ESCAT: ESMO Scale of Clinical Actionability for molecular Targets

A framework to rank genomic alterations as targets for cancer precision medicine.

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Mateo J, *et al. Annals of Oncology* 2018;29(9):1895-1902.

ESCAT: ESMO Scale of Clinical Actionability for molecular Targets

	ESCAT evidence tier		Required level of evidence	Clinical implication
Ready for routine use	I Alteration-drug match is associated with improved outcome in clinical trials	I-A	Prospective, randomised clinical trials show the alteration-drug match in a specific tumour type results in a clinically meaningful improvement of a survival end point	Access to the treatment should be considered standard of care
		I-B	Prospective, non-randomised clinical trials show that the alteration-drug match in a specific tumour type, results in clinically meaningful benefit as defined by ESMO MCBS 1.1	
		I-C	Clinical trials across tumour types or basket clinical trials show clinical benefit associated with the alteration-drug match, with similar benefit observed across tumour types	
Investigational	II Alteration-drug match is associated with antitumour activity, but magnitude of benefit is unknown	II-A	Retrospective studies show patients with the specific alteration in a specific tumour type experience clinically meaningful benefit with matched drug compared with alteration-negative patients	Treatment to be considered "preferable" in the context of evidence collection either as a prospective registry or as a prospective clinical trial
		II-B	Prospective clinical trial(s) show the alteration-drug match in a specific tumour type results in increased responsiveness when treated with a matched drug, however, no data currently available on survival end points	
Hypothetical target	III Alteration-drug match suspected to improve outcome based on clinical trial data in other tumour type(s) or with similar molecular alteration	III-A	Clinical benefit demonstrated in patients with the specific alteration (as tiers I and II above) but in a different tumour type. Limited/absence of clinical evidence available for the patient-specific cancer type or broadly across cancer types	Clinical trials to be discussed with patients
		III-B	An alteration that has a similar predicted functional impact as an already studied tier I abnormality in the same gene or pathway, but does not have associated supportive clinical data	
	IV Pre-clinical evidence of actionability	IV-A	Evidence that the alteration or a functionally similar alteration influences drug sensitivity in preclinical *in vitro* or *in vivo* models	Treatment should "only be considered" in the context of early clinical trials. Lack of clinical data should be stressed to patients
		IV-B	Actionability predicted *in silico*	
Combination development	V Alteration-drug match is associated with objective response, but without clinically meaningful benefit		Prospective studies show that targeted therapy is associated with objective responses, but this does not lead to improved outcome	Clinical trials assessing drug combination strategies could be considered
Lack of Evidence	X Lack of evidence for actionability		No evidence that the genomic alteration is therapeutically actionable	The finding should not be taken into account for clinical decision

To enquire or ask questions about the ESMO Scale for Clinical Actionability of molecular Targets, please send an email to education@esmo.org