

DATE:	14 November 2023
TO:	All Zones
FROM:	Molecular Genetics Laboratory (MGL) North
RE:	Updates to Cardiomyopathy and Arrhythmia Gene Panels

PLEASE POST OR DISTRIBUTE AS WIDELY AS APPROPRIATE

Key Message

- Molecular Genetics Laboratory (MGL) North has updated the cardiomyopathy and arrhythmia gene panels based on current scientific evidence. This change applies to samples analyzed in the laboratory after November 22, 2023.

Changes have been made to following gene panels:

Gene Panel	Genes added	Genes removed
Arrhythmogenic Right Ventricular Cardiomyopathy panel	<i>MYBPC3, MYL3</i>	<i>BAG3, RYR2</i>
Dilated Cardiomyopathy panel	<i>CTF1, GATAD1, JPH2, MYL2, MYPN, TBX20</i>	<i>JUP, LAMP2, RAF1, TMEM43, TMPO, TTR</i>
Hypertrophic Cardiomyopathy	<i>ALPK3, CALR3, KLF10, KRAS, MYH6, MYPN, NEXN, NRAS, PDLIM3, RYR2, SHOC2, SOS1, TRIM63, TTN, VCL</i>	<i>HRAS, TCAP</i>
Pan Cardiomyopathy panel	<i>ALPK3, TBX20, TRIM63</i>	<i>MIB1, MURC, MYLK2, MYOZ2, NPPA, TMPO</i>
Catecholaminergic Polymorphic Ventricular Tachycardia panel	None	<i>ANK2, KCNJ2, LMNA</i>
Long QT Syndrome panel	None	<i>AKAP9, ANK2, KCNE2</i>
Pan Arrhythmia panel	<i>LMNA, NKX2-5</i>	<i>AKAP9, ANK2, CACNB2, HCN4, KCND3, KCNE2, RANGRF, SCN1B, SCN2B, SCN3B, SCN4B, SLMAP, SNTA1, TRPM4</i>
Comprehensive Cardiac panel	<i>ALPK3, TBX20, TRIM63</i>	<i>AKAP9, ANK2, CACNB2, HCN4, KCND3, KCNE2, MIB1, MURC, MYLK2, MYOZ2, NPPA, RANGRF, SCN1B, SCN2B, SCN3B, SCN4B, SLMAP, SNTA1, TMPO, TRPM4</i>

No changes were made to the Brugada Syndrome panel.



How this will impact you

- Removal of several genes with disputed or refuted evidence for these cardiac conditions will reduce the number of variants of uncertain significance reported. The addition of genes with limited, moderate or strong evidence will slightly improve the detection rates.

Action Required

- Refer to the test directory for a current list of genes on each panel: [APL Test Directory](#)
- A small number of genes have been added to the cardiomyopathy panels. The impact on detection rate of these changes is predicted to be minimal. Retesting of patients will only be approved for patients with a high suspicion of cardiomyopathy (i.e. strong family history). If repeat testing is indicated, a new blood sample is NOT required. Please submit a paper copy of the Cardiac, Connective Tissue and Vascular NGS Requisition Genetics requisition ([Molecular Genetics Laboratory Cardiac, Connective Tissue and Vascular NGS Requisition](#)) to MGL North with the following:
 - Test order
 - Reason for updated testing
 - A statement that testing was previously performed prior to November 22, 2023 and updated testing is required.

Effective November 22, 2023

Questions/Concerns

- G&G North (Edmonton) MGL Genetic Counsellors at 780-407-1015

Approved by

- Dr. Dennis Bulman, Medical/Scientific Director, Genetics & Genomics, APL
- Dr. Carolyn O'Hara, Chief Medical Laboratory Officer (Interim), APL

Effective September 1, 2023, APL has become the sole provider of all public lab services in Alberta. As a result, community lab services formally provided by DynaLIFE Medical Labs will become the responsibility of Alberta Precision Labs (APL). This change impacts all zones.