Elucigene® DPYD

- 6 Clinically Relevant Mutations
- Rapid Turnaround Time
- Reliable and Accurate Detection

Elucigene®
Member of the Yourgene Health group

DPYD Genotyping

5-fluorouracil (5-FU) is a chemotherapy agent used to treat a range of cancers including colorectal, head and neck, breast, pancreatic and stomach cancer. 5-FU is metabolized by the dihydropyrimidine dehydrogenase enzyme (DPD) which is encoded by the DPYD gene.
Several variants within DPYD have been described that lead to reduced or abolished DPD activity. Patients with these variants are at an increased risk of severe or fatal 5-FU toxicity. Therefore, implementation of DPD deficiency screening by genotyping will allow a more accurate prediction of toxicity and chemotherapeutic response.

Allelic Variant	rsID	Nucleotide Change	Protein Change	Allele Function
*2A	rs3918290	c.1905+1G>A	N/A	No Function
*13	rs55886062	c.1679T>G	p.I560S	No Function
N/A	rs67376798	c.2846A>T	p.D949V	Decreased
HapB3	rs75017182 rs56038477 rs56276561	c.1129-5923C>G c.1236G>A c.483+18G>A	N/A p.E412E N/A	Decreased Decreased Decreased

Key Features

Two tube assay:

Tube 1 detects mutant sequences for the 6 SNPs in addition to the wildtype sequence for the *2A allele to allow determination of zygosity.
Tube 2 detects the wildtype sequences for the 5 remaining wildtype alleles.
STR Markers are included in each tube to aid sample identification.

Ready to use reagents:

Simply add DNA to the PCR reaction mix.

Minimal hands on time – 1 day turnaround:

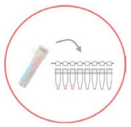
PCR: ~3 hours.
Capillary Electrophoresis: ~1 hour.

Simple data interpretation:

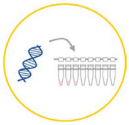
Software analysis files for GeneMapper and GeneMarker are provided by Elucigene.

The CPIC guideline provides supplementary information to aid the clinical interpretation of DPYD allelic variants, with additional information regarding fluoropyrimidine dose.

Elucigene DPYD Protocol Overview



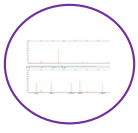
1. Reaction Mix
Prepare and dispense the DPYD reaction mixes into 0.2ml PCR tubes or a 96 well plate.



2. DNA
Add patient DNA to the dispensed DPYD reaction mixes.

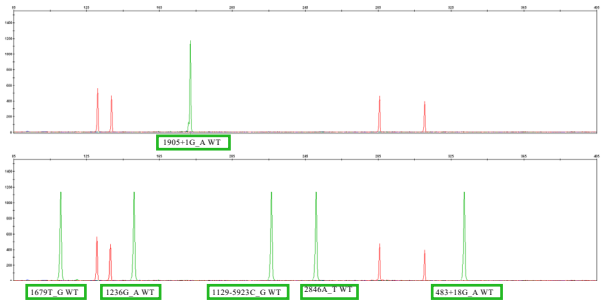
3. PCR
Run thermal cycling program.

4. Capillary Electrophoresis.
No post-PCR modifications required.
Compatible with ABI 3*** Genetic Analysers.



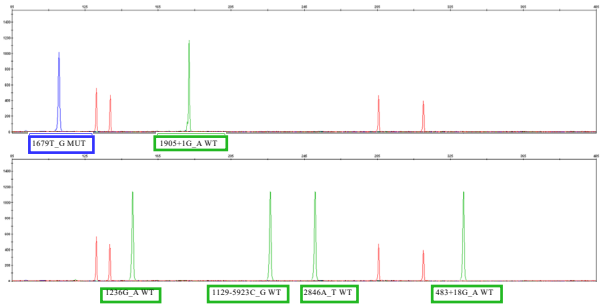
5. Analysis
Simple analysis and interpretation of results using GeneMapper® or GeneMarker® software.

Example Results



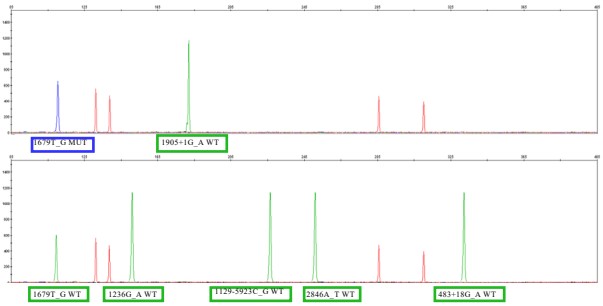
Normal Result

In a normal result, all alleles detected are homozygous wildtype. In this example, the sample is wildtype for all markers detected:
*2A – green WT peak present in the A mix.
*13, c.2846A>T, HapB3 – Green WT peaks present in the B mix



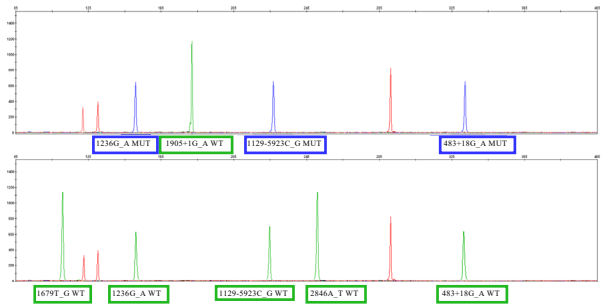
Homozygous Result

In an individual homozygous for a specific mutation, the marker will only display a single mutant peak and no wildtype. In this example, the sample is homozygous mutant for 1679 T>G (blue peak), with the remaining markers showing a homozygous wildtype genotype



Heterozygous Result

If an individual is heterozygous for a marker, two peaks will be detected. In this example, the sample is heterozygous mutant for c.1679 T>G, with the remaining markers showing a homozygous wildtype genotype



Compound Heterozygous Result

If an individual is heterozygous for a marker, two peaks will be detected. In this example, the sample is heterozygous mutant for all haplotype B3 markers (c.1129-5923 C>G, c.1236 G>A, c.483+18 G>A), with the other remaining markers showing a homozygous wildtype genotype

Ordering Information

Product Number	Kit Name	Kit Size	Description
ONDYDB1	Elucigene DPYD, CE-IVD	25 Tests	DPYD screen testing for *2A, *13, c.2846A>T, HapB3

Elucigene kits are developed and manufactured within quality systems accredited to ISO13485:2016 and are validated as in vitro diagnostic devices in compliance with the European Community Directive (98/79/EC).

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References

- DPYD genotype-guided dose individualisation of fluoropyrimidine therapy in patients with cancer: a prospective safety analysis (Henricks et al., 2019)
- A cost analysis of upfront DPYD genotype guided dose individualisation in fluoropyrimidine-based anticancer therapy (Henricks et al., 2019)

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