



Beyond Just Chemotherapy in Colorectal Cancer

Axel Grothey, MD Director, GI Cancer Research Chair, Molecular Tumor Board West Cancer Center and Research Institute Germantown, TN, USA Immunotherapy for dMMR/MSI-H mCRC

CheckMate 8HW study design

• CheckMate 8HW is a randomized, multicenter, open-label phase 3 study^a



• At data cutoff (October 12, 2023), the median follow-up^f was 24.3 months

^aClinicalTrials.gov. NCT04008030. ^bPatients with ≥ 2 prior lines are randomized only to the NIVO or NIVO + IPI arms. ^cPatients receiving investigator's choice of chemotherapy are eligible to receive NIVO + IPI upon progression (crossover treatment). ^dConfirmed using either immunohistochemistry and/or polymerase chain reaction-based tests. ^eEvaluated using RECIST v1.1. ¹Time between randomization and last known date alive or death.

NIVO + IPI

Chemo

Progression-free survival



PFS benefit with NIVO + IPI vs chemo was robust and consistent across the sensitivity analyses, including PFS by BICR in 1L all randomized patients (HR, ٠ 0.32; 95% CI, 0.23-0.46)

NIVO + IPI

Chemo

1L centrally confirmed

Progression-free survival



PFS benefit with NIVO + IPI vs chemo was robust and consistent across the sensitivity analyses, including PFS by BICR in 1L all randomized patients (HR, 0.32; 95% CI, 0.23–0.46)

CheckMate 8HW: first results of 1L NIVO + IPI vs chemo

Progression-free survival subgroup analysis

Catagony (1) controlly	Subgroup	Median PFS, ^a mo		Unstratified			
confirmed MSI-H/dMMR)		NIVO + IPI	Chemo	HR	Unstratified HR (95% CI)		
Overall (N = 255)		NR	5.9	0.21			
Age, years	< 65 (n = 138)	NR	5.7	0.19			
	≥ 65 (n = 117)	NR	5.9	0.24			
Sex	Male (n = 117)	NR	5.9	0.19			
	Female (n = 138)	NR	6.2	0.22			
Region	US/Canada/Europe (n = 167)	NR	5.7	0.27			
	Asia (n = 28)	NR	7.4	0.03			
	Rest of world $(n = 60)$	NR	6.2	0.16			
ECOG PS	0 (n = 142)	NR	9.0	0.22	i		
\rightarrow	≥ 1 (n = 113)	NR	4.2	0.20			
Tumor sidedness	Left (n = 70)	NR	4.4	0.22			
	Right (n = 185)	NR	7.1	0.21			
Liver metastases ^a	Yes (n = 87)	NR	5.9	0.11	!		
	No (n = 166)	NR	5.4	0.28			
Lung metastases ^a	Yes (n = 53)	13.2	4.9	0.40			
	No (n = 200)	NR	6.2	0.16			
Peritoneal metastases ^a	Yes (n = 115)	NR	4.4	0.19			
	No (n = 138)	NR	7.4	0.23			
Tumor cell PD-L1 expression	≥ 1% (n = 55)	NR	3.4	0.11			
	< 1% (n = 191)	NR	6.5	0.22	ř i		
BRAF/KRAS/NRAS mutation	BRAF/KRAS/NRAS all wild type (n = 58)	34.3	5.4	0.08			
status	BRAF mutant (n = 72)	NR	9.2	0.37	i		
\rightarrow	KRAS or NRAS mutant (n = 45)	NR	5.7	0.24			
	Unknown (n = 74)	NR	4.9	0.17	i		
Lynch syndrome	Yes (n = 31)	NR	7.4	0.28			
	No (n = 152)	NR	6.2	0.25	i		
Per BICR.	Unknown (n = 66)	NR	5.5	0.13			
Prior surgery related to	Yes (n = 222)	NR	7.1	0.21			
current cancer	No (n = 33)	NR	3.0	0.19			

0.02 0.03 0.06 0.13 0.25 0.50 1.00 2.00

CheckMate 8HW: Nivolumab +/- Ipilimumab

• CheckMate 8HW is a randomized, multicenter, open-label phase 3 study^a



• At data cutoff (August 28, 2024), the median follow-up^g was 47.0 months (range, 16.7-60.5)

^aClinicalTrials.gov. NCT04008030. ^bPatients with ≥ 2 prior lines are randomized only to the NIVO or NIVO + IPI arms. ^cPatients can continue NIVO treatment upon early IPI discontinuation. ^dPatients receiving investigator's choice of chemo are eligible to receive NIVO + IPI upon progression (crossover treatment). ^eConfirmed using either IHC and/or polymerase chain reactionbased tests. ^fEvaluated using RECIST v1.1. ^gTime between randomization and data cutoff among all randomized patients across all 3 treatment arms.

Andre et al., ASCO GI 2025

CheckMate 8HW: PFS



- NIVO + IPI demonstrated statistically significant and clinically meaningful PFS benefit vs NIVO in patients with centrally confirmed MSI-H/dMMR mCRC across all lines of therapy
 - PFS benefit with NIVO + IPI vs NIVO was consistent in all randomized patients (median PFS: 54.1 vs 18.4 months; HR, 0.64 [95% CI, 0.52-0.79])

^aPer BICR. ^bBoundary for statistical significance, p < 0.0095.

Andre et al., ASCO GI 2025

My Conclusions on first-line IO in MSI-H CRC

- Testing for MMR/ MSI status in mCRC is mandatory!
- We now have two options for IO therapy n this patient population:
 - Pembrolizumab single agent see KN 177
 - Nivolumab/ Ipilimumab see CM 8HW
- Nivo/Ipi more active than Nivo and avoids the early crossing of PFS curves
 - No data available yet on OS, cross-over to IO from chemo
 - All subgroups appear to benefit
- Data allow for individualized selection of first-line IO

Neoadjuvant or definitive immunotherapy in early stage colorectal cancer?

Neoadjuvant Immunotherapy in dMMR/ MSI-H Colon Cancer



Chalabi et al., NEJM 2024

Neoadjuvant Nivo/Ipi in dMMR early stage colon cancer 3-Year DFR results



1 dose of Nivo/Ipi -> 1 dose of Nivo -> surgery

Chalabi et al., ESMO 2024

My Thoughts on Neoadjuvant IO Therapy in MSI-H/ dMMR colorectal cancer

- Upfront, definitive IO therapy has emerged as SOC in MSI-H/ dMMR rectal cancer (see Cercek et al. NEJM 2022)
 - Hard to beat 100% cCR in rectal cancer, hard to beat NICHE-2
 - Conventional chemo does not work well in these patients
 - Results better than in advanced disease! Why?
- In colon cancer NICHE-2 provides us with unprecedented data
 - Emphasizes the need to test every CRC for MMR status
 - Will surgeons listen and send patients to Med Onc before surgery?
 - Which patients need to be treated pre-op?
- In locally advanced MSI-H/ dMMR colon cancer, I favor IO therapy as neoadjuvant or definitive treatment

Novel IO Therapy

Botensilimab + Balstilimab, N=87

Botensilimab (FC-enhanced Anti-CTLA-4)

A Multifunctional Fc-enhanced Anti-CTLA-4



- Enhanced T cell priming, expansion, memory^{5,6}
- Enhanced frequency of APCs
- Enhanced Trea depletion
- Reduced complement mediated toxicity

ū

Ž

Botensilimab + Anti-PD-1 (Balstilimab) **Chemorefractory MSS mCRC**

All EE n=87*	No Active Liver Mets EE n=69 ⁺	Active Liver Mets EE n=18 [‡]
18% (11-28)	23% (14-35)	0% (0-19)
1 (1)	1 (1)	0
15 (17)	15 (22)	0
45 (52)	39 (57)	6 (33)
26 (30)	14 (20)	12 (67)
70% (59-80)	80% (68-88)	33% (13-59)
62% (49-73)	74% (59-84)	30% (11-52)
responses§ 11		0
	All EE n=87* 18% (11-28) 1 (1) 15 (17) 45 (52) 26 (30) 70% (59-80) 62% (49-73) 1	All EE n=87* No Active Liver Mets EE n=69* 18% (11-28) 23% (14-35) 1 23% (14-35) 1 1 15 (17) 15 (22) 45 (52) 39 (57) 26 (30) 14 (20) 70% (59-80) 80% (68-88) 62% (49-73) 74% (59-84) 11/16 (69%) 11





Bullock, ESMO GI 2023



Phase 1 study Rego/Nivo/Ipi in MSS mCRC



RR: No liver mets (22): 36%, Liver mets (7): 0%

Fakih et al., JAMA Oncol 2023

Ivonescimab: Bispecific Antibody



Anti-PD-1

• Simultaneous interaction of PD-1 & VEGF blockades can drive synergistic anti-tumor activity Inhibiting VEGF can help improve the effect of immunotherapy by modulating the tumor microenvironment Enhancing the PD-1 blockade helps activate T cells

Cooperative Binding

Increased Binding Strength (Affinity)

Presence of VEGF increases PD-1 binding strength by >18X Presence of PD-1 increases VEGF binding strength by >4X

• Increased Binding of T Cells

VEGF dimer leads to potential interconnection or daisy chaining of multiple ivonescimab molecules, which may lead to increased binding of T cells

Ivonescimab: First-Line Combination Trial

	Ivonescimab + FOLFOXIRI n = 22	Ivonescimab + Ligufalimab + FOLFOXIRI n = 17ª
Investigator-assessed obje	ective response rate	
n	18	15
ORR (95% CI), %	81.8 (59.7-94.8)	88.2 (63.6-98.5)
Investigator-assessed disea	ase control rate	
n	22	17
DCR (95% CI), %	100 (84.6-100)	100 (80.5-100)

* One patient had no post-baseline tumor assessment.

Abbreviation: CI, confidence interval; CR, complete response; DCR, disease control rate; ORR, objective response rate; PR, partial response; SD, stable response. Data cutoff date: Feb 29, 2024





Ligufalimab: IgG4 anti-CD47 antibody

Deng et al., ESMO 2024

Targeting BRAF V600E in First Line

BREAKWATER: Study Design

• BREAKWATER (NCT04607421) is an open-label, multicenter, phase 3 study in first line BRAF V600E-mutant mCRC



Here we present the primary analysis of ORR by BICR (one of the dual primary endpoints), an interim analysis of OS, and safety in the EC + mFOLFOX6 and SOC arms

^aFollowing a protocol amendment, enrollment to the EC arm was stopped and patients were randomized 1:1 to the EC+mFOLFOX6 or SOC arms; data in the EC arm will be reported at a later date. ^bPatients were enrolled between November 16, 2021, and December 22, 2023. ^cmFOLFOX6/FOLFOXIRI/CAPOX ± bevacizumab. ^dIn the first 110 patients in each of the EC+mFOLFOX6 and SOC arms.

CAPOX, capecitabine/oxaliplatin; BICR, blinded independent central review; dMMR, deficient mismatch repair; EC, encorafenib plus cetuximab; ECOG PS, Eastern Cooperative Oncology Group performance status; EGFR, epidermal growth factor receptor; mFOLFOX6, modified fluorouracil/leucovorin/oxaliplatin; FOLFOXIRI, fluorouracil/leucovorin/oxaliplatin/irinotecan; mCRC, metastatic colorectal cancer; MSI-H, microsatellite instability-high cancer; RECIST, Response Evaluation Criteria in Solid Tumors.

ASCO[°] Gastrointestinal Cancers Symposium



PRESENTED BY: Scott Kopetz, MD, PhD Presentation is property of the author and ASCO. Permission required for reuse: contact permissions@asco.org



Overview of Response by BICR

Confirmed ORR by BICR



#GI25

Confirmed Best Overall Response, TTR, and DOR by BICR

	EC + mFOLFOX6 n=110	SOC n=110
Confirmed best overall response, n (%)		
CR	3 (2.7)	2 (1.8)
PR	64 (58.2)	42 (38.2)
SD	31 (28.2)	34 (30.9)
Non-CR/non-PD	3 (2.7)	4 (3.6)
PD	3 (2.7)	9 (8.2)
NE	6 (5.5)	19 (17.3)
	n=67	n=44
TTR, median (range), weeks	7.1 (5.7-53.7)	7.3 (5.4-48.0)
Estimated DOR, median (range), months	13.9 (8.5-NE)	11.1 (6.7-12.7)
Patients with a DOR of ≥6 months, n (%)	46 (68.7)	15 (34.1)
Patients with a DOR of ≥12 months, n (%)	15 (22.4)	5 (11.4)

Data cutoff: December 22, 2023.

BICR, blinded independent central review; CR, complete response; DOR, duration of response; EC, encorafenib plus cetuximab; mFOLFOX6, modified fluorouracil/leucovorin/oxaliplatin; NE, not estimable; PD, progressive disease; PR, partial response; SD, stable disease; SOC, standard of care; TTR, time to response.



PRESENTED BY: Scott Kopetz, MD, PhD

Presentation is property of the author and ASCO. Permission required for reuse; contact permissions@asco.org



Interim Overall Survival^a



Data cutoff: December 22, 2023.

^aOS was tested following the prespecified plan with one-sided alpha of 0.000000083, calculated as a portion of the nominal one-sided alpha of 0.001. Statistical significance was not achieved at this time.

EC, encorafenib plus cetuximab; mFOLFOX6, modified fluorouracil/leucovorin/oxaliplatin; NE, not estimable; SOC, standard of care.

ASCO[•] Gastrointestinal Cancers Symposium

#GI25 PRESENT

PRESENTED BY: Scott Kopetz, MD, PhD Presentation is property of the author and ASCO. Permission required for reuse: contact permissions@asco.org



Safety Summary

Patients, n (%)	EC + mFOLFOX6 n=231	SOC n=228
All causality		
TEAE	230 (99.6)	223 (97.8)
Grade 3 or 4 TEAE	171 (74.0)	139 (61.0)
Grade 5 TEAE	10 (4.3)	10 (4.4)
Serious TEAE	87 (37.7)	79 (34.6)
TEAE leading to permanent discontinuation of any study treatment	48 (20.8)	34 (14.9)
TEAE leading to dose reduction of any study treatment	141 (61.0)	109 (47.8)
TEAE leading to dose interruption of any study treatment	196 (84.8)	146 (64.0)
Treatment-related		
AE related to any drug	228 (98.7)	212 (93.0)
Grade 3 or 4 TRAE	161 (69.7)	123 (53.9)
Grade 5 TRAE	0	1 (0.4)ª
Serious AE related to any drug	42 (18.2)	44 (19.3)

Data cutoff: December 22, 2023.

^aSepsis (preferred term).

AE, adverse event; EC, encorafenib plus cetuximab, mFOLFOX6, modified fluorouracil/leucovorin/oxaliplatin; SOC, standard of care; TEAE, treatment-emergent adverse event; TRAE, treatment-related adverse event.

ASCO Gastrointestinal **Cancers Symposium**





Most Frequent (≥20%)^a All-Causality TEAEs

		EC + mFOLFOX6				SOC				
		Grade 1/2	Grade ≥3		1	Grade 1/2	Grade ≥3			
Nausea		48.5		2.6	3.1	45.2				
Anemia			25.5	10.8	3.5 19.3					
Diarrhea			32.9	1.3	3.5	43.4				
Decreased appetite			31.2	2.2	.3 23.7					
Vomiting			29.9	3.5	2.2 18.9					
Neutrophil count decrease			13.9	18.2	16.7 11.4					
Asthenia			22.5	4.3 1	.3 13.2					
Pyrexia			24.2	1.7 0	.4 12.7					
Peripheral sensory neuropathy			19.	D 5.6	2.2 19.3					
Rash			23.	B 0.9	2.6					
Fatigue			21.	6 2.6	2.6 22.4					
Neuropathy peripheral			16	.5 6.9	2.6 18.4					
Arthralgia			21	.2 0.9	3.5					
Neutropenia			7.4	4 14.7 9	.2 13.2					
Alopecia			2	1.2 9	.6					
Constipation			1	9.9 0.4 0	.4 18.9					
	100	75 50	25	0	25	50	75	100		
Data cutoff: December 22, 2023			Pe	centage o	t patients					

Data cutoff: December 22, 2023. ^aFrequency is based on the EC + mFOLFOX6 arm.

EC, encorafenib plus cetuximab; mFOLFOX6, modified fluorouracil/leucovorin/oxaliplatin; SOC, standard of care; TEAE, treatment-emergent adverse event.

ASCO Gastrointestinal **Cancers Symposium**

#GI25 Presentation is property of the author and ASCO. Permission required for reuse; contact permissions@asco.org.

PRESENTED BY: Scott Kopetz, MD, PhD



Targeting HER2

Key Clinical Trials in *HER2*+ mCRC

Trial	Regimen	Ν	ORR, %	Median PFS, mo	Median OS, mo
HERACLES-A ¹	Trastuzumab + lapatinibª	27	30 (14-50)	4.8 (3.7-7.4)	10.6 (7.6-15.6)
MyPathway (<i>KRAS</i> wt subgroup)²	Trastuzumab + pertuzumab ^a	43	40 (25-56)	5.3 (2.7-6.1)	14 (8-NE)
TRIUMPH ³	Trastuzumab + pertuzumab ^a	17 (tissue)	35 (14-62)	4 (1.4-5.6)	—
TAPUR⁴ (no <i>RAS</i> data)	Trastuzumab + pertuzumab ^a	28	25 (11-45)	4 (2.6-6.3)	25 (6-NE)
MOUNTAINEER ⁵ (Cohorts A + B)	Trastuzumab + tucatinibª	86	38 (28-39)	8.2 (4.2-10.3)	24.1 (20.3-36.7)
DESTINY-CRC01 ^{6,b} (Cohort A)	T-DXd ^a	54	45 (32-60)	6.9 (4.1-8.7)	15.5 (8.8-20.8)
HERACLES-B ^{7,c}	T-DM1 + pertuzumab	30	10 (0-28)	4.8 (3.6-5.8)	_

^a In NCCN guidelines. ^b ORR in subgroup with prior HER2 rx 43.8% (19.8-70.1); without prior HER2 rx 45.9% (29.5-63.1). ^c Did not meet primary endpoint. T-DM1 had 0% response rate in MATCH Arm Q⁸ and MSKCC Basket Trial.⁹

1. Sartore-Bianchi A et al. Lancet Oncol. 2016;17:738-746. 2. Meric-Bernstam F et al. Lancet Oncol. 2019;20:518-530. 3. Nakamura Y et al. ESMO 2019. Abstract 1057. 4. Gupta R et al.

ASCO GI 2020. Abstract 132. 5. Strickler J et al. ESMO GI 2022. Abstract LBA 2. 6. Yoshino T et al. Nat Com 2023 in press

7. Sartore-Bianchi A. ESMO 2019. Abstract 3857. 8. Jhaveri KL et al. Ann Oncol. 2019;30:1821-1830. 9. Li BT et al. J Clin Oncol. 2018;36:2532-2537.

Structure and Mechanism of Action of T-DXd

T-DXd is an ADC with 3 components:

- A humanized anti-HER2 IgG1 mAb with the same amino acid sequence as trastuzumab
- A topoisomerase I inhibitor payload, an exatecan derivative
- A tetrapeptide-based cleavable linker





The clinical relevance of these features is under investigation.

ADC, antibody-drug conjugate; HER2, human epidermal growth factor receptor 2; mAb, monoclonal antibody.

1. Nakada T, et al. Chem Pharm Bull (Tokyo). 2019;67(3):173-185. 2. Ogitani Y, et al. Clin Cancer Res. 2016;22(20):5097-5108. 3. Trail PA, et al. Pharmacol Ther. 2018;181:126-142.



Median # of prior lines: Destiny: 4, MOUNTAINEER: 2 Prior anti-HER-2 therapy: Destiny: 30%, MOUNTAINEER: 0%

Siena et al., Lancet Oncol 2021 Strickler et al., ESMO GI 2022

Zanidatamab – bispecific antibody

n (%)

95% CI



Rha et al., ESMO 2024

Median (range) duration of response: Not reached (2.9+-16.7+) months

5 (100)

47.8, 100

6 (100)

54.1, 100

Dotted lines indicate 20% increase or 30% decrease in sum of diameters of target tumours.

3+

-100

IHC

FISH

11 (100)

71.5, 100

Targeting RAS

RAS mutation in various cancers



Dunnett-Kane et al., Ann Oncol 2020

Sotorasib single agent in mCRC – CodeBreak 100



Patients

RR: 9.7% (6 pts) PFS: 4.0 mos OS: 10.6 mos

Fakih et al. Lancet Oncol 2021

KRYSTAL-1:



Yaeger et al. NEJM 2022

Divarasib in CRC, N=50

In vitro: 5 to 20 times as potent and up to 50 times as selective in vitro as sotorasib and adagrasib





Resistance mechanisms to KRAS G12C inhibitors in CRC



Ji et al, Onco Targets Ther 2022

RAS Inhibitors



Tri-Complex Inhibitors of RAS(ON)



- Inhibitor recruits and binds to chaperone protein Cyclophilin A
- Tri-complex tailored to bind different RAS(ON) proteins
- Conformation change and steric inhibition of oncogenic activity

Schulze et al., Science 2023

Best Response in 2nd Line PDAC – RMC-6236 300 mg dose



Garrido-Laguna et al., ASCO GI 2025

PFS in 2nd Line PDAC – 300 mg dose



Garrido-Laguna et al., ASCO GI 2025

Thank you!

agrothey@westclinic.com