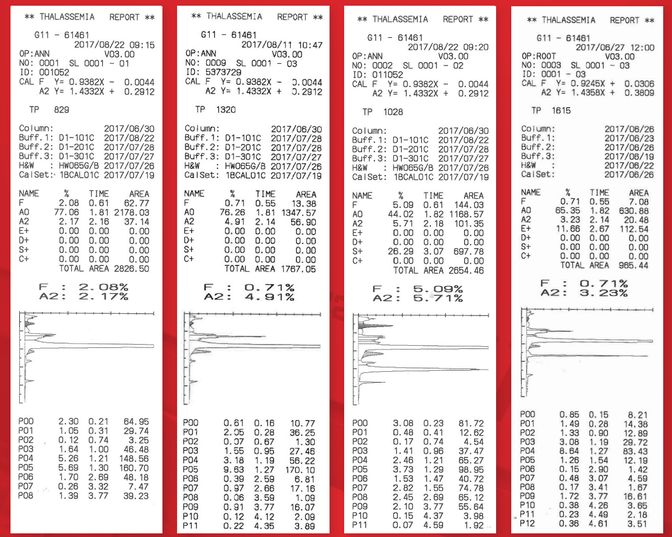
CHROMATOGRAM INTERPRETATION AIDS

- Software to assist in the interpretation of chromatograms
- Tosoh Bioscience offers an on-line clinical interpretation platform under the supervision of highly knowledgeable experts in the field

Example chromatograms: Normal, ß-Thalassaemia trait, HbS trait, HbE trait



```
** THALASSEMIA   REPORT **

   G11 - 61461
              2017/08/22 09:15
OP:ANN              V03.00
NO: 0001  SL 0001 - 01
ID: 001052
CAL F  Y= 0.9382X -  0.0044
       A2 Y= 1.4332X +  0.2912

   TP   829

Column:                2017/06/30
Buff.1: D1-101C        2017/08/22
Buff.2: D1-201C        2017/07/28
Buff.3: D1-301C        2017/07/27
H&W   : HW0656/8       2017/07/26
CalSet: 15CAL01C       2017/07/19

NAME     %    TIME    AREA
F      2.08   0.61   62.77
A0    77.06   1.81 2178.03
A2     2.17   2.16   37.14
E+     0.00   0.00    0.00
D+     0.00   0.00    0.00
S+     0.00   0.00    0.00
C+     0.00   0.00    0.00
       TOTAL AREA 2826.50

F : 2.08%
A2: 2.17%

P00    2.30   0.21   64.95
P01    1.05   0.31   29.74
P02    0.12   0.74    3.25
P03    1.64   1.00   46.48
P04    5.26   1.21  148.56
P05    5.69   1.30  160.70
P06    1.70   2.69   48.18
P07    0.26   3.32    7.47
P08    1.39   3.77   39.23
```

```
** THALASSEMIA   REPORT **

   G11 - 61461
              2017/08/11 10:47
OP:ANN              V03.00
NO: 0009  SL 0001 - 03
ID: 5373729
CAL F  Y= 0.9382X -  0.0044
       A2 Y= 1.4332X +  0.2912

   TP  1320

Column:                2017/06/30
Buff.1: D1-101C        2017/07/28
Buff.2: D1-201C        2017/07/28
Buff.3: D1-301C        2017/07/27
H&W   : HW0656/8       2017/07/26
CalSet: 15CAL01C       2017/07/19

NAME     %    TIME    AREA
F      0.71   0.55   13.38
A0    76.26   1.81 1347.57
A2     4.91   2.14   56.90
E+     0.00   0.00    0.00
D+     0.00   0.00    0.00
S+     0.00   0.00    0.00
C+     0.00   0.00    0.00
       TOTAL AREA 1767.05

F : 0.71%
A2: 4.91%

P00    0.61   0.16   10.77
P01    2.05   0.28   36.25
P02    0.07   0.67    1.30
P03    1.55   0.95   27.45
P04    3.18   1.19   56.22
P05    9.63   1.27  170.10
P06    0.39   2.59    6.81
P07    0.97   2.66   17.16
P08    0.06   3.59    1.09
P09    0.91   3.77   16.07
P10    0.12   4.12    2.09
P11    0.22   4.35    3.89
```

```
** THALASSEMIA   REPORT **

   G11 - 61461
              2017/08/22 09:20
OP:ANN              V03.00
NO: 0002  SL 0001 - 02
ID: 011052
CAL F  Y= 0.9382X -  0.0044
       A2 Y= 1.4332X +  0.2912

   TP  1028

Column:                2017/06/30
Buff.1: D1-101C        2017/08/22
Buff.2: D1-201C        2017/07/28
Buff.3: D1-301C        2017/07/27
H&W   : HW0656/8       2017/07/26
CalSet: 15CAL01C       2017/07/19

NAME     %    TIME    AREA
F      5.09   0.61  144.03
A0    44.02   1.82 1168.57
A2     5.71   2.18  101.35
E+     0.00   0.00    0.00
D+     0.00   0.00    0.00
S+    26.29   3.07  697.78
C+     0.00   0.00    0.00
       TOTAL AREA 2654.46

F : 5.09%
A2: 5.71%

P00    3.08   0.23   81.72
P01    0.48   0.41   12.62
P02    0.17   0.74    4.54
P03    1.41   0.96   37.47
P04    2.46   1.21   65.27
P05    3.73   1.29   98.95
P06    1.53   1.47   40.72
P07    2.82   1.55   74.76
P08    2.45   2.69   65.12
P09    2.10   3.77   55.84
P10    0.15   4.37    3.98
P11    0.07   4.59    1.92
```

```
** THALASSEMIA   REPORT **

   G11 - 61461
              2017/06/27 12:00
OP:ROOT             V03.00
NO: 0003  SL 0001 - 03
ID: 0001 - 03
CAL F  Y= 0.9245X +  0.0306
       A2 Y= 1.4358X +  0.3809

   TP  1615

Column:                2017/06/26
Buff.1:                2017/06/23
Buff.2:                2017/06/26
Buff.3:                2017/08/19
H&W   :                2017/08/22
CalSet:                2017/06/26

NAME     %    TIME    AREA
F      0.71   0.55    7.06
A0    65.35   1.82  630.88
A2     3.23   2.14   20.48
E+    11.66   2.67  112.54
D+     0.00   0.00    0.00
S+     0.00   0.00    0.00
C+     0.00   0.00    0.00
       TOTAL AREA  965.44

F : 0.71%
A2: 3.23%

P00    0.85   0.15    8.21
P01    1.49   0.28   14.38
P02    1.33   0.90   12.89
P03    3.08   1.19   29.72
P04    8.64   1.27   83.43
P05    1.26   1.54   12.19
P06    0.15   2.90    1.42
P07    0.48   3.07    4.59
P08    0.17   3.41    1.67
P09    1.72   3.77   16.61
P10    0.38   4.26    3.65
P11    0.23   4.49    2.18
P12    0.36   4.61    3.51
```


References

1. Angastiniotis M, Vives Corrons J-L, Soteriades ES, Eleftheriou A. The Impact of Migrations on the Health Services for Rare Diseases in Europe: The example of Haemoglobin Disorders, in: The Scientific World Journal Volume 2013
2. Haemoglobinopathies on the move: Is Europe ready? Report by group of experts from the European Network for Rare and Congenital Anaemias (ENERCA) and the Thalassemia International Federation (TIF) in collaboration with the International Organization for Migration (IOM), Migration Health Division, Regional Office Brussels
3. Weatherall DJ, Clegg JB. 2001. The thalassaemia syndromes. 4th Edition. Oxford: Blackwell Science Ltd 2001
4. Thein SL. The molecular basis of ß-thalassemia. Cold Spring Harb Perspect Med. 2013 May 1;3[5]
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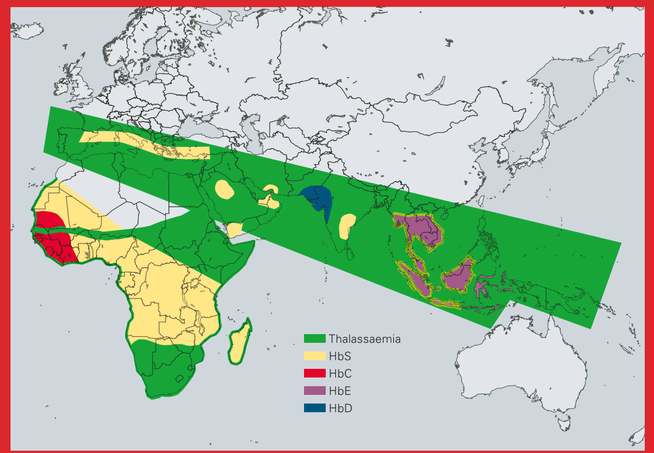
HLC-723G11
ß-THALASSAEMIA ANALYSIS MODE
THE ULTIMATE HAEMOGLOBINOPATHY SOLUTION FOR YOUR LAB

G11 bThal EN Rev. 10/08/2017 - 10-2017

TOSOH BIOSCIENCE

Haemoglobinopathies are among the most common hereditary diseases of the world's population. About 4.5% of all human beings carry a gene for a thalassaemia or haemoglobin anomaly[1]. The areas in which such abnormalities were originally most common extend from Africa over the Mediterranean basin and the Near- and Middle East to Southeast Asia and the Indian subcontinent. Global migration in the modern period has led to a continual spread of these anomalies to all regions of the world, with the result that they are rapidly becoming more common in the industrialised regions of Northern and Central Europe as well[2].



Variants of thalassaemias and main abnormal haemoglobins interact to produce a wide range of clinical disorders of varying severity[3-4]. Homozygotes for ß-thalassaemia may develop either thalassaemia major or thalassaemia intermedia. Individuals with thalassaemia major are usually diagnosed within the first 2 years of life and require regular blood transfusions to survive[5].

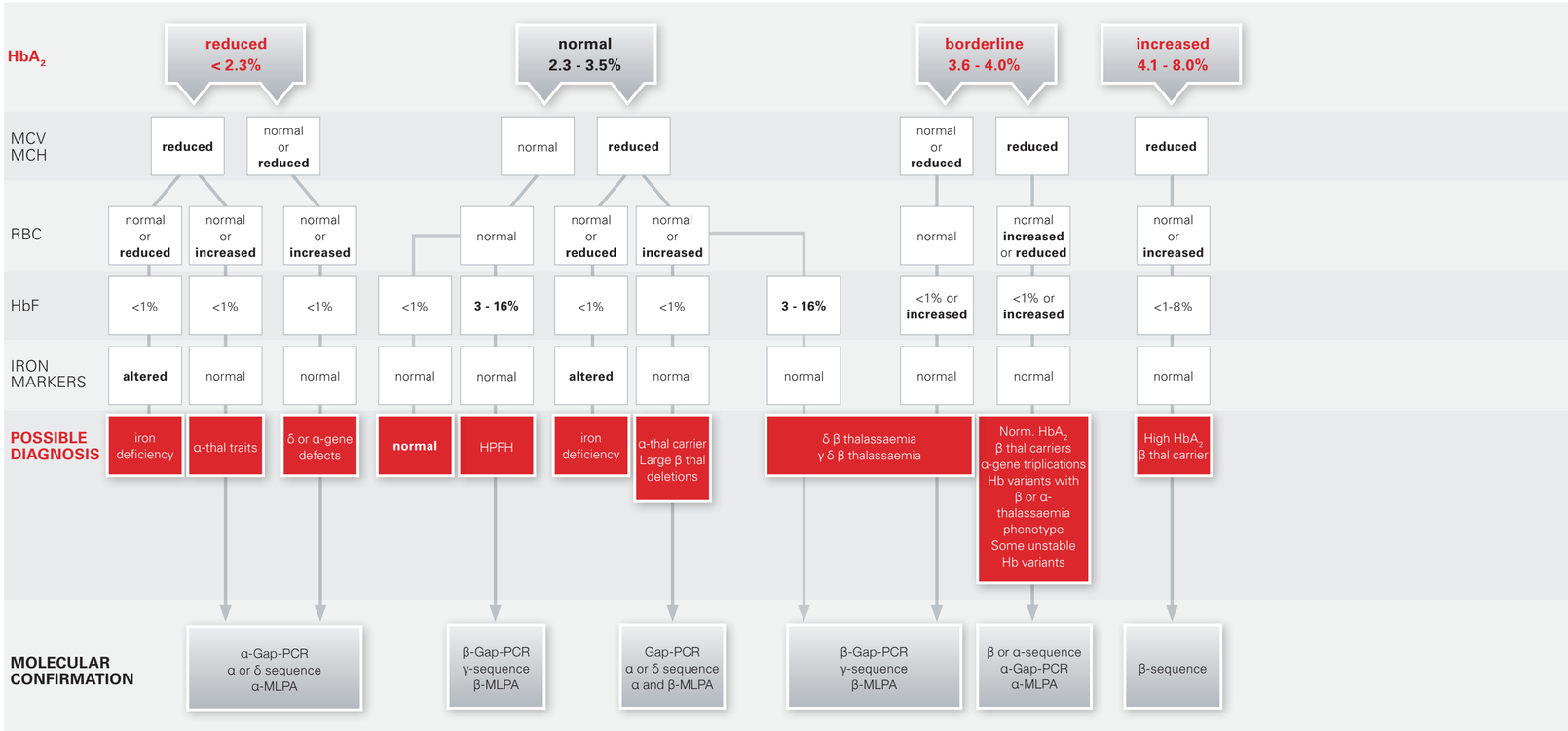
LABORATORY DIAGNOSIS

Diagnosis of Beta-Thalassaemia and other types of haemoglobinopathies should be done based on clinical symptoms (if available) and a number of laboratory tests, such as MCV, MCH, total red cell count, HbF, HbA2 and iron markers.

TOSOH G11 BETA-THALASSAEMIA SOLUTION

- Quantitative determination of HbF and HbA2 in 5 minutes
- Chromatographic separation between HbA2 and HbE
- High resolution chromatogram thanks to Tosoh's over 40 years' experience in HPLC
- Full reagent traceability
- Easy to use and intuitive instrument
- Highly reliable system
- Instrument connectable to open laboratory automation lines

As a guideline, the below scheme can be used (Adapted from Mosca et at. J.Clin.Pathol. 2009 – with permission)



MLPA: Multiplex ligation-dependent probe amplification