FINAL REPORT

Patient:	**Specimen ID:**
Sex:	**Collected:**
DOB:	**Received:**
Client:	**Reported:**
Provider:	**Tumor Site:**
Breslow Thickness:	**Binned Tumor Location:**
Age (years):	**Nodal Status:**
Ulceration:	**Mitotic Rate (/mm2):**

DecisionDx-Melanoma Result

Class 2B 31-GEP Score = 0.61	**Class 2B signature is associated with the highest risk of recurrence/metastasis within 5 years** Class 2B score range: 0.59-1.00

The DecisionDx®-Melanoma test reports results by molecular class (1A, 1B, 2A or 2B) and the associated 31-gene expression profile (31-GEP) score that ranges from 0.0 to 1.0. This class result informs risk of recurrence and likelihood of sentinel lymph node (SLN) positivity.

This patient's i31-GEP Personalized Risk of Recurrence Estimates (5-year, AJCC Stages I or II):

	Melanoma-Specific Survival (MSS)	**Distant Metastasis-Free Survival (DMFS)**	**Recurrence-Free Survival (RFS)**
Clinically or pathologically node-negative (clinical stage I or II)	82.6%	53.8%	26.9%

The DecisionDx-Melanoma integrated 31-GEP Risk of Recurrence (i31-ROR) test result was developed using artificial intelligence techniques. The validated i31-ROR algorithm integrates the 31-GEP score with the patient's specific clinicopathologic factors of Breslow thickness, ulceration, mitotic rate, SLN status, age and binned tumor location. Data shown above is based on a population of patients having completed a staging workup.

See page 2 for i31-GEP personalized risk of recurrence estimates for patients with clinically or pathologically node-positive melanoma (stage III) and information pertaining to likelihood of SLN positivity.

DecisionDx-Melanoma Risk of Recurrence Estimates (5-year) by 31-GEP Class and AJCC Stage:

AJCC Stage Information		**DecisionDx-Melanoma Class Result by Stage**			
Clinical Stage	**MSS by AJCC Stage**	**31-GEP Class Result**	**Melanoma-Specific Survival (MSS)**	**Distant Metastasis-Free Survival (DMFS)**	**Recurrence-Free Survival (RFS)**
Stage I	98%	1A 1B/2A 2B	>99% 98% 91%	98% 90% 86%	98% 88% 76%
Stage II	90%	1A 1B/2A 2B	98% 91% 85%	89% 82% 60%	73% 71% 44%
Stage III	77%	1A 1B/2A 2B	94% 85% 62%	68% 68% 42%	58% 53% 33%

Greenhaw et al. JAAD 2020

This patient's i31-GEP Personalized Likelihood of Sentinel Lymph Node Positivity

Likelihood of SLNB positivity (i31-SLNB):	**SLNB positivity estimates using histopathologic factors alone:**
28.1%	Breslow thickness of <0.8mm without ulceration or other adverse features* has an estimated likelihood of SLNB positivity of **less than 5%**
For those with risk less than 5%, SLNB is generally not recommended.	Breslow thickness of ≥0.8 – 1.0mm with or without ulceration or thickness <0.8mm with ulceration and/or other adverse features* has an estimated likelihood of SLNB positivity **between 5% and 10%**
For those with risk between 5% and 10%, SLNB is sometimes considered.	
Typically, SLNB is recommended for patients with risk of positivity greater than 10%.	Breslow thickness of >1.0mm with or without ulceration has an estimated likelihood of SLNB positivity **greater than 10%**

Whitman et al. JCO-PO 2021

The DecisionDx-Melanoma i31-GEP Likelihood of SLN Positivity (i31-SLNB) test result was developed using artificial intelligence techniques. The validated i31-SLNB algorithm integrates the 31-GEP score (0.0 – 1.0) with the patient's specific clinicopathologic factors of Breslow thickness, ulceration, mitotic rate, and age.

*Adverse features that signal uncertainty about the adequacy of microstaging may include positive deep margin, mitotic index ≥ 2/mm2 (particularly in the setting of young age), lymphovascular invasion or a combination of these and/or other histopathologic and clinical factors.

This patient's i31-GEP Personalized Risk of Recurrence Estimates (5-year, AJCC Stage III):

	Melanoma-Specific Survival (MSS)	**Distant Metastasis-Free Survival (DMFS)**	**Recurrence-Free Survival (RFS)**
Clinically or pathologically node-positive (clinical stage III)	69.1%	29.5%	7.9%

About the Test

The **DecisionDx-Melanoma** molecular test for cutaneous melanoma is a proprietary gene expression (GEP) assay offered solely by Castle Biosciences, Inc. The test uses RT-PCR to determine the expression of a panel of 31 genes (28 discriminant and 3 control) in primary tumor tissue to provide information on two critical treatment decisions: intensity of follow-up and surveillance imaging; and the risk of a positive SLN to inform SLNB patient selection. The twenty-eight discriminating genes in this profile are: BAP1 (two gene loci), MGP, SPP1, CXCL14, CLCA2, S100A8, BTG1, SAP130, ARG1, KRT6B, GJA1, ID2, EIF1B, S100A9, CRABP2, KRT14, ROBO1, RBM23, TACSTD2, DSC1, SPRR1B, TRIM29, AQP3, TYRP1, PPL, LTA4H and CST6. The three control genes are: FXR1, YKT6 and HNRNPL.

For additional information about the development and validation of the DecisionDx-Melanoma test, the i31-GEP algorithms and references, visit www.castletestinfo.com/decisiondx-melanoma.

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