

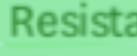



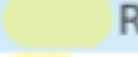





Review Article



Novel Biomarkers for Prediction of Response to Preoperative Systemic Therapies in Gastric Cancer

Table 1. Potential novel biomarkers for the prediction of response to preoperative systemic therapies

Therapeutic agents	Predictive biomarkers		Predictive role
Chemotherapeutic agents	MSI status 	MSI-H [14-17] 	Resistance to platinum-based chemotherapy 
	BIRC3 	High BIRC3 expression [27] 	Resistance to chemoradiotherapy
Anti-HER2 agents	PTEN	PTEN loss [46-48] 	Resistance to trastuzumab and/or lapatinib
	AMNESIA panel	EGFR/MET/KRAS/PI3K/PTEN mutations and EGFR/MET/KRAS amplifications [49]	
	NRF2	High NRF2 expression [54]	
	MET	MET amplification [55]	
	FGFR3	High FGFR3 expression [58]	
Anti-VEGF(R) agents	HOXB9	HOXB9-positive [74] 	Resistance to bevacizumab (in CRC)
Immune checkpoint inhibitors	PD-L1 	High PD-L1 expression [90,91] 	Response to anti-PD-1
	MSI-status	MSI-H [84,90]	
	EBV	EBV-positive [90]	
	Epigenomic promoter	Epigenomic promoter alterations [93] 	Resistance to anti-PD-1

MSI = microsatellite instability; MSI-H = microsatellite instability-high; BIRC = baculoviral inhibitor of apoptosis repeat containing; PTEN = phosphatase and tensin homolog; EGFR = epidermal growth factor receptor; PI3K = phosphoinositide 3-kinases; NRF2 = nuclear factor erythroid 2-related factor 2; FGFR = fibroblast growth factor receptor; HOXB9 = homeobox B9; VEGF(R) = vascular endothelial growth factor (receptor); CRC = colorectal cancer; PD-L1 = programmed death-ligand 1; EBV = Epstein-Barr virus; PD-1 = programmed death-1.

