9574 - Identification of patients at high risk for relapse using the Merlin Assay (CP-GEP) in an independent cohort of 432 patients with stage I/II melanoma who did not undergo sentinel lymph node biopsy

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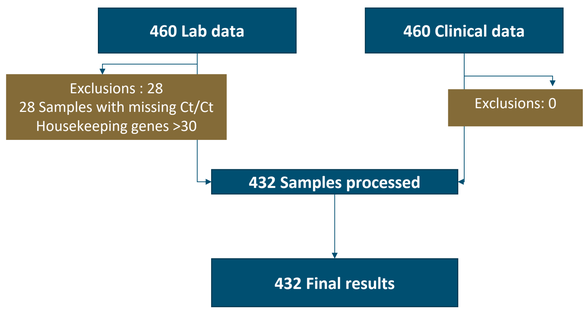
Background: Sentinel lymph node biopsy (SLNB) is the gold standard for nodal assessment in staging cutaneous melanoma (CM) according to AJCC v8.
80-85% of patients (pts) do not have nodal metastasis, but most pts who relapse or die from melanoma are initially diagnosed as 'low risk' early-stage. We showed that the clinicopathological-gene expression profiling (CP-GEP) model can stratify pts with negative SLNB for their risk of recurrence.

Aim: To demonstrate the ability of CP-GEP to stratify pts who did not undergo SLNB for their risk of recurrence in an expanded cohort.

Methods: formalin-fixed paraffin-embedded primary tumor samples of pts with CM diagnosed between 2000-2020 who did not undergo SLNB were analyzed. The CP-GEP model used combines the expression of 8 genes (**SERPINE2, GDF15, ITGB3, CXCL8, LOXL4, TGFBR1, PLAT and MLANA**) by qPCR with **age and Breslow thickness** to obtain a binary output: CP-GEP Low-Risk or High-Risk. Relapse-free survival (RFS), distant metastasis free survival (DMFS) and Melanoma Specific Survival (MSS) were evaluated using Kaplan-Meier curves. Median follow-up time was 5 years.

Figure 1: Generation of the study cohort



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CP-GEP risk stratifies pts with early-stage melanoma who **did not undergo SLNB** based on their risk of recurrence.
CP-GEP Low-Risk pts have a **favorable** long-term **survival**, while pts with **CP-GEP High-Risk** have a **high risk** of **recurrence**.

This study shows the potential of CP-GEP to stratify pts with cutaneous melanoma beyond SLNB.

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Table 1: Patients characteristics

		n (%)
Gender	Female	173 (40.0)
	Male	**259 (60.0)**
Ulceration	**Absent**	**417 (96.5)**
	Present	15 (3.5)
CP-GEP	**Low-risk**	**416 (96.3)**
	High-risk	16 (3.7)
Age (years)	Median [1QR, 3QR]	63 (50, 75)
Breslow (mm)	Median [1QR-3QR]	0.50 (0.40, 0.70)

		n (%)
Stages	**IA**	**346 (80.0)**
	IB	73 (16.9)
	IIA	5 (1.2)
	IIB	1 (0.2)
	IIC	7 (1.6)
T-categories	**T1a**	**346 (80.0)**
	T1b	60 (13.9)
	T2a	13 (3.0)
	T2b	1 (0.2)
	T3a	4 (0.9)
	T3b	0 (0.0)
	T4a	1 (0.2)
	T4b	7 (1.6)

		n (%)
Localization	Head & Neck	85 (19.7)
	Trunk	**200 (46.3)**
	Upper Extremities	66 (15.3)
	Lower Extremities	80 (18.5)
Histologic type	**Superficial spreading**	**310 (71.8)**
	Nodular	3 (0.7)
	Lentigo maligna	82 (19.0)
	Acral lentiginous	23 (5.3)
	Other	7 (1.6)

Figure 2: 5 years RFS, DMFS, and MSS stratified by CP-GEP as Low-Risk or High-Risk

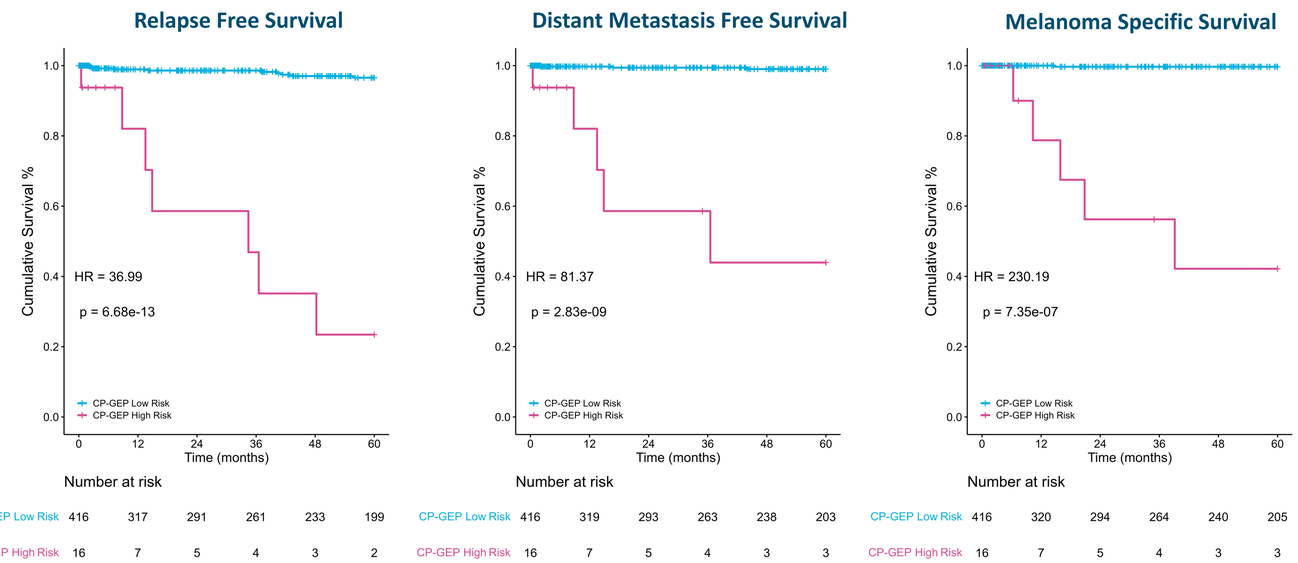

Table 2: 5 years survival rates according to CP-GEP Low-Risk or High-Risk

	N	#RFS events	5-years RFS, 95%CI		#DMFS events	5-years DMFS, 95%CI		#MSS events	5-years MSS, 95%CI	
Complete Cohort	432	17	94.4	[91-96.5]	8	97.5	[95.1-98.8]	6	98.1	[95.8-99.1]
CP-GEP Low Risk	416	10	96.6	[93.6-98.2]	3	99	[96.9-99.7]	1	99.7	[97.8-100]
CP-GEP High Risk	16	7	23.4	[3.6-53.2]	5	43.9	[11.7-73]	5	42.2	[11.1-71.3]