Metastatic colorectal cancer

MSS/pMMR - KRAS G12V - liver metastases

MUSTER-02 - 62 years - male - ECOG 1

SYNTHETIC SAMPLE CASE - for platform demonstration only. No real person, no documented treatment success and no individual treatment instruction.

Executive Summary

This sample report demonstrates how Medical Evidence AI converts clinical baseline information, pathology, molecular biomarkers, organ function and supportive immune/tumour-dynamics data into a structured evidence discussion. Validated treatment-relevant findings are explicitly separated from exploratory additional findings.

Core clinical question

How should molecular profile, resectability, first-line systemic treatment and longitudinal diagnostics be connected in an evidence-based discussion?

Clinical Review Required

Medical Evidence AI provides structured evidence synthesis as a basis for professional discussion. This sample report is not a diagnosis, prescription or individual treatment instruction. Treatment decisions remain with the qualified treating team/tumour board. Current approvals, guidelines and trial availability must be checked for every live case.

1. Clinical course & structured diagnostics

Metastatic colorectal cancer

Clinical course

• Sigmoid adenocarcinoma after oncologic resection.

• Six months later, multiple liver lesions; definitive resectability assessment still pending.

• No systemic treatment in the metastatic setting before the current decision.

Diagnostics & biomarkers

• MSS/pMMR confirmed; KRAS G12V; BRAF V600E negative.

• No HER2 amplification and no NTRK fusion; broad NGS should be documented.

• CEA as a longitudinal marker together with contrast-enhanced imaging.

• CBC, renal/hepatic function and DPYD status before fluoropyrimidine treatment.

• Synthetic CTC example: baseline 34 EpCAM-positive cells/mL, month 3: 18/mL; exploratory only and not a substitute for imaging/RECIST.

Why these diagnostics matter

The purpose is not to collect the maximum number of laboratory values. The report separates findings that can select an established treatment, findings that affect safety or dosing, and measurements that provide supportive or exploratory longitudinal context. This distinction reduces the risk that immune-cell counts or CTC measurements are treated as stand-alone treatment indications.

2. Evidence Interpretation

• MSS/pMMR means checkpoint-inhibitor monotherapy is not a routine standard based on MSI status.

• KRAS mutation excludes established anti-EGFR use in settings requiring RAS wild type.

• Liver-only or liver-dominant disease requires early multidisciplinary resectability/local-therapy assessment.

• CTC trends are supportive research-style information, not validated treatment-selection biomarkers in this setting.

Options for professional discussion

• Fluoropyrimidine/oxaliplatin- or irinotecan-based systemic treatment with biologic therapy according to guideline setting and patient factors.

• Repeated liver-directed multidisciplinary review if disease distribution may become locally treatable.

• Later-line options according to prior exposure, molecular profile and current approvals.

Interpretation limits

Temporal association between treatment, immune status, CTC trajectory and imaging does not establish causality. In a live report, assay method, reference ranges, treatment timing, imaging and clinical course must be assessed together. No option is automatically ranked as the correct treatment.

3. Evidence Matches - study comparison

Medical Evidence AI does not present study titles alone. The relevant elements are population, intervention, clinically relevant outcome, match to the case and limitations of transferability.

TRIBE / TRIBE2

Population / evidence: Metastatic colorectal cancer; intensive chemotherapy/antiangiogenic strategies in selected fit patients.

Match to this sample case: Relevant to first-line intensity discussion in a fit ECOG 1 patient.

Limitation: Toxicity, age, comorbidities and local standard must be considered.

SUNLIGHT

Population / evidence: Previously treated metastatic colorectal cancer in a later-line setting.

Match to this sample case: Useful as sequencing evidence, not as first-line justification for this untreated metastatic sample.

Limitation: Requires prior-treatment context that this sample does not yet have.

Guideline biomarker framework

Population / evidence: RAS, BRAF, MSI/MMR, HER2 and selected rare targets guide established or trial-based choices.

Match to this sample case: Directly relevant to the documented KRAS/MSS profile and remaining NGS review.

Limitation: Availability and labels vary by jurisdiction and treatment line.

4. Applicability & evidence gaps

Evidence gaps

• Formal liver-metastasis resectability assessment in a multidisciplinary centre.

• Complete NGS documentation and original pathology review.

• Baseline CEA and high-quality staging imaging.

• DPYD result and comorbidity/toxicity assessment before fluoropyrimidine therapy.

Exploratory / immunological context

A TBNK profile can be documented as supportive context, but it does not override MSS/pMMR and RAS biology and does not establish an indication for an immune or dendritic-cell intervention.

The report prioritises unresolved issues that may change the treatment sequence before purely exploratory additional testing. A live analysis would additionally verify the current guideline version, regional approval status and active clinical trials at the time of assessment.

5. Tumour-board questions, sources & final assessment

Questions for the treating team / tumour board

• Is a conversion strategy toward liver-directed treatment realistic?

• Which first-line intensity best fits performance status, tumour burden and goals?

• Are all guideline-relevant biomarkers documented?

• How will radiologic response, CEA and clinical course be integrated over time?

Selected evidence anchors

• Current colorectal-cancer guidelines and regulatory information.

• TRIBE/TRIBE2 and SUNLIGHT as examples of sequence-specific evidence.

• Original molecular pathology and multidisciplinary liver review for a live case.

Final assessment

The value of the report lies not in an automated treatment recommendation, but in a transparent connection between diagnostics, patient context and evidence. It shows where an option matches well, where important differences from the study population remain, and which information is still required before a medical decision.

Clinical Review Required

Medical Evidence AI provides evidence synthesis and decision support. It does not replace diagnosis, prescribing, multidisciplinary review or treatment decisions by qualified medical professionals.