ALBERTA PRECISION LABORATORIES

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Laboratory Bulletin

Date: **May 4, 2020**
To: **All Zones**
From: **Molecular Pathology Laboratory – University of Alberta Hospital**
Re: **Next-Generation Sequencing *BRCA*1/2 Tumor Molecular Panel**

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Key Message:

- On May 4, 2020, the Molecular Pathology Laboratories located in Edmonton and Calgary will begin to offer a next-generation sequencing (NGS) *BRCA1/2* Tumor Molecular Panel. For patients in Alberta, this test will replace the test currently sent out to the University Health Network (UHN) in Toronto.

Why this is important:

- Platinum-sensitive high-grade serous carcinomas of ovarian, fallopian tube or peritoneal origin with either a somatic or germline *BRCA*1 or *BRCA*2 gene mutation benefit from the treatment with PARP-inhibitor (Olaparib) after platinum-based chemotherapy resulting in longer disease-free survival.
- This test is indicated for all patients with a new diagnosis of müllerian high-grade serous carcinomas, and patients with previous diagnosis of müllerian high-grade serous carcinomas who were previously tested negative for germline *BRCA1/2* mutation or *BRCA1/2* mutation status unknown. It is recommended that the pathologists order *BRCA1/2* Tumor Molecular Panel on all newly diagnosed müllerian high-grade serous carcinomas after confirmation of the histopathological diagnosis by local expert pathologists. The gynecologic-oncologists and medical oncologists will order the test on pre-existing cases when clinically indicated.
- The tumor *BRCA*1 and *BRCA*2 assay is based on Next-Generation Sequencing using the Thermo Fisher Oncomine *BRCA* Assay kit that provides 100% exonic coverage, including flanking intronic sequences. Test sensitivity is 98% for detection of single nucleotide variants (SNV), small insertions/deletions, exonic deletions/insertions and copy number alterations (CNA). Only Tier I and Tier II variants with more than 5% variant allelic frequency (VAF) are reported. For somatic variants detection, this assay requires a minimum 10% tumor cellularity for SNV and small insertions/deletions, and 50% tumor cellularity for exonic deletions/insertions and CNA.
- The next-generation sequencing *BRCA*1/2 Tumor Molecular Panel is limited to tumor tissue and therefore this test is unable to distinguish between somatic (acquired) and germline (inherited) variants.

Action Required:

- Please refer to the Alberta Precision Laboratories (APL) Test Directory for additional test information at: https://www.albertahealthservices.ca/lab/Page3217.aspx
- For sites on Connect Care, select *BRCA*1/2 Tumor Molecular Panel as the test orderable.
- For sites not on Connect Care, please indicate *BRCA*1/2 Tumor Molecular Panel on the current Molecular Pathology requisitions.

Specimen Requirements:

- For paraffin embedded tissue sections:
  - Tissue should be fixed in formalin and not exposed to decalcification solution.
  - The paraffin block should contain at least 3 mm area of tumor.
  - The fraction of tumor cells in the tissue section (tumor cellularity) should be at least 10%.
- For cell blocks prepared from cytology specimens:
  - Cell block should be fixed in formalin and not exposed to decalcification solution.
  - Cell block should contain at least 300 cells.
  - The fraction of tumor cells in the cell block (tumor cellularity) should be at least 10%.

Standard Turnaround Time:

- 4 weeks

Inquiries and feedback may be directed to:

- Dr. Soufiane El Hallani, Molecular Pathologist, Molecular Pathology Lab, (780) 407-2717
- Dr. Cheryl Mather, Clinical Director, Molecular Pathology Lab, (780) 407-2717 or (780) 407-2758
- Dr. Iyare Izevbaye, Research Director, Molecular Pathology Lab, (780) 407-8025
- Dr. Remegio Maglantay, Molecular Pathologist, Molecular Pathology Lab, (780) 407-2717
- Dr. Adrian Box, Molecular Pathologist, Molecular Pathology Lab, (403) 944-6686

This bulletin has been reviewed and approved by:

Dr. Imran Mirza, Provincial Medical Lead – Molecular Pathology, Alberta Precision Laboratories
Dr. Carolyn O'Hara, Interim Chief Medical Laboratory Officer, Alberta Precision Laboratories