Uncovering Risk to Optimize Treatment, with a Gynecologic Focus
Genetic Testing Options to Provide Personalized Care

With a focus on women's health, ASpiRA LABS® offers both comprehensive and targeted genetic testing options for Hereditary Breast and Ovarian cancer to help guide medical management for your patient.

Red flags for hereditary cancers can include early onset of cancer before age 50, more than one primary cancer in a single person, or cancers within a family.

Transforming Women’s Health with an Innovative Solution

New Approach in the Genetic Testing Market

- Over 10 years of expertise in Ovarian Cancer Risk assessment and Pelvic mass management
- Cutting edge bioinformatics for analysis and data management
- Experienced in genetic reporting and quality focused patient care
- Laboratory Research focused on innovation and discovery
ASPiRA GenetiX leverages whole gene sequencing technology (coding regions and adjacent intronic/splice regions) with >99% bases covered by at least 20x.

**Highlights of Coverage & Analysis**

ASPiRA GenetiX leverages whole gene sequencing technology (coding regions and adjacent intronic/splice regions) with >99% bases covered by at least 20x.

### High Quality Genetic Testing

- **Coverage**
  - 99.9% at 50x

- **Sample Requirements**
  - Blood (1 - 4mL EDTA, lavender top tube)
  - Saliva

- **Turn around time**
  - 2 - 3 weeks

- **Deletion & Duplication**
  - ≥ 1 exon resolution

### Superior to technology to analyze complex regions

- Typical coverage for coding sequences: 99% at > 50x
- Deletion and duplication analysis with single exon resolution for all genes
- **BRCA2**: Portuguese Founder Mutation
- **MSH2**: Boland Inversion (exon 1-7 inversion)
- **PTEN**: Promoter region
- **TP53**: Promoter region
- **EPCAM** promoter del/dup detection
- **PMS2**: Analysis includes exons 1-5 and 12-15

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**Lifetime risk of Ovarian Cancer increases from 1.3% to 44% when a BRCA1 mutation is identified.**

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* Full gene sequencing and deletion/duplication, including detection of MSH2 inversion, BRCA2 Alu variant, and PMS2 (including exons 1-5 and 12.15), as well as sequencing of noncoding regions for selected genes.

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## ASPiRA GenetiX Testing Options

### BRCA1 & BRCA2

**Genes Tested:**
- BRCA1, BRCA2

**Patient Considerations for Testing:**
BRCA1 & BRCA2 are well-studied genes that account for 5-15% of hereditary breast or ovarian cancer cases (includes BRCA2 Portuguese Mutation).

### Targeted Breast & Ovarian 24 Gene Panel

**Genes Tested:**
- ATM, BARD1, BRCA1, BRCA2, BRI1, CDH1, CHEK2, DICER, EPCAM, MLH1, MSH2, (mono/biallelic), MSH6, MRE11A, NBN, NF1, PALB2, PMS2, PTEN, RAD50, RAD51C, RAD51D, SMARCA4, STK11, TP53

**Patient Considerations for Testing:**
Including BRCA1 & BRCA2, the genes in the targeted panel include elevated, moderate to high risk genes with management treatment plans as recommended by NCCN*, including syndromic associated genes with elevated risk of HBOC (such as Lynch Syndrome). Patients with a family history of breast and/or ovarian cancer without a known family history of BRCA1 or BRCA2 mutations may benefit from this option.

*Jan. 2019 NCCN ovarian cancer guidelines

### BRCA1 & BRCA2 Reflex to Targeted Breast and Ovarian 24

**Genes Tested:**
- BRCA1, BRCA2, and if negative for Pathogenic or Likely-Pathogenic variants, reflex to Targeted Breast and Ovarian 24

**Patient Considerations for Testing:**
In patients without variants identified in BRCA1 & BRCA2, the genes included in the 24 gene targeted panel will be analyzed to uncover potential genetic risk.

### BRCA1 & BRCA2 Reflex to Comprehensive Breast, Ovarian and Endometrial 34

**Genes Tested:**
- BRCA1, BRCA2, and if negative for Pathogenic or Likely-Pathogenic variants, reflex to Comprehensive Breast, Ovarian and Endometrial 34

**Patient Considerations for Testing:**
In patients without variants identified in BRCA1 & BRCA2, the genes included in the comprehensive 34 gene panel will be analyzed to uncover potential genetic risk with additional genes associated with female reproductive cancers.

### Comprehensive Breast, Ovarian and Endometrial 34 Gene Panel

**Genes Tested:**
- ATM, BARD1, BRCA1, BRCA2, BRI1, CDH1, CHEK2, DICER, EPCAM, FANCC, FANCM, MLH1, MRE11(A), MSH2, (mono/biallelic), MSH6, MUTYH, NBN, NF1, NTHL1 (mono/biallelic), PALB2, POLE, POLD1, PMS2, PTEN, RAD50, RAD51C, RAD51D, SDHB, SDHD, SMARCA4, STK11, TP53, WRN, XRCC2

**Patient Considerations for Testing:**
Including BRCA1 & BRCA2, the genes in the comprehensive panel include genes with strong associations with hereditary breast and ovarian cancer as well as newer evidence genes and some genes associated with uterine & endometrial cancer risk. Patients with a family history of breast, ovarian or endometrial cancer without a known family history of and/or ovarian cancer without a known family history of BRCA1 or BRCA2 mutations may benefit from this option.
4 Reasons Why Your Patient Should be Tested

1. Establish or confirm a diagnosis
2. Identify risks for women’s reproductive cancer health conditions
3. Help inform the management plan for patients with a positive test result
4. Determine if close family members (children, siblings, and/or parents) may also be at risk

In addition to 19-28% endometrial cancer risk, women with germline mutations in the PTEN gene have up to a 50% risk of breast cancer and 3–10% risk of thyroid cancer.

Gynecologic Cancer Predisposition Syndromes Covered

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<th>BRCA1/BRCA2</th>
<th>Lynch Syndrome (MLH1, MSH2, MSH6, PMS2, EPCAM)</th>
<th>Peutz-Jeghers Syndrome (STK11)</th>
<th>Li-Fraumeni Syndrome (TP53)</th>
<th>Cowden Syndrome (PTEN)</th>
<th>New Evidence Genes (FANCC, MRE11, NFI, NTBL1)</th>
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Guideline Support for Hereditary Breast and Ovarian Cancer Genetics

Clinical genetic testing for gene mutations allows more precise identification of those women who are at an increased risk of inherited breast cancer and ovarian cancer.¹

Evaluation of the likelihood of a patient having a gynecologic cancer predisposition syndromes enables physicians to provide individualized assessments of cancer risk.²

ASPiRA LABS® offers Pre and Post Test Genetic Counseling

Personalized Genetic expertise for your patients

PRE-TEST CONSULTATION
Talk with a genetic expert by phone or video once your test is ordered. We review personal and family health history, answer any questions you may have, and determine if you meet eligibility for test authorization.

RESULTS CONSULTATION
Review test results with a genetic counselor or medical geneticist. During this phone or video session, you are provided an opportunity to discuss the results of the test and their implications.

1. ACOG Practice Bulletin Number 182, September 2017