreenTape system enables swift identification of numerous variant alleles at HLA loci, by analysing locus specific PCR products quickly and efficiently. Pre-packaged reagents and full automation mean that results are highly reproducible, ensuring a minimal requirement for user intervention. Intuitive software streamlines the laboratory workflow and automatic archiving of results delivers convenient traceability for important data.

\*DynaL Allset+™ is a registered trademark of Invitrogen Corporation