Pan-Cancer Panel and Fusion Panel FAQs (Updated 6/21/23)

For Clinicians and Pathologists:

1) What is the difference between the Pan-Cancer Panel and the Fusion Panel?

The **Pan-Cancer Solid Tumor Panel** is a 1080-gene DNA sequencing assay. In addition to tumor tissue, it requires a blood specimen for accurate variant interpretation. It covers all genes targeted by FoundationOne CDx and the clinically relevant genes targeted by Tempus xT as well as other academic and commercial NGS panels. It offers a competitive sensitivity for substitutions, small/large indels, TMB, and MSI.

The **Solid Tumor Fusion Panel** is a 145-gene RNA sequencing assay. It requires only tumor tissue and targets exons of clinically relevant genes with known or novel fusion partners. Unique anchored PCR technology provides higher sensitivity than whole-transcriptome sequencing.

2) How do I order the Pan-Cancer Panel and/or Fusion Panel tests?

Please follow the **ordering tip sheet (PDF)**.

Note that for the Pan-Cancer Panel the workflow actually includes two orders: one for formalin-fixed, paraffin-embedded (FFPE) tissue and one for blood (for use as a normal comparator). The patient will need to go to the lab to get their blood drawn for the blood comparator just as they would for any other order requiring blood sample collection.

3) What is the turnaround time for both tests?

Once all of the necessary samples are received in the lab (tissue and blood if needed), a report will be signed out within 2-3 weeks.

4) What is the difference between your previous solid tumor panels and this new Pan-Cancer Panel?

The previous solid tumor panels were focused hotspot panels, meaning that they only tested for specific mutations in select genes that are known to be clinically relevant for the tumor type being tested. The Pan-Cancer Panel tests for many more genomic regions in many more genes, some of which may be clinically relevant to the tumor type being tested and some of which may not yet have known diagnostic/prognostic/therapeutic implications (but may in the future). The Pan-Cancer Panel also includes MSI and TMB analysis, which our previous solid tumor panels did not include.

5) For use as a normal comparator for the Pan-Cancer Panel, are there any other options available besides blood?

Saliva is the only other acceptable option available for use as a comparator at this time. If saliva is desired instead of blood, please select saliva as the comparator specimen type when placing the original order. Pathology Client Services will be notified and will arrange to have a saliva collection kit sent to your patient's address.

6) Is a normal comparator absolutely required for the Pan-Cancer Panel? Can you just perform testing on the tumor specimen instead?

A normal comparator is currently required for this test. However, we are developing a tumor-only version of this test that we hope to make available within the next few months.

7) Who do I contact if I have additional questions?

Please contact Pathology Client Services at 310-267-2680 or Pathologyoutreachclientservices@mednet.ucla.edu for assistance.

For Pathologists:

8) Can a pathologist order both of these tests, or do they have to be ordered by a clinician (typically an oncologist)?

A clinician can order both tests, but a pathologist can only order the Fusion Panel. When our tumor-only Pan-Cancer Panel testing is available, that will also be orderable by a pathologist.

9) What is the lowest tumor % that you would accept for these tests?

As long as the submitted specimen contains tumor cells (as determined by a pathologist) it will be acceptable for testing. However, note that the sensitivity of the Pan-Cancer Panel test is approximately 5%, meaning that if the tumor % of the specimen submitted for testing is ≤10% there is a chance that we will not be able to detect one or more mutations if they exist.

10) I see in the order questions that you suggest using tissue blocks for testing with more than 2000 cells/slide. How do I decide if there are 2000 cells/slide? I am not sure if there are sufficient cells for testing with the current tissue block.

Please see the "Molecular Pathology: Slide Ordering & Assessment" tip sheet (specifically the Slide Assessment section) for guidance.

If fewer than 2000 cells/slide is submitted for testing there is a chance that a result will not be obtained. Submitting a specimen with at least 2000 cells/slide will help ensure that the lab obtains a result.

11) Is macrodissection required for every specimen submitted?

No. Whether or not macrodissection is necessary for a given specimen is up to the reviewing pathologist. In general, for the best chance of detecting a mutation if it exists, the submitted specimen should have >10% tumor content and contain >2000 cells per slide. The submitted specimen can either be the entire slide or specific circled area(s) of the slide (for macrodissection by the lab).

12) What should I do if the tissue is necrotic? What should I do if the tissue block is exhausted?

DNA integrity may be compromised in areas with necrosis. In cases with necrosis, consider ordering additional slides for small biopsies and requesting macrodissection for large specimens. If the tissue block is exhausted then an alternate case/block can be utilized instead.

13) What should I do if the linked surgical case is not the most appropriate case for testing and an appropriate alternative case was signed out by a different pathologist?

For internal cases, please note this on the Slide Request form in the "Alternative Case # and Block #" field and send the form and slides back to Client Services. They will transfer the tissue review to the appropriate pathologist.

14) Do you accept cell blocks for testing?

Yes. However, note that with cell blocks it will not be possible to macrodissect specific areas or count the number of cells per slide. We therefore recommend at least 10 5µm-unstained slides for testing.

15) I see that MSI analysis is included in the Pan-Cancer Panel. If I want to order MSI as a standalone test and am only interested in the MSI results, should I still order the Pan-Cancer Panel?

No. Standalone MSI testing should be ordered as a sendout test from Neogenomics (it is no longer available in-house). Please contact SurgicalPathologySendouts@mednet.ucla.edu to place the order.