Oncomine Cancer Panel
Patient Test Report

SUBJECT INFORMATION

Pre-Screening Subject No.: __________________________

Subject Initials: ___________ [first/middle/last]

Date of Birth: _________ (dd/mmm/yyyy)

Gender: □ M □ F

SITE INFORMATION

Investigator Name: __________________________

Date of Shipment: _______ (dd/mmm/yyyy)

Phone: ______________________ Fax: _____________________

SPECIMEN INFORMATION

Accession No.: __________________________ Date Specimen Received: __________ Date Reported: __________

TEST RESULTS

In this cancer type
In other cancer type
In this cancer type and other cancer types
Contraindicated
No evidence available

**Mutations**

<table>
<thead>
<tr>
<th>Gene</th>
<th>Amino Acid Change</th>
<th>Geneotype</th>
<th>Classification</th>
<th>Current FDA Information</th>
<th>NCCN Guideline</th>
<th>Number of therapies with clinical trials in this therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRAS</td>
<td>p.Ala146Thr</td>
<td>c.436G&gt;A</td>
<td>Gain of Function</td>
<td>×</td>
<td>☑ 2</td>
<td>15</td>
</tr>
<tr>
<td>KIT</td>
<td>p.Met541Leu</td>
<td>c.1612A&gt;C</td>
<td>Gain of Function</td>
<td>×</td>
<td>☑ 1</td>
<td>1</td>
</tr>
<tr>
<td>MET</td>
<td>p.Asn375Ser</td>
<td>c.1124A&gt;G</td>
<td>Gain of Function</td>
<td>×</td>
<td>×</td>
<td>3</td>
</tr>
<tr>
<td>TP53</td>
<td>p.Arg234Cys</td>
<td>c.700C&gt;T</td>
<td>Loss of Function</td>
<td>×</td>
<td>×</td>
<td>1</td>
</tr>
<tr>
<td>TP53</td>
<td>p.Pro33Arg</td>
<td>c.98C&gt;G</td>
<td>Loss of Function</td>
<td>×</td>
<td>×</td>
<td>1</td>
</tr>
</tbody>
</table>

**Copy Number Variations**

<table>
<thead>
<tr>
<th>Gene</th>
<th>Type</th>
<th>Classification</th>
<th>Current FDA Information</th>
<th>NCCN Guideline</th>
<th>Number of therapies with clinical trials in this therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTEN</td>
<td>Deletion</td>
<td>Loss of Function</td>
<td>×</td>
<td>×</td>
<td>5</td>
</tr>
</tbody>
</table>

There is no current FDA information, NCCN guidelines, or open clinical trials for the following detected copy number variations: RPS6KB1 Amplification, FLT3 Amplification, ACVRL1 Amplification, PTCH1 Deletion, CDKN2A Deletion, MYC Amplification, TERT Amplification, TET2 Deletion, VHL Deletion.

Other mutations, copy number variations, or fusions of that were detected but not classified by the Oncomine Knowledgebase as a genetic driver of cancer are not listed in the results section of this report. All other genes listed in the Test Description that do not appear in the results section either did not have a detected variant or the variant is not classified as a genetic driver for cancer.

Laboratory director: John E. Glassco, MD, FCAP

CLIA number: 05D1067109

Life Technologies Clinical Services Lab tests are intended for clinical use. They were developed and their performance characteristics determined by the Life Technologies Clinical Services Lab, which is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) to perform high complexity testing. The tests have not been cleared or approved by the United States Food and Drug Administration; however, such clearance or approval is not currently required. ©2014 Life Technologies Corporation. All rights reserved. The trademarks mentioned herein are the property of Life Technologies Corporation and/or its affiliate(s).
**Published therapies summary**

<table>
<thead>
<tr>
<th>Published therapy</th>
<th>Current FDA information</th>
<th>NCCN Guidelines</th>
<th>Open clinical trials for this cancer type*</th>
</tr>
</thead>
<tbody>
<tr>
<td>cetuximab</td>
<td></td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>panitumumab</td>
<td></td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>panitumumab + chemotherapy</td>
<td></td>
<td></td>
<td>☢ (III)</td>
</tr>
<tr>
<td>regorafenib + FOLFIRI</td>
<td></td>
<td></td>
<td>☢ (III)</td>
</tr>
<tr>
<td>sorafenib + cetuximab</td>
<td></td>
<td></td>
<td>☢ (III)</td>
</tr>
<tr>
<td>binimetinib + panitumumab</td>
<td></td>
<td></td>
<td>☢ (I/II)</td>
</tr>
<tr>
<td>BVD-523</td>
<td></td>
<td></td>
<td>☢ (I/II)</td>
</tr>
<tr>
<td>navitoclax + trametinib</td>
<td></td>
<td></td>
<td>☢ (I/II)</td>
</tr>
<tr>
<td>palbociclib</td>
<td></td>
<td></td>
<td>☢ (I/II)</td>
</tr>
<tr>
<td>binimetinib + BYL-719</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>BMS-906024</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>buparlisib + irinotecan</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>cobimetinib + RG-7446</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>MEHD-7945A + cobimetinib</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>PD-0325901 + PF-04691502, PF-04691502 + irinotecan, PD-0325901 + irinotecan</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>trametinib + uprosertib</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
<tr>
<td>vorinostat + hydroxychloroquine</td>
<td></td>
<td></td>
<td>☢ (I)</td>
</tr>
</tbody>
</table>

* Most advanced phase is shown and multiple clinical trials may be available. See Open clinical trials section in the pages to follow.

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Evidence and prevalence summary by class

A class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to unique citations [Current FDA information, NCCN Guidelines, or clinical trial eligibility criteria]. An estimate of prevalence of the gene variant in the cancer type is provided.

<table>
<thead>
<tr>
<th>Class</th>
<th>Evidence items</th>
<th>This cancer type</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRAS mutation status</td>
<td>2</td>
<td>35.5%</td>
</tr>
<tr>
<td>➔ KRAS mutation</td>
<td>15</td>
<td>35.5%</td>
</tr>
<tr>
<td>➔ KRAS non-G12 mutation</td>
<td>1</td>
<td>8.1%</td>
</tr>
<tr>
<td>➔ KRAS A146 mutation</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

* Source: Oncomine® Cancer Research Panel Knowledgebase [Thermo Fisher Scientific, Ann Arbor, MI]

Published therapies detail

- In this cancer type
- In other cancer types
- In this cancer type and other cancer types
- Contraindicated

NCCN Guidelines

NCCN Guidelines information is current as of 2014-07-01. For the most up-to-date information, go to www.nccn.org.

- **cetuximab**
  - **Cancer type:** Colorectal Cancer
  - **Class:** KRAS mutation
  - **Contraindication:**
    Based upon lower-level evidence, there is uniform NCCN consensus (Category 2A) that patients with any known KRAS or NRAS mutation should not be treated with either cetuximab or panitumumab. (COL-A 4 of 5, MS-34)
  - **Reference:**
    NCCN Guideline Version 3.2014 Colon Cancer

- **cetuximab**
  - **Cancer type:** Colorectal Cancer
  - **Class:** KRAS mutation
  - **Contraindication:**
    Based upon lower-level evidence, there is uniform NCCN consensus (Category 2A) that patients with any known KRAS or NRAS mutation should not be treated with either cetuximab or panitumumab. (REC-A 5 of 6, MS-29 and MS-30)
  - **Reference:**
    NCCN Guideline Version 3.2014 Rectal Cancer

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Oncomine® Cancer Research Panel Knowledgebase v1.1
## KRAS A146 mutation in Colorectal Cancer

[Panitumumab]

**Cancer type:** Colorectal Cancer  
**Class:** KRAS mutation  

**Contraindication:**  
Based upon lower-level evidence, there is uniform NCCN consensus (Category 2A) that patients with any known KRAS or NRAS mutation should not be treated with either cetuximab or panitumumab. (COL-A 4 of 5, MS-34)  

**Reference:**  
NCCN Guideline Version 3.2014 Colon Cancer

---

**Open clinical trials**

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

**NCT01312857:** A Randomized Phase II Study of Hepatic Arterial Infusion With Intravenous Irinotecan, 5FU and Leucovorin With or Without Panitumumab, in Patients With Wild Type KRAS Who Have Resected Hepatic Metastases From Colorectal Cancer  
**Class:** KRAS non-G12 mutation  

**Population segment(s):**  
First line, Liver mets, Second line or greater/Refractory/Relapsed, Stage IV  
**Phase:**  
II  
**Published therapy:**  
panitumumab + chemotherapy  
**Location(s):**  
NJ, NY  
**Contact:**  
Multiple contacts: See www.clinicaltrials.gov for complete list of contacts.

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

**NCT01298570:** Multi-Center, Randomized, Placebo-Controlled Phase II Study of Regorafenib in Combination With FOLFIRI Versus Placebo With FOLFIRI as Second-Line Therapy in Patients With Metastatic Colorectal Cancer

**Class:** KRAS mutation

**Population segment(s):**
Second line or greater/Refractory/Relapsed, Stage IV

**Phase:** II

**Published therapy:**
regorafenib + FOLFIRI

**Location(s):**
CO, FL, GA, IN, NY, NC, OH, VA, WA

**Contact:**
Multiple contacts: See www.clinicaltrials.gov for complete list of contacts.

**NCT00326495:** A Phase II Study of BAY 43-9006 (Sorafenib) in Combination With Cetuximab (Erbitux) in EGFR Expressing Metastatic Colorectal Cancer (CRC)

**Class:** KRAS mutation

**Population segment(s):**
Second line or greater/Refractory/Relapsed, Stage IV

**Phase:** II

**Published therapy:**
sorafenib + cetuximab

**Location(s):**
MD

**Contact:**
Multiple contacts: See www.clinicaltrials.gov for complete list of contacts.

**NCT02079740:** An Open Label, Two-Part, Phase Ib/II Study to Investigate the Safety, Pharmacokinetics, Pharmacodynamics, and Clinical Activity of the MEK Inhibitor Trametinib and the BCL2-Family Inhibitor Navitoclax (ABT-263) in Combination in Subjects With KRAS Mutation-Positive Advanced Solid Tumors

**Class:** KRAS A146 mutation

**Population segment(s):**
Second line or greater/Refractory/Relapsed, Stage III, Stage IV

**Phase:** I/II

**Published therapy:**
navitoclax + trametinib

**Location(s):**
MA

**Contact:**
Multiple contacts: See www.clinicaltrials.gov for complete list of contacts.

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

<table>
<thead>
<tr>
<th>NCT01927341: A Phase Ib/II, Open-label, Multi-center, Dose Escalation Study of MEK162 in Combination With Panitumumab in Adult Patients With Mutant RAS or Wild-type RAS Metastatic Colorectal Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population segment(s):</strong></td>
</tr>
<tr>
<td>Second line or greater/Refractory/Relapsed, Stage IV</td>
</tr>
<tr>
<td><strong>Phase:</strong></td>
</tr>
<tr>
<td>I/II</td>
</tr>
<tr>
<td><strong>Published therapy:</strong></td>
</tr>
<tr>
<td>binimetinib + panitumumab</td>
</tr>
<tr>
<td><strong>Location(s):</strong></td>
</tr>
<tr>
<td>CA</td>
</tr>
<tr>
<td><strong>Contact:</strong></td>
</tr>
<tr>
<td>Novartis Pharmaceuticals [1-888-669-6682]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NCT01781429: Phase I/II Dose-Escalation, Safety, Pharmacokinetic and Pharmacodynamic Study of BVD-523, an ERK 1/2 Inhibitor, in Patients With Advanced Malignancies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population segment(s):</strong></td>
</tr>
<tr>
<td>Second line or greater/Refractory/Relapsed, Stage III, Stage IV</td>
</tr>
<tr>
<td><strong>Phase:</strong></td>
</tr>
<tr>
<td>I/II</td>
</tr>
<tr>
<td><strong>Published therapy:</strong></td>
</tr>
<tr>
<td>BVD-523</td>
</tr>
<tr>
<td><strong>Location(s):</strong></td>
</tr>
<tr>
<td>FL, TN</td>
</tr>
<tr>
<td><strong>Contact:</strong></td>
</tr>
<tr>
<td>Multiple contacts: See <a href="http://www.clinicaltrials.gov">www.clinicaltrials.gov</a> for complete list of contacts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NCT02022982: Phase I/II Study of the CDK4/6 Inhibitor Palbociclib (PD-0332991) in Combination With the MEK Inhibitor PD-0325901 for Patients With KRAS Mutant Non-Small Cell Lung Cancer and Other Solid Tumors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population segment(s):</strong></td>
</tr>
<tr>
<td>Second line or greater/Refractory/Relapsed, Stage III, Stage IV</td>
</tr>
<tr>
<td><strong>Phase:</strong></td>
</tr>
<tr>
<td>I/II</td>
</tr>
<tr>
<td><strong>Published therapy:</strong></td>
</tr>
<tr>
<td>palbociclib</td>
</tr>
<tr>
<td><strong>Location(s):</strong></td>
</tr>
<tr>
<td>MA</td>
</tr>
<tr>
<td><strong>Contact:</strong></td>
</tr>
<tr>
<td>Multiple contacts: See <a href="http://www.clinicaltrials.gov">www.clinicaltrials.gov</a> for complete list of contacts.</td>
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</tbody>
</table>

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

**NCT01449058**: A Phase Ib Open-label, Multi-center, Dose Escalation and Expansion Study of Orally Administered MEK162 Plus BYL719 in Adult Patients With Selected Advanced Solid Tumors

**Class**: KRAS mutation

**Population segment(s)**: HER2 negative, High risk, Second line or greater/Refractory/Relapsed, Stage II, Stage III, Stage IV, Triple receptor negative

**Phase**: I

**Published therapy**: binimetinib + BYL-719

**Location(s)**: CA, IL, MA, TX, UT

**Contact**: Novartis Pharmaceuticals [1-862-778-8300]

**NCT01304602**: A Phase I Trial of Irinotecan and BKM120 in Previously Treated Advanced Colorectal Cancer

**Class**: KRAS mutation

**Population segment(s)**: Second line or greater/Refractory/Relapsed, Stage III, Stage IV

**Phase**: I

**Published therapy**: buparlisib + irinotecan

**Location(s)**: KS

**Contact**: Stacey Purinton [913-588-2545; spurinton@kumc.edu]
### NCT01988896: A Phase Ib Study of the Safety and Pharmacology of MPDL3280A Administered with Cobimetinib in Patients with Locally Advanced or Metastatic Solid Tumors

**Class:** KRAS mutation

**Population segment(s):**
Second line or greater/Refractory/Relapsed, Stage III, Stage IV

**Phase:**
I

**Published therapy:**
cobimetinib + RG-7446

**Location(s):**
NY, NC, TN

**Contact:**
Reference Study ID Number: GP28363 [888-662-6728; global.rochegenentechtrials@roche.com]

### NCT01986166: A Phase Ib, Open-Label, Dose-Escalation Study of The Safety, Tolerability, and Pharmacokinetics Of MEHD7945A and GDC-0973 In Patients with Locally Advanced or Metastatic Solid Tumors with Mutant Kras

**Class:** KRAS mutation

**Population segment(s):**
Second line or greater/Refractory/Relapsed, Stage III, Stage IV

**Phase:**
I

**Published therapy:**
MEHD-7945A + cobimetinib

**Location(s):**
CA, CO, MI, TN, TX

**Contact:**
Reference Study ID Number: GO29030 [888-662-6728; global.rochegenentechtrials@roche.com]
### Open clinical trials [cont’d]

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

<table>
<thead>
<tr>
<th>NCT01347866: A Multi-Arm Phase I Dose Escalation Study Of The Safety, Pharmacokinetics, And Pharmacodynamics Of The Dual PI3K/mTOR Inhibitors PF-04691502 And PF-05212384 In Combination With Experimental Or Approved Anticancer Agents In Patients With Advanced Cancer</th>
</tr>
</thead>
</table>
| **Class:**  
KRAS mutation |
| **Population segment(s):**  
Second line or greater/Refractory/Relapsed, Stage II, Stage III, Stage IV |
| **Phase:**  
I |
| **Published therapy:**  
PD-0325901 + PF-04691502, PF-04691502 + irinotecan, PD-0325901 + irinotecan |
| **Location(s):**  
CA, CO, SC |
| **Contact:**  
Pfizer CT.gov Call Center [1-800-718-1021] |

<table>
<thead>
<tr>
<th>NCT01138085: A Phase I Dose Escalation Open-Label Safety, Pharmacokinetic and Pharmacodynamic Study to Determine the Recommended Phase II Dose of GSK1120212 Dosed in Combination With GSK2141795</th>
</tr>
</thead>
</table>
| **Class:**  
KRAS mutation |
| **Population segment(s):**  
HER2 negative, Recurrent, Second line or greater/Refractory/Relapsed, Stage III, Stage IV, Triple receptor negative |
| **Phase:**  
I |
| **Published therapy:**  
trametinib + uprosertib |
| **Location(s):**  
CO, MA, NJ, TN, TX, UT |
| **Contact:**  
US GSK Clinical Trials Call Center [877-379-3718; GSKClinicalSupportHD@gsk.com] |

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

**NCT01292655:** Phase I Ascending Multiple-Dose Study to Evaluate the Safety, Pharmacokinetics (PK) and Pharmacodynamics (PD) of BMS-906024 in Subjects With Advanced Solid Tumors

**Population segment(s):**
HER2 negative, Second line or greater/Refractory/Relapsed, Stage III, Stage IV, Triple receptor negative

**Phase:**
I

**Published therapy:**
BMS-906024

**Location(s):**
CA, MI, MS, TX

**Contact:**
Multiple contacts: See www.clinicaltrials.gov for complete list of contacts.

**NCT01023737:** Inhibition of Autophagy in Solid Tumors: A Phase I Pharmacokinetic and Pharmacodynamic Study of Hydroxychloroquine in Combination With the HDAC Inhibitor Vorinostat for the Treatment of Patients With Advanced Solid Tumors With an Expansion Study in Advanced Renal and Colorectal Cancer.

**Population segment(s):**
Second line or greater/Refractory/Relapsed, Stage III, Stage IV

**Phase:**
I

**Published therapy:**
vorinostat + hydroxychloroquine

**Location(s):**
TX

**Contact:**
Epp Goodwin [210-450-5798; onctrial@idd.org]
Published therapies summary

- In this cancer type
- In other cancer type
- In this cancer type and other cancer types
- Contraindicated
- No evidence available

Clinical trial phase

<table>
<thead>
<tr>
<th>Published therapy</th>
<th>Current FDA information</th>
<th>NCCN Guidelines</th>
<th>Open clinical trials for this cancer type*</th>
</tr>
</thead>
<tbody>
<tr>
<td>imatinib mesylate</td>
<td>X</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>imatinib mesylate + ipilimumab</td>
<td>X</td>
<td>X</td>
<td>[I]</td>
</tr>
</tbody>
</table>

* Most advanced phase is shown and multiple clinical trials may be available. See Open clinical trials section in the pages to follow.

Evidence and prevalence summary by class

A class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to unique citations (Current FDA information, NCCN Guidelines, or clinical trial eligibility criteria). An estimate of prevalence of the gene variant in the cancer type is provided.

<table>
<thead>
<tr>
<th>Class</th>
<th>Evidence items</th>
<th>This cancer type</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIT mutation</td>
<td>2</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Published therapies detail

- In this cancer type
- In other cancer types
- In this cancer type and other cancer types
- Contraindicated

NCCN Guidelines

NCCN Guidelines information is current as of 2014-07-01. For the most up-to-date information, go to www.nccn.org.

- **Imatinib mesylate**
  - **Cancer type:** Melanoma
  - **Class:** KIT mutation

  **NCCN Recommendation category:**
  - 2A

  **Population segment (Line of therapy):**
  - Advanced or metastatic melanoma [Not specified]

  **Reference:**
  - NCCN Guideline Version 4.2014 Melanoma

Open clinical trials

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

- **NCT01738139:** A Phase I Trial of Ipilimumab (Immunotherapy) and Imatinib Mesylate (c-Kit Inhibitor) in Patients With Advanced Malignancies
  - **Class:** KIT mutation

  **Population segment(s):**
  - Metastatic, Second line or greater/Refractory/Relapsed, Stage III, Stage IV, Unresectable

  **Phase:**
  - I

  **Published therapy:**
  - Imatinib mesylate + ipilimumab

  **Location(s):**
  - TX

  **Contact:**
  - David S. Hong [713-563-1930]

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Published therapies summary

<table>
<thead>
<tr>
<th>Published therapy</th>
<th>Current FDA information</th>
<th>NCCN Guidelines</th>
<th>Open clinical trials for this cancer type*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMG-337</td>
<td></td>
<td></td>
<td>(I)</td>
</tr>
<tr>
<td>crizotinib + dasatinib</td>
<td></td>
<td></td>
<td>(I)</td>
</tr>
<tr>
<td>crizotinib + pazopanib, crizotinib + pemetrexed, crizotinib + pazopanib + pemetrexed</td>
<td></td>
<td></td>
<td>(I)</td>
</tr>
</tbody>
</table>

* Most advanced phase is shown and multiple clinical trials may be available. See Open clinical trials section in the pages to follow.

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A class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to unique citations (Current FDA information, NCCN Guidelines, or clinical trial eligibility criteria). An estimate of prevalence of the gene variant in the cancer type is provided.

<table>
<thead>
<tr>
<th>Class</th>
<th>Evidence Items</th>
<th>This cancer type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET positive</td>
<td>0</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>MET mutation</td>
<td>3</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

* Source: Oncomine® Cancer Research Panel Knowledgebase [Thermo Fisher Scientific, Ann Arbor, MI]

Disclaimer: The data presented here is a result of the curation of published literature, but may not be exhaustive.
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Oncomine® Cancer Research Panel Knowledgebase v1.1
## Open clinical trials

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

<table>
<thead>
<tr>
<th>NCT01253707: A Phase I, First-In-Human Study Evaluating the Safety, Tolerability, and Pharmacokinetics of AMG 337 in Adult Subjects With Advanced Solid Tumors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong> MET mutation</td>
</tr>
<tr>
<td><strong>Population segment(s):</strong> Hormone refractory, Second line or greater/Refractory/Relapsed, Stage III, Stage IV</td>
</tr>
<tr>
<td><strong>Phase:</strong> I</td>
</tr>
<tr>
<td><strong>Published therapy:</strong> AMG-337</td>
</tr>
<tr>
<td><strong>Location(s):</strong> CA, IL, MA, MI, OH, TN, TX</td>
</tr>
<tr>
<td><strong>Contact:</strong> Amgen Call Center [866-572-6436]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NCT01744652: A Phase I Trial of Dasatinib in Combination With Crizotinib in Patients With Advanced Malignancies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong> MET mutation</td>
</tr>
<tr>
<td><strong>Population segment(s):</strong> Aggressive, Classical, Indolent, Nodular lymphocyte-predominant, Second line or greater/Refractory/Relapsed, Stage IV</td>
</tr>
<tr>
<td><strong>Phase:</strong> I</td>
</tr>
<tr>
<td><strong>Published therapy:</strong> crizotinib + dasatinib</td>
</tr>
<tr>
<td><strong>Location(s):</strong> TX</td>
</tr>
<tr>
<td><strong>Contact:</strong> Dr. David S. Hong [713-763-1930]</td>
</tr>
</tbody>
</table>
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

NCT01548144: A Two Steps Phase I Trial of Pazopanib or Pemetrexed in Combination With Crizotinib Followed by the Triplet, Crizotinib Plus Pazopanib Plus Pemetrexed in Patients With Advanced Malignancies

Class: MET mutation

Population segment(s):
Second line or greater/Refractory/Relapsed, Stage IV

Phase:
I

Published therapy:
crizotinib + pazopanib, crizotinib + pemetrexed, crizotinib + pazopanib + pemetrexed

Location(s):
TX

Contact:
Dr Ralph Zinner [713-563-1930, 800-392-1611]
TP53 mutation in Colorectal Cancer

Published therapies summary

- In this cancer type
- In other cancer type
- In this cancer type and other cancer types
- Contraindicated
- No evidence available

<table>
<thead>
<tr>
<th>Published therapy</th>
<th>Current FDA information</th>
<th>NCCN Guidelines</th>
<th>Open clinical trials for this cancer type*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK-8242</td>
<td></td>
<td></td>
<td>[II]</td>
</tr>
</tbody>
</table>

* Most advanced phase is shown and multiple clinical trials may be available. See Open clinical trials section in the pages to follow.

Evidence and prevalence summary by class

A class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to unique citations (Current FDA information, NCCN Guidelines, or clinical trial eligibility criteria). An estimate of prevalence of the gene variant in the cancer type is provided.

<table>
<thead>
<tr>
<th>Class</th>
<th>Evidence items</th>
<th>This cancer type</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP53 mutation</td>
<td>1</td>
<td>70.8%</td>
</tr>
</tbody>
</table>

* Source: Oncomine® Cancer Research Panel Knowledgebase [Thermo Fisher Scientific, Ann Arbor, MI]

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Oncomine® Cancer Research Panel Knowledgebase v1.1
# Published therapies detail

## Open clinical trials

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

<table>
<thead>
<tr>
<th>NCT01463696</th>
<th>A Phase I Study to Evaluate the Safety and Tolerability and Pharmacokinetic/Pharmacodynamics of MK-8242 in Patients With Advanced Solid Tumors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class:</strong></td>
<td>TP53 mutation</td>
</tr>
</tbody>
</table>

**Population segment(s):**
- Locally advanced, Metastatic, Second line or greater/Refractory/Relapsed, Stage III, Stage IV

**Phase:**
- I

**Published therapy:**
- MK-8242

**Location(s):**
- FL, MA, TX

**Contact:**
- Toll Free Number [1-888-577-8839]
Published therapies summary

<table>
<thead>
<tr>
<th>Published therapy</th>
<th>Current FDA information</th>
<th>NCCN Guidelines</th>
<th>Clinical trial phase</th>
<th>Open clinical trials for this cancer type*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSK-2636771</td>
<td>☒</td>
<td>☒</td>
<td>(I/II)</td>
<td></td>
</tr>
<tr>
<td>talazoparib</td>
<td>☒</td>
<td>☒</td>
<td>(I/II)</td>
<td></td>
</tr>
<tr>
<td>AZD8186</td>
<td>☒</td>
<td>☒</td>
<td>(II)</td>
<td></td>
</tr>
<tr>
<td>temsirolimus + erlotinib</td>
<td>☒</td>
<td>☒</td>
<td>(II)</td>
<td></td>
</tr>
<tr>
<td>trametinib + uprosertib</td>
<td>☒</td>
<td>☒</td>
<td>(II)</td>
<td></td>
</tr>
</tbody>
</table>

* Most advanced phase is shown and multiple clinical trials may be available. See Open clinical trials section in the pages to follow.

Evidence and prevalence summary by class

A class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to unique citations (Current FDA information, NCCN Guidelines, or clinical trial eligibility criteria). An estimate of prevalence of the gene variant in the cancer type is provided.

<table>
<thead>
<tr>
<th>Class</th>
<th>Evidence items</th>
<th>This cancer type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTEN deficiency</td>
<td>2</td>
<td>2.8%</td>
</tr>
<tr>
<td>PTEN deletion</td>
<td>3</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

* Source: Oncomine® Cancer Research Panel Knowledgebase [Thermo Fisher Scientific, Ann Arbor, MI]

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Oncomine® Cancer Research Panel Knowledgebase v1.1
Published therapies detail

Open clinical trials

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

**NCT01458067:** A Phase I/IIa, First Time in Human, Open-label Dose-escalation Study of GSK2639771 in Subjects With Advanced Solid Tumors With PTEN Deficiency

**Class:**
PTEN deletion

**Population segment(s):**
HER2 negative, Hormone refractory, Second line or greater/Refractory/Relapsed, Stage II, Stage III, Stage IV, Triple receptor negative

**Phase:**
I/II

**Published therapy:**
GSK-2636771

**Location(s):**
CT, TN, UT

**Contact:**
US GSK Clinical Trials Call Center [877-379-3718; GSKClinicalSupportHD@gsk.com]

**NCT01286987:** A Phase I/II, First in Human, Single-arm, Open-label Study of Once a Day, Orally Administered BMN 673 in Patients With Advanced or Recurrent Solid Tumors

**Class:**
PTEN deletion

**Population segment(s):**
Hormone refractory, Locally advanced, Metastatic, Second line or greater/Refractory/Relapsed, Stage II, Stage III, Stage IV, Unresectable

**Phase:**
I/II

**Published therapy:**
talazoparib

**Location(s):**
AZ, CA, IN, MI, TX

**Contact:**
Elva Mazabel [415-506-6662; emazabel@bmrn.com]
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

**NCT00770263**: Phase I Study of Erlotinib and Temsirolimus in Resistant Solid Malignancies

**Class:**
PTEN deletion

**Population segment(s):**
IN/A, Papillary, Second line or greater/Refractory/Relapsed

**Phase:**
I

**Published therapy:**
temsirolimus + erlotinib

**Location(s):**
MO

**Contact:**
Washington University School of Medicine [800-600-3606; info@ccadmin.wustl.edu]

**NCT01884285**: A Phase I, Open-label, Multicentre Study to Assess the Safety, Tolerability, Pharmacokinetics and Preliminary Anti-tumour Activity of Ascending Doses of AZD8186 in Patients With Advanced Castrate-resistant Prostate Cancer (CRPC), Squamous Non-Small Cell Lung Cancer (sqNSCLC), Triple Negative Breast Cancer (TNBC) and Patients With Known PTEN-deficient Advanced Solid Malignancies, With Expansion to Assess the Pharmacodynamic Activity of AZD8186 Within Prospectively-validated PTEN Deficient Tumours

**Class:**
PTEN deficiency

**Population segment(s):**
HER2 negative, Hormone refractory, Second line or greater/Refractory/Relapsed, Stage III, Stage IV, Triple receptor negative

**Phase:**
I

**Published therapy:**
AZD8186

**Location(s):**
MA, WA, WI

**Contact:**
AstraZeneca Clinical Study Information [800-236-9933; ClinicalTrialTransparency@astrazeneca.com]
Open clinical trials (cont’d)

Clinical trial information is current as of 2014-07-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID.

NCT01138085: A Phase I Dose Escalation Open-Label Safety, Pharmacokinetic and Pharmacodynamic Study to Determine the Recommended Phase II Dose of GSK1120212 Dosed in Combination With GSK2141795

Class: PTEN deficiency

Population segment(s):
HER2 negative, Recurrent, Second line or greater/Refractory/Relapsed, Stage III, Stage IV, Triple receptor negative

Phase: I

Published therapy:
trametinib + uprosertib

Location(s):
CO, MA, NJ, TN, TX, UT

Contact:
US GSK Clinical Trials Call Center [877-379-3718; GSKClinicalSupportHD@gsk.com]
TEST DESCRIPTION

Oncomine Cancer Panel is a next-generation sequencing (NGS) based test that detects genomic alterations in cancer-related genes.

Test results are intended to aid in patient management when used in conjunction with standard clinical assessment. The test is neither intended nor validated for diagnosis.

<table>
<thead>
<tr>
<th>Hotspot - Mutations</th>
<th>CDS - Mutations</th>
<th>Copy Number Variations</th>
<th>Fusion Drivers</th>
<th>Fusion Exon Deletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABL1</td>
<td>JAK1</td>
<td>APC</td>
<td>ABL1</td>
<td>EGFR</td>
</tr>
<tr>
<td>AKT1</td>
<td>JAK2</td>
<td>ATM</td>
<td>AKT1</td>
<td>AKT3</td>
</tr>
<tr>
<td>ALK</td>
<td>JAK3</td>
<td>BAP1</td>
<td>IGF1R</td>
<td>AXL</td>
</tr>
<tr>
<td>AR</td>
<td>KDR</td>
<td>BRCA1</td>
<td>AR</td>
<td>IL6</td>
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<td>KIT</td>
<td>ALK</td>
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<td>KNSTRN</td>
<td>CDH1</td>
<td>BRAF</td>
<td>ALK</td>
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<td>BTK</td>
<td>MAGOH</td>
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<td>EGFR</td>
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<td>ERG</td>
<td>ALK</td>
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<td>MSH2</td>
<td>ERG</td>
<td>FGF1</td>
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<tr>
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<td>MAPK1</td>
<td>NF1</td>
<td>ETV1</td>
<td>FGF2</td>
</tr>
<tr>
<td>CTNNB1</td>
<td>MAX</td>
<td>NF2</td>
<td>ETV4</td>
<td>FGF3</td>
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<tr>
<td>DDR2</td>
<td>MED12</td>
<td>NOTCH1</td>
<td>MYCN</td>
<td>FGF3</td>
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<tr>
<td>DNMT3A</td>
<td>MET</td>
<td>PIK3R1</td>
<td>MYCL</td>
<td>FGF4</td>
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<tr>
<td>EGFR</td>
<td>MLH1</td>
<td>PTCH1</td>
<td>ET5</td>
<td>NTRK1</td>
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<td>RB1</td>
<td>PDGFRA</td>
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<tr>
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<td>SMARC1</td>
<td>PIK3CA</td>
<td>RAF1</td>
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<tr>
<td>EZH2</td>
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<tr>
<td>FGFR1</td>
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<td>TET2</td>
<td>RET</td>
<td>RAF1</td>
</tr>
<tr>
<td>FGFR2</td>
<td>PAX5</td>
<td>TP53</td>
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<tr>
<td>FGFR3</td>
<td>PDGFR3</td>
<td>TSC1</td>
<td>RET</td>
<td>RAF1</td>
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<td>FLT3</td>
<td>PIK3CA</td>
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<td>VHL</td>
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<td>GATA2</td>
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<td>WT1</td>
<td>RET</td>
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<td></td>
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<tr>
<td>HNF1A</td>
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<td>RAF1</td>
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<td>RHOA</td>
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<td>RAF1</td>
</tr>
<tr>
<td>IDH1</td>
<td>SF3B1</td>
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<td>RET</td>
<td>RAF1</td>
</tr>
<tr>
<td>IDH2</td>
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</tr>
<tr>
<td>IFITM1</td>
<td>SPOP</td>
<td></td>
<td>RET</td>
<td>RAF1</td>
</tr>
<tr>
<td>IFITM3</td>
<td>SRC</td>
<td></td>
<td>RET</td>
<td>RAF1</td>
</tr>
</tbody>
</table>

Life Technologies Clinical Services Lab tests are intended for clinical use. They were developed and their performance characteristics determined by the Life Technologies Clinical Services Lab, which is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) to perform high complexity testing. The tests have not been cleared or approved by the United States Food and Drug Administration; however, such clearance or approval is not currently required. ©2014 Life Technologies Corporation. All rights reserved. The trademarks mentioned herein are the property of Life Technologies Corporation and/or its affiliate(s).
APPENDIX

Report: Information compiled in this report is from publicly available sources. By updating the source database quarterly, LTCSL is making every effort to provide the most accurate and up-to-date information. However, accuracy and completeness are not guaranteed and test reports, once issued, will not be updated.

No Guarantee: By providing drug and clinical trial information for the reported diagnosis, LTCSL is not guaranteeing that any drug or clinical trial is necessarily appropriate for this patient. Healthcare providers should evaluate and interpret the information provided in this report, along with all other available clinical information about this patient, to determine the best treatment decisions in their own independent medical judgment. Patient management decisions should not be based on a single test, including this one, nor solely on the information contained in this report.

Alterations: This test identifies genomic alterations found in the submitted tumor tissue to select cancer-associated genes or portions of genes. While tested alterations were selected for inclusion in the test based on clinical level of evidence, LTCSL makes no claims regarding the clinical actionability of tested and reported alterations. Also note that this test only examines tumor, and not normal, tissue from the patient, and therefore cannot distinguish between somatic and germline (i.e., heritable) alterations.

Drugs: The drugs listed on the report are not ranked in any specific order as to predicted efficacy or appropriateness for this patient. LTCSL makes no guarantee or promise as to the effectiveness or suitability (or lack thereof) of any drug listed on this report. For more detailed information, healthcare providers should refer to the package insert for each FDA-approved drug listed in this report, and go to clinicaltrials.gov for information regarding drugs in clinical trials.

Reimbursement: LTCSL makes no guarantee that any third party payor, including any governmental healthcare program, will pay for this test.