GENE LIST

Panel: Colorectal23

<table>
<thead>
<tr>
<th>APC</th>
<th>BLM</th>
<th>CHEK2</th>
<th>GREM1</th>
<th>MSH3</th>
<th>NTHL1</th>
<th>POLE</th>
<th>STK11</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM</td>
<td>BMPR1A</td>
<td>EPCAM</td>
<td>MLH1</td>
<td>MSH6</td>
<td>PMS2</td>
<td>PTEN</td>
<td>TP53</td>
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<tr>
<td>AXIN2</td>
<td>CDH1</td>
<td>GALNT12</td>
<td>MSH2</td>
<td>MUTYH</td>
<td>POLD1</td>
<td>SMAD4</td>
<td></td>
</tr>
</tbody>
</table>

^ Deletion/duplication and rearrangement analyses cannot be performed for indicated genes on a buccal specimen.

Approximately 5-10% of colorectal cancers are hereditary, and the majority are caused by a set of high-risk genes.1-3

Colorectal23 is a genetic test that looks for changes in 23 genes known to moderately or highly increase the risk for colorectal cancer.4-20

Hereditary Causes of Colorectal Cancer

Lynch syndrome
MLH1, MSH2, MSH6, PMS2, EPCAM

Polyposis syndromes (risks for polyps and colorectal cancer)
APC Familial adenomatous polyposis (FAP), attenuated FAP
MUTYH MUTYH-associated polyposis (recessive)
BMPR1A, SMAD4 Juvenile polyposis syndrome
PTEN Cowden syndrome
STK11 Peutz-Jeghers syndrome

Rare genes* (risks for colorectal cancer, may also include risks for polyps)
ATM Ataxia telangiectasia carriers
AXIN2 Oligodontia-colorectal cancer syndrome
BLM Bloom syndrome
CDH1 Hereditary diffuse gastric cancer
CHEK2
GALNT12
GREM1 Hereditary mixed polyposis syndrome
MSH3 MSH3-associated polyposis
NTHL1 NTHL1-associated polyposis
POLD1, POLE Polymerase proofreading-associated polyposis
TP53 Li-Fraumeni syndrome

*Rare genes frequently have yet to be defined levels of cancer risk

References available on the Human Genetics Laboratory website:
www.unmc.edu/mmi/geneticslab/resources/reference-articles.html