CTCatch™ Clinical Applications in Colorectal Cancer

1	2	3
Diagnosis	**Monitoring**	**Treatment**
• CDX2	• CSV • nPD-L1	• KRAS

Consult your physicians about CTCatch™ test.

CTCatch™ Test Process

1. Consult your physicians about CTCatch™ test
2. Collect 7.5mL whole blood
3. Analyze samples in Abnova Diagnostics Japan lab
4. Generate your report in 7 days
5. View test results under physician guidance

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CTC Liquid Biopsy for Colorectal Cancer

Abnova Diagnostics Japan
CTCatch™ Test

Colorectal Cancer Facts

There are more than 1 million new cases of colorectal cancer (CRC) diagnosed yearly around the world. About 20% of the CRC is caused by an inherited genetic condition and the other 80% is associated with lifestyle, diet, obesity and physical inactivity[1].

Top 4 Risk Factors of Colorectal Cancer in Young Adults

77%
Not taking fecal occult blood test.

77%
Not taking exercise 3 or more per week, for 30 minutes at a time, raising heart rate to 130 per minute.

67%
Eating out very often. Eating not enough vegetable and fruits.

28%
Experiencing constipation and diarrhea.

1 Diagnosis

CDX2

CDX2 is an intestine-specific transcription factor involved in intestinal development, differentiation and maintenance. It plays a key role in embryonic development and intestinal specific gene activation. Because of its specificity, CDX2 becomes a biomarker of CRC. Studies have shown that[2-4]:

- CDX2 can evaluate whether patients with stage II CRC can benefit from adjuvant chemotherapy and track metastatic cancer cells in CRC patients.
- The number of CDX2 postitive circulating tumor cells (CTCs) is associated with metastasis and lymph node status.

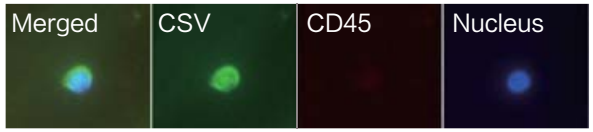
CTCatch™ detects CDX2 positive CTCs in CRC.

2 Monitoring

Recurrence and Metastasis[5]

Due to its overexpression in epithelial-mesenchymal transition (EMT), cell-surface vimentin (CSV) has been identified as a specific marker in cancer recurrence, metastasis and prognosis.

- CSV monoclonal antibody (clone 84-1) detects EMT CTCs from metastatic CRC patients. EMT CTCs can further be isolated using other EMT-specific markers.
- CSV positive CTCs isolation is helpful in identifying metastatic precursor cells. Also, monitoring the number of CSV positive CTCs can provide information of patients' condition, recurrence and metastasis.



CTCatch™ detects CSV positive CTCs.

Prognosis

nPD-L1[6]

- Programmed cell death protein 1 (PD-1) and its ligand PD-L1 are responsible for modifying immune response. Aberrant expression of PD-L1 is detectable in various cancers and localized in the membrane, cytoplasm and nucleus. It is related to poor survival rate.
- Nuclear PD-L1 (nPD-L1) overexpression in CRC is strongly associated with short survival duration. These results demonstrated nPD-L1 has potential as a clinically relevant prognostic biomarker for CRC.

3 Treatment

KRAS (Cetuximab and Panitumumab)[7-9]

The accumulation of genetic alterations causes CRC. The activation of multiple signaling pathways regulates cell proliferation, angiogenesis, motility and apoptosis. Therefore, the accumulation of mutations in tumor suppressor genes and proto-oncogenes participating in signaling pathways, such as KRAS, NRAS, BRAF and PIK3CA, leads to CRC progression.

Monoclonal antibodies, such as cetuximab and panitumumab against epidermal growth factor receptors (EGFR), have been used in clinical practice of metastatic CRC. Approximately 30-45% of CRC patients harbor KRAS mutations and resist to anti-EGFR therapies. Due to its difficulty to obtain primary tumor tissue to test KRAS, CTC detection is considered to generate real-time status of tumors. CTCatch™ detecting wild-type KRAS can be used as drug instructions of cetuximab and panitumumab.

Reference

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