BAYLOR GENETICS

BAYLOR GENETICS
2450 HOLCOMBE BLVD.
SUITE 2210
HOUSTON, TX 77021-2024

PHONE
1.800.411.4363
FAX
1.800.434.9850

PATIENT CASE

# Rapid Whole Genome Sequencing (rWGS)

Rapid Trio Whole Genome Sequencing in a NICU patient with complex phenotype identifies a short tandem repeat expansion.

## Initial Presentation:

- A 3-day-old male with hypotonia, frog-leg posture, areflexia, hip contracture, feeding difficulties, high-pitched cry, macrocephaly, ventriculomegaly, dolichocephaly, bilateral cryptorchidism, ptosis, and dysmorphic features including a high anterior hairline, narrow forehead, underdeveloped supraorbital ridges, thin vermilion border, low-set ears, overfolded helix, high palate, and retrognathia
- Ventriculomegaly was observed via prenatal ultrasound and MRI

## Genetic Tests Performed:

- Prenatal chromosomal microarray was negative
- Rapid Trio WGS

## Rapid Trio WGS Test Findings:

- A heterozygous pathogenic CTG repeat expansion with repeat number between 1400-1450 in the *DMPK* gene was detected, consistent with a diagnosis of congenital-onset myotonic dystrophy type 1 in this individual
- A maternal *DMPK* repeat expansion was also observed

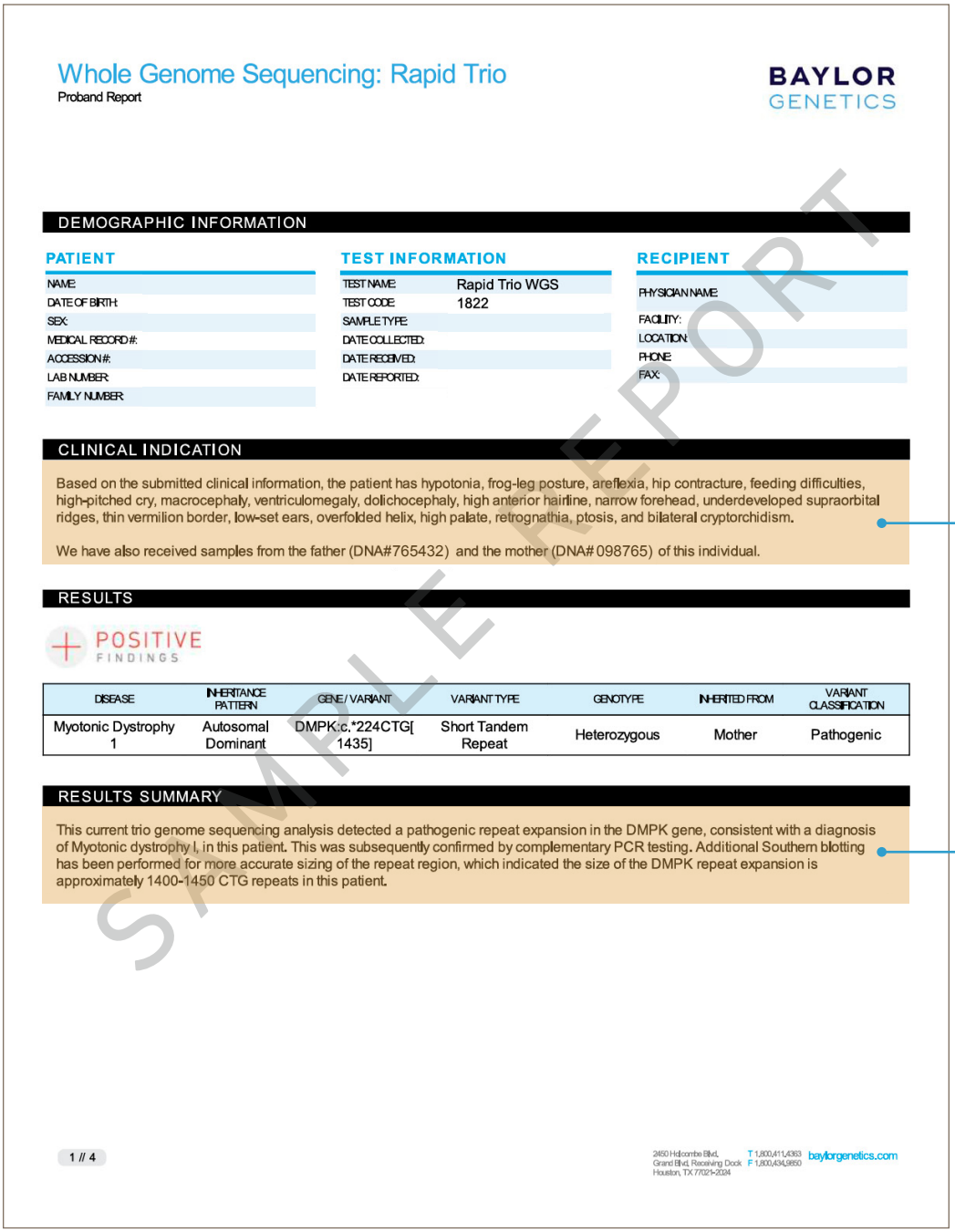
## Impact on Medical Management:

- A rapid diagnosis allows the NICU team to quickly direct clinical care according to consensus-based care recommendations for myotonic dystrophy type 1
- Since the mother was also identified to have an expansion, she can seek clinical evaluation by neuromuscular specialists and reproductive risk can be better ascertained for future pregnancies

Baylor Genetics' WGS offers concurrent testing of many short tandem repeats including the *DMPK* gene while also providing comprehensive assessment for other variant types.

Rapid testing can offer written results in as few as 5 days, providing expedient answers within the inpatient setting and eliminating potential diagnostic odysseys.

WGS being performed in a trio setting provided inheritance information. A rapid result also allowed for expedited actionable results that could directly impact the patient's management.



## Whole Genome Sequencing: Rapid Trio

Proband Report

BAYLOR GENETICS



### DEMOGRAPHIC INFORMATION

**PATIENT**

| | |
|---|---|
| NAME: | |
| DATE OF BIRTH: | |
| SEX: | |
| MEDICAL RECORD #: | |
| ACCESSION #: | |
| LAB NUMBER: | |
| FAMILY NUMBER: | |

**TEST INFORMATION**

| | |
|---|---|
| TEST NAME: | Rapid Trio WGS |
| TEST CODE: | 1822 |
| SAMPLE TYPE: | |
| DATE COLLECTED: | |
| DATE RECEIVED: | |
| DATE REPORTED: | |

**RECIPIENT**

| | |
|---|---|
| PHYSICIAN NAME: | |
| FACILITY: | |
| LOCATION: | |
| PHONE: | |
| FAX: | |

### CLINICAL INDICATION

Based on the submitted clinical information, the patient has hypotonia, frog-leg posture, areflexia, hip contracture, feeding difficulties, high-pitched cry, macrocephaly, ventriculomegaly, dolichocephaly, high anterior hairline, narrow forehead, underdeveloped supraorbital ridges, thin vermilion border, low-set ears, overfolded helix, high palate, retrognathia, ptosis, and bilateral cryptorchidism.

We have also received samples from the father (DNA#765432) and the mother (DNA# 098765) of this individual.

The clinical indication for testing was highly suspicious for a genetic condition. A rapid and comprehensive testing approach offered the best chance to find an answer.

### RESULTS

POSITIVE FINDINGS

| DISEASE | INHERITANCE PATTERN | GENE / VARIANT | VARIANT TYPE | GENOTYPE | INHERITED FROM | VARIANT CLASSIFICATION |
|---|---|---|---|---|---|---|
| Myotonic Dystrophy 1 | Autosomal Dominant | DMPK:c.*224CTG[1435] | Short Tandem Repeat | Heterozygous | Mother | Pathogenic |

### RESULTS SUMMARY

This current trio genome sequencing analysis detected a pathogenic repeat expansion in the DMPK gene, consistent with a diagnosis of Myotonic dystrophy I, in this patient. This was subsequently confirmed by complementary PCR testing. Additional Southern blotting has been performed for more accurate sizing of the repeat region, which indicated the size of the DMPK repeat expansion is approximately 1400-1450 CTG repeats in this patient.

Key findings summary with disease and variant information. A maternally-inherited heterozygous pathogenic repeat expansion in *DMPK* was detected.

1 // 4

2450 Holcombe Blvd, Grand Blvd, Receiving Dock Houston, TX 77021-2024 T 1.800.411.4363 F 1.800.434.9850 baylorgenetics.com