

LYMPH NODE SENTINEL



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board)



LYMPH NODE SENTINEL

- Stage I & II: 85% of newly diagnosed patients
- Regional nodes, most common site of first recurrence
 - >50% chance for distant relapse
 - 15-50% chance for in-basin failure after lymph node dissection for palpable disease

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SLN identification rate: >90% with dual modality technique

- Blue dye
- Radio-colloid injections and gamma probe

INDICATIONS

- **SLND** should be offered to all patients with a clinically negative nodal basin and a primary melanoma **greater than 1 mm** in depth
- **SLND** may be considered for melanoma **0.76-1.0** mm in thickness if adverse features (debate):ulceration or mitotic rate $1/\text{mm}^2$, especially in the subgroup of patients with Breslow thickness 0.75 mm to 0.99 mm
- **SLND** may be considered for melanoma that exhibits regression (controversial)
- **SLND** may be offered to patients with deep (>4 mm) melanoma and clinically negative nodes

CONTRAINDICATIONS

- SLND is unnecessary when a patient presents with **systemic disease**
- Fine-needle aspiration (FNA) is preferable to SLND as a first step when a patient presents with a **clinically evident node**
- Some suggest that it may be inadvisable to repeat SLND after a prior SLND

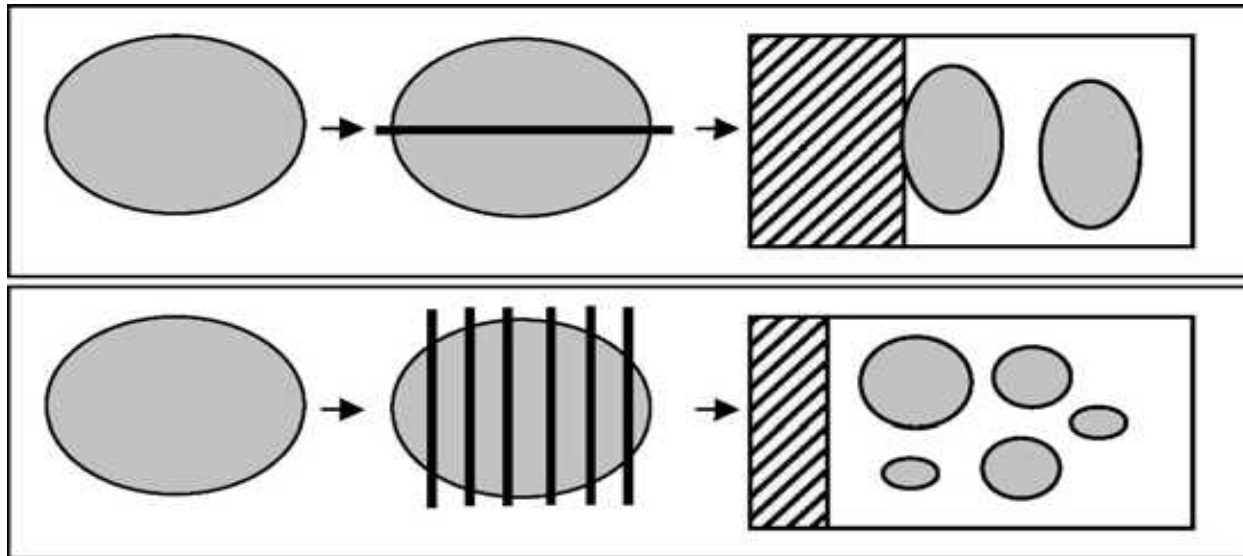
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- Injection of human albumin nanocolloid labelled with technetium 99mTc. The injection is in the intradermal layer, close to the scar of the removed melanoma or to the tumor if still present, and followed by scintigraphic scans (early and late) in the likely locations of lymphatic drainage
- Immediately prior to surgery, the primary site is further injected intradermally with 0.5 to 1 ml of a vital dye (patent Blue), to increase the sensitivity of the method and to facilitate the finding of the lymph node



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HISTOLOGICAL PROTOCOL



Bisection

Breadloafing

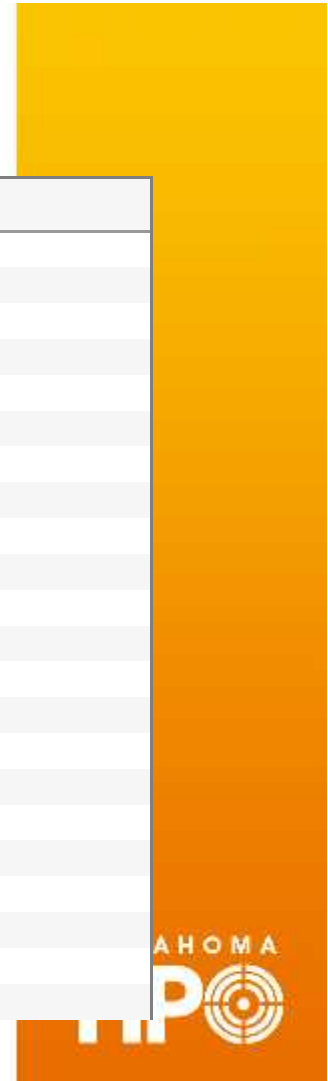
HISTOLOGICAL PROTOCOL (1/2)

Bivalving protocol (BP)		EORTC protocol	
1.	H&E	1.	H&E
2.	S-100	2.	S-100
3.	HMB-45/Sox10	---	---
4.	MART-1	---	---
5.	Tyrosinase or pMel4	3.	Spare
6.	Spare	---	---
50- m gap		50- m gap	
7.	H&E	4.	H&E
8.	S-100	5.	S-100
9.	HMB-45/Sox10	6.	HMB-45
10.	MART-1	---	---
11.	p-Mel	7.	p-Mel
12.	Tyrosinase or pMel4	8.	Spare
13.	Spare	9.	Spare
50- m gap		50- m gap	
14.	H&E	10.	H&E
15.	S-100	11.	S-100
16.	HMB-45/Sox10	---	---
17.	MART-1	---	---
18.	Tyrosinase or pMel4	12.	Spare
19.	Spare	---	---
50- m gap		50- m gap	

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HISTOLOGICAL PROTOCOL (2/2)

Bivalving protocol (BP)		EORTC protocol	
50- m gap		50- m gap	
20.	H&E	13.	H&E
21.	S-100	14.	S-100
22.	HMB-45/sox10	---	---
23.	MART-1	---	---
24.	Tyrosinase or pMel4	15.	Spare
25.	Spare	---	---
50- m gap		50- m gap	
26.	H&E	16.	H&E
27.	S-100	17.	S-100
28.	HMB-45/Sox10	---	---
29.	MART-1	---	---
30	Tyrosinase or pMel4	18.	Spare
		50- m gap	
		19.	H&E
		20.	S-100

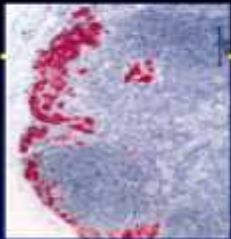
BIVALVING HAVE OUR PREFERENCE
AND IT'S A MODIFICATION OF EORTC
PROTOCOL BY INTRODUCING THE
MART-1 , TYROSINASE AND INCREASING
OF HMB45/Sox10 AND FINALLY THE
NUMBER OF SLIDES

*Source: Modern Pathology (2009) 22, 1622–1627;
doi:10.1038/modpathol.2009.137; published online 2 October 2009*

AJCC S CLASSIFICATION

- **S0** : absence of microscopically metastasis
- **S1** : ≤ 0.3 mm;
- **SII**: 0.31 to 1 mm;
- **SIII**: >1 mm.

SLN Tumor Burden Measurements



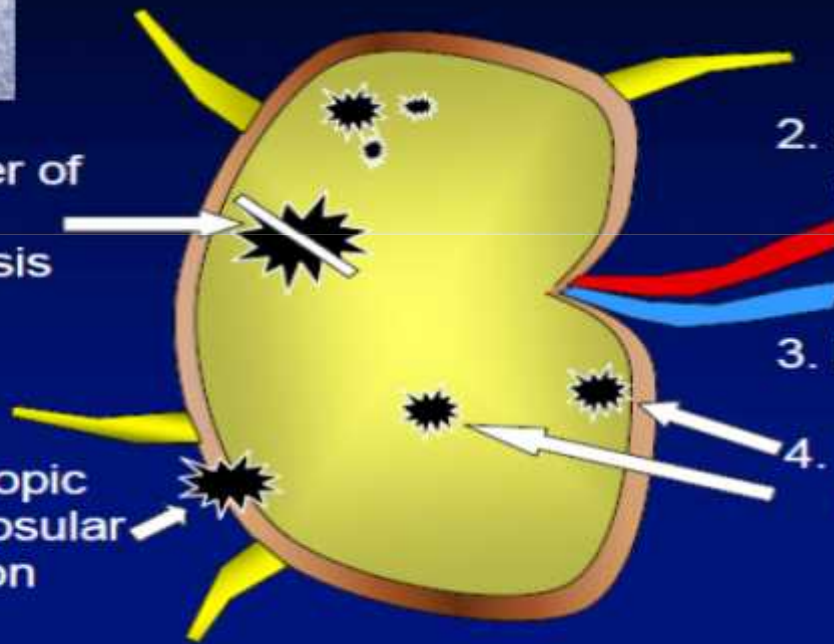
1. Diameter of largest metastasis

2. Square area of all metastases

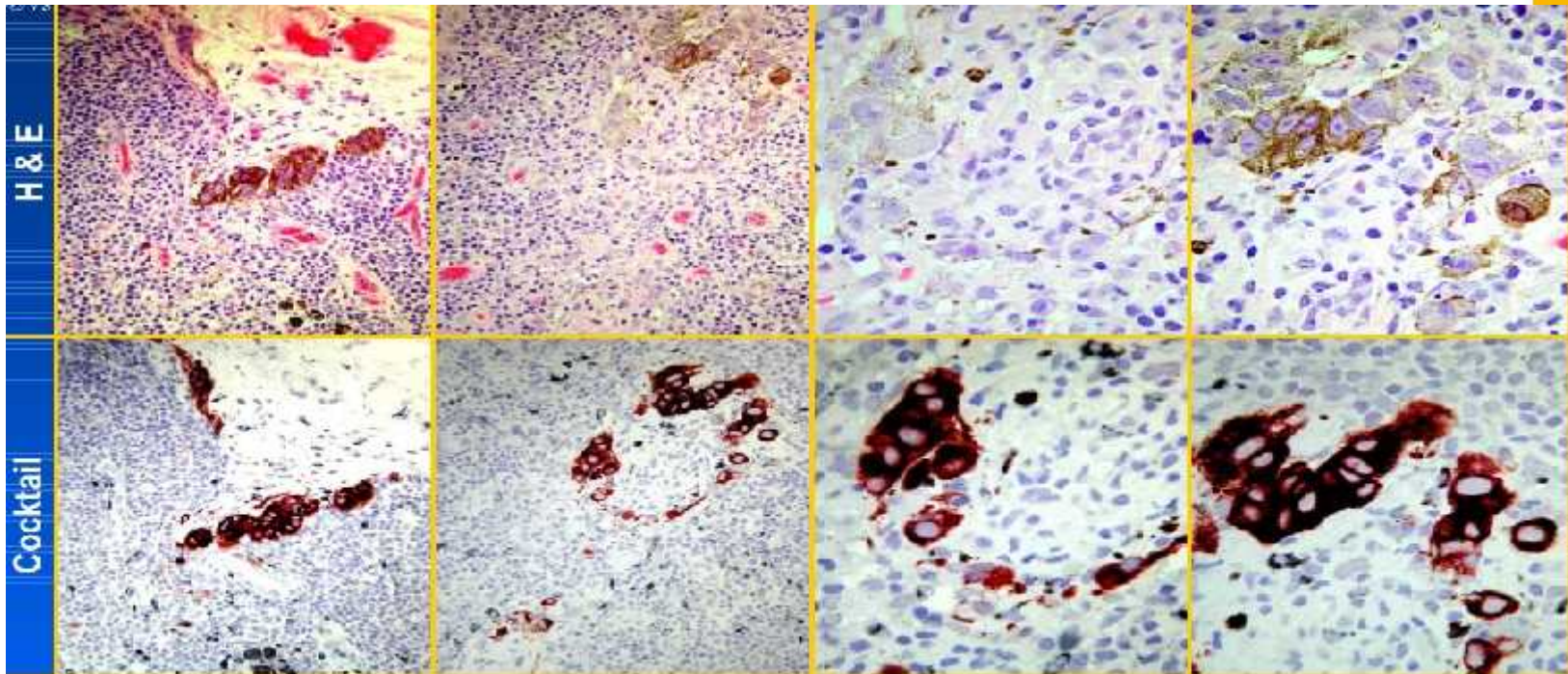
3. Number of foci

4. Subcapsular vs intramedullary

5. Microscopic extracapsular extension



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LYMPH NODE SENTINEL: 2 specials cases

- **Desmoplastic melanoma**: Low rate of involved lymph node
- Recent study (*Sunbelt Melanoma Trial*) : Pure DM: 9% versus Mixed DM: 24,6%
- High enough to justify use of SLNB in both histological variants of DM
- **Atypical Spitzoid tumors** : One on the most important problem and pitfall in melanoma diagnosis and a very controversial attitude
- In the majors centers is performed ...but in discussion (to be continue)

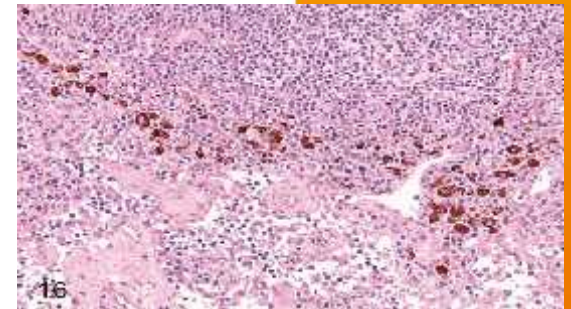
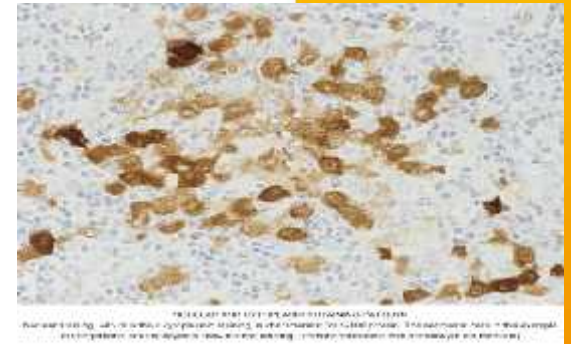
IS THE SENTINEL LYMPH NODE ALWAYS UP TO DATE?

RESULTS OF THE SECOND MULTICENTER SELECTIVE LYMPHADENECTOMY TRIAL (MSLT-II)

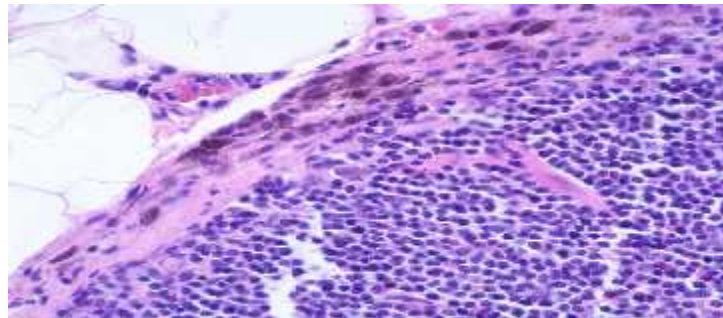
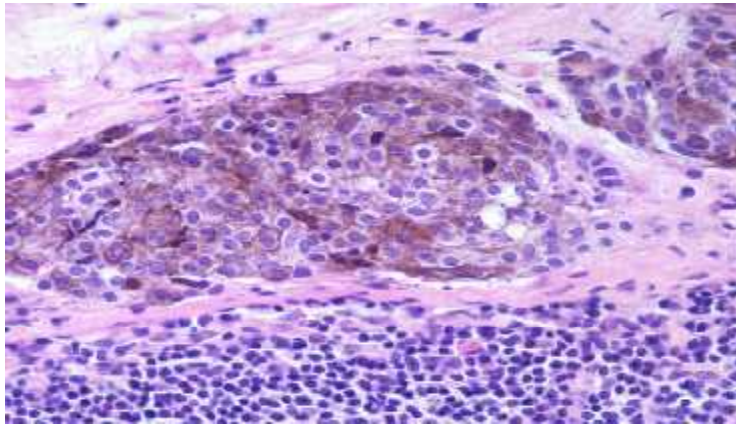
- No effect on the prognosis
- MSLT-II: 1934 patients (18-75 old) in 2 groups with + SLN:
Completion / Ultrasound and clinical follow-up:
- At 3 years, melanoma-specific survival was 86% in both groups—that is, 86% of the patients in each group had not died of melanoma
- At 3 years, 68% of those in the completion-surgery group and 63% in the observation group had not experienced a recurrence.

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- DIFFERENTIAL DIAGNOSIS:
- Dendritic cells with Ps100
- Macrophages with melanocytic pigments or tattoo
- Nodal Melanocytic Nevi and nevi rest(NMN) : THE TRUE PROBLEM



NODAL MELANOCYTYC NEVI



- Generally: capsular trabecula exceptionally in parenchyma sinus or sub capsular
- Aggregates of monotonous cells without atypia or mitosis
- Immunohistochemistry: Ps100 +
- Hmb45 or Mela A – (rare + case)

- Metastasis are generally Sox10 HMB45 and MelanA +

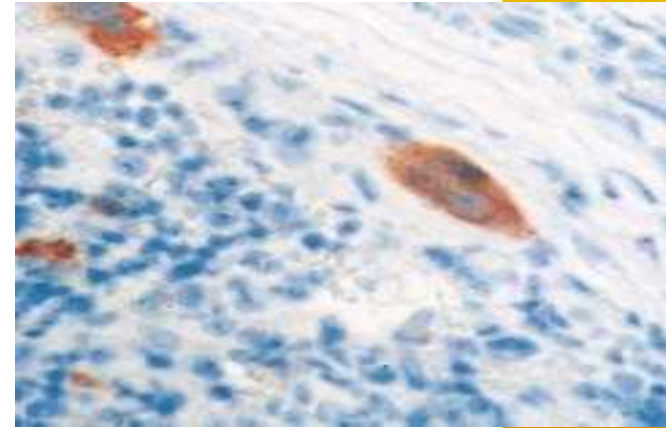
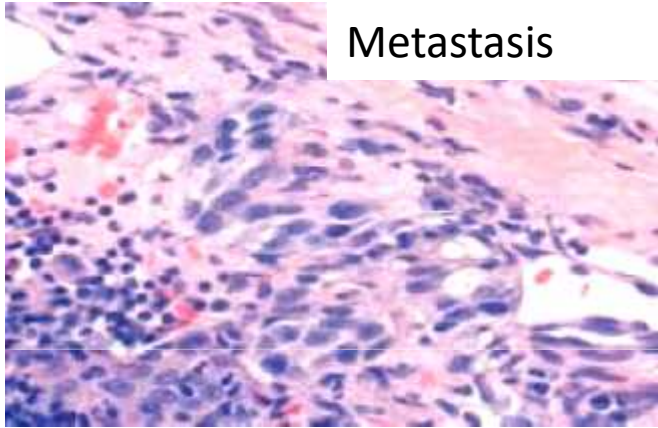
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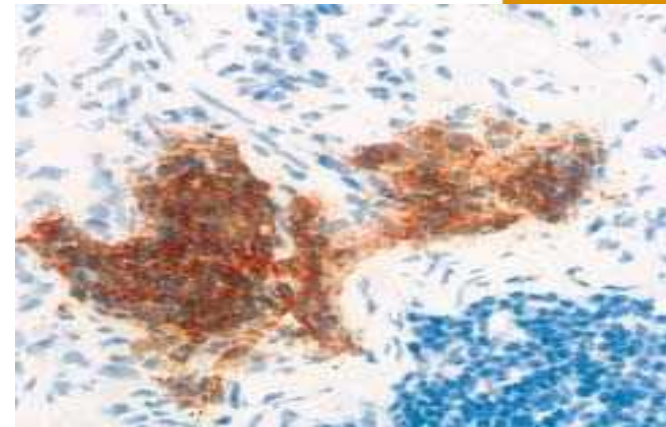
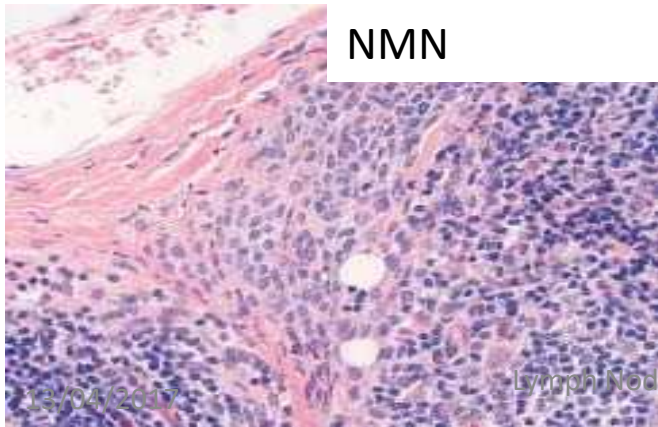
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NMN and Metastasis Ps100

Metastasis



NMN

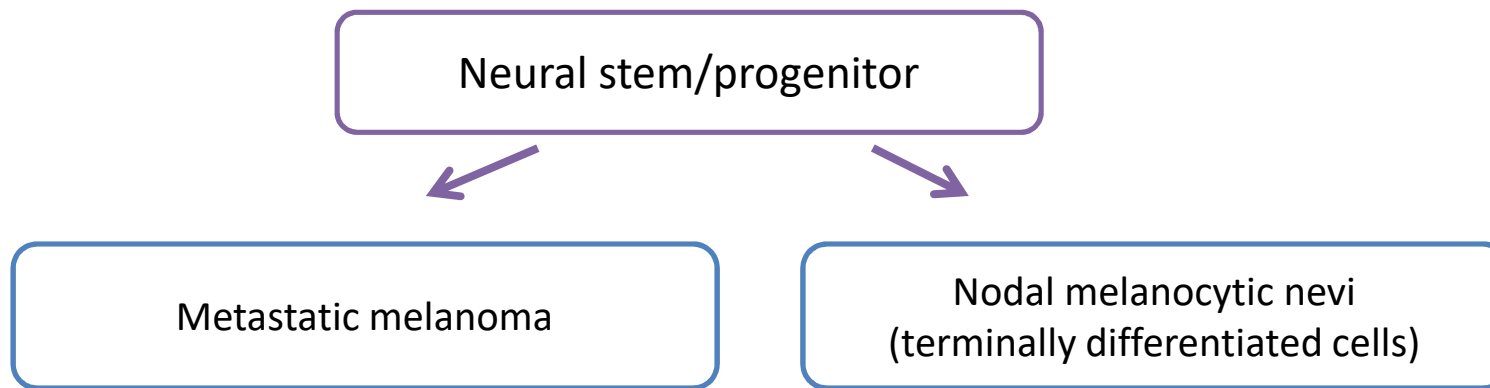


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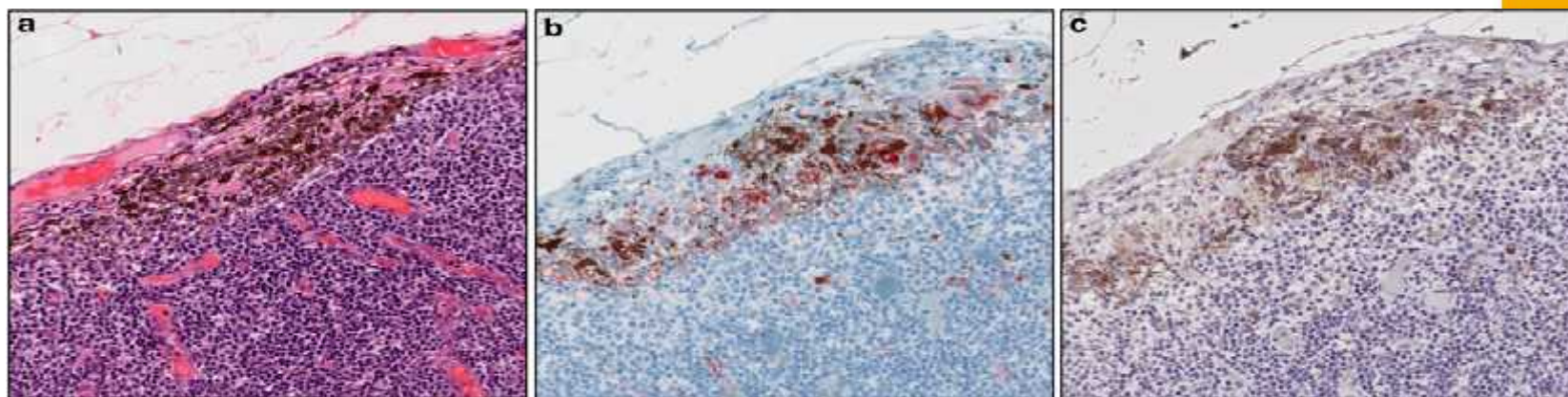
Sox10 and Nestin



Nestin and Sox10 **(both)** show a more frequent negativity for Nodal Melanocytic Nevi and frequent **positivity for Metastatic melanoma**

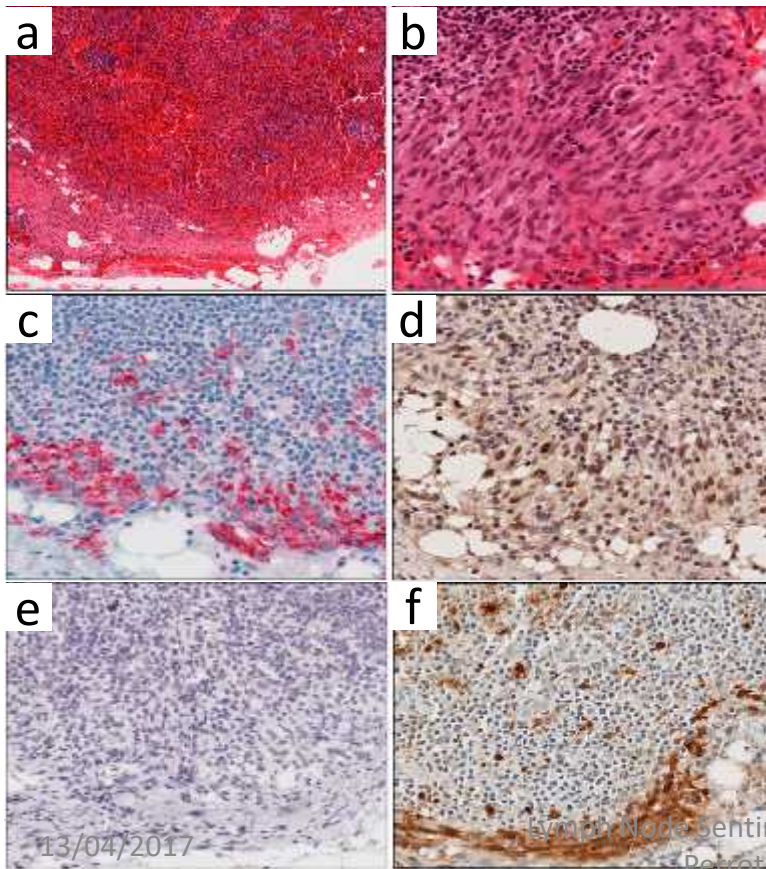
Diagnostic utility of neural stem and progenitor cell markers nestin and SOX2 in distinguishing nodal melanocytic nevi from metastatic melanomas

Pei-Ling Chen, Wei-Shen Chen, Jianping Li, Anne C Lind and Dongsi Lu



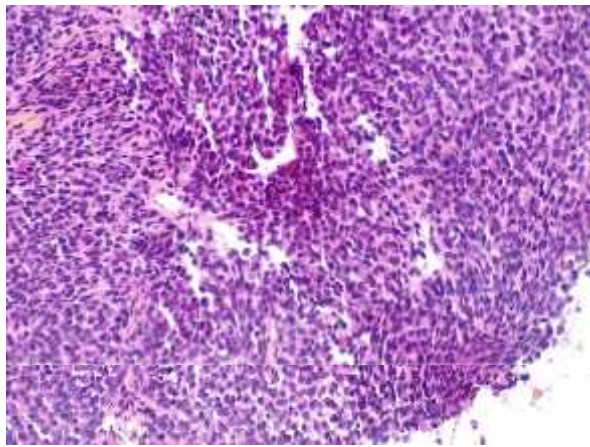
- (a) 'Sub capsular/intranodal melanocytic rest' with bland cytology, hematoxylin and eosin.
- (b) Subsets of cells with strong (3+) Nestin positivity
- (c) SOX2 is negative

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- (a) Metastatic desmoplastic melanoma infiltrating from the periphery of the lymph node, hematoxylin and eosin (H&E).
- (b) H&E.
- (c) Nestin strongly (3+) highlighted the tumor cells.
- (d) SOX10 nuclear staining was also positive.
- (e) MelanA is negative in the metastatic melanoma cells.
- (f) S100 protein highlights both desmoplastic melanoma and follicular dendritic cells.

Sox10 in melanoma metastasis



Lymph node melanoma metastasis



Metastatic status of sentinel lymph nodes in melanoma determined noninvasively with multispectral optoacoustic imaging

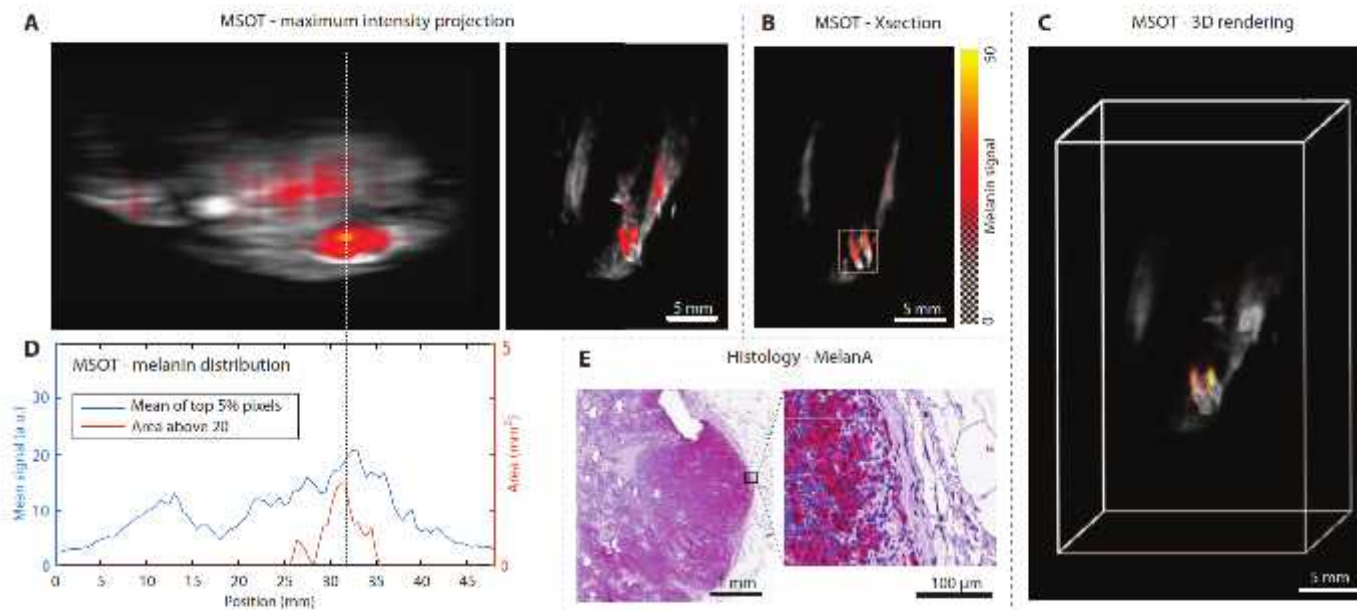
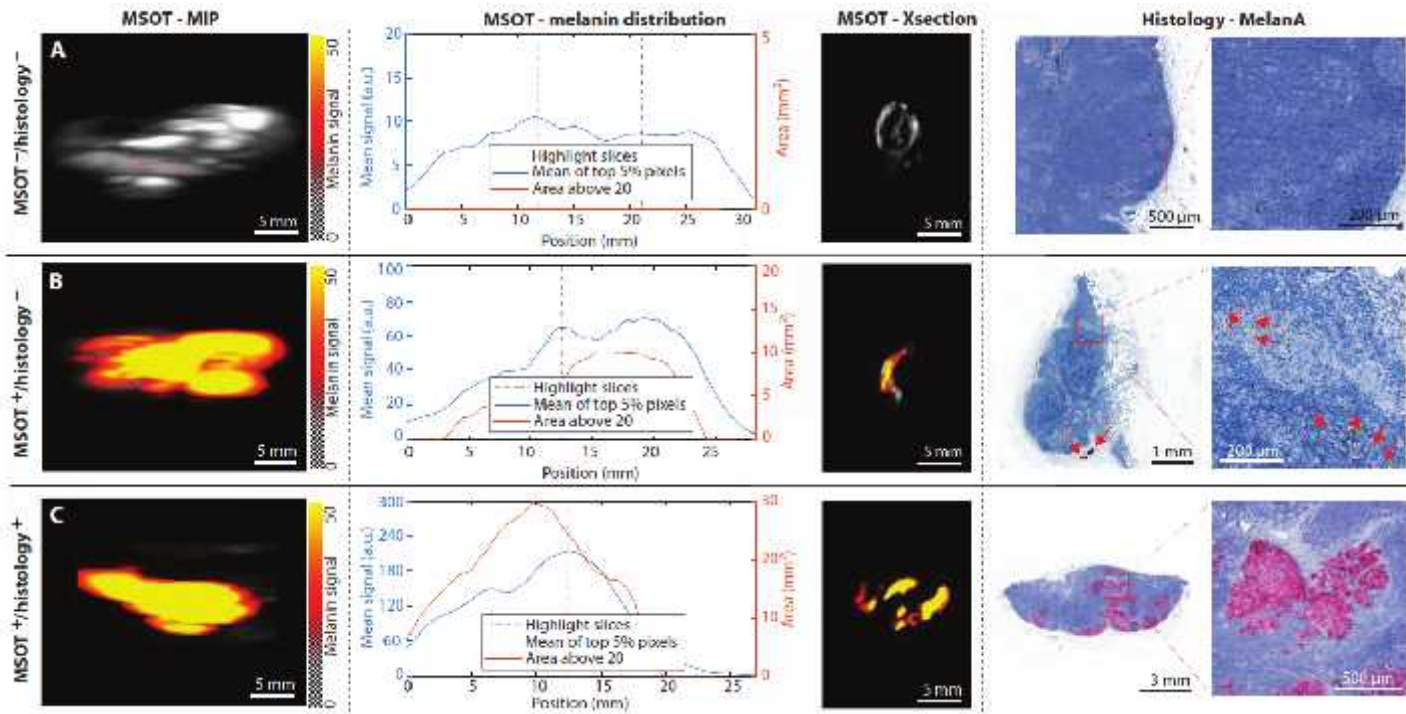


Fig. 1. Ex vivo optoacoustic and histological analysis of a human lymph node from a melanoma patient. (A to E) Grayscale pixels represent the hemoglobin background, whereas the colored overlay shows multispectrally resolved signals specific for melanin. (A) Maximum intensity projections (MIPS) of the lymph node in lateral and axial views, respectively. (D)

Signal distribution along the lateral axis. A single cross section is depicted in (B) [location marked by dashed line in (A) and (D)], with (E) showing the corresponding MelanA stain at low and high magnifications. a.u., arbitrary unit. (C) Three-dimensional rendering of the MSOT image data displayed in (A).

MULTISPECTRAL OPTOACOUSTIC IMAGING



THANK YOU FOR YOUR ATTENTION

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ΠΡΟ

