#2221

Molecular analysis finds excision margin width predictive of recurrence in acral melanoma

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Background

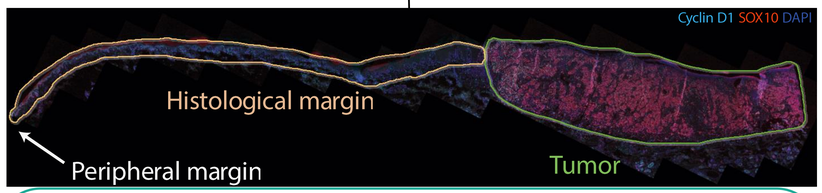
- Primary acral melanoma is usually cured by surgical excision with histologically clear margins[1]
- In-situ melanoma in acral locations can be very subtle, resulting in difficulty determining whether histological margins are clear[1,2]
- Molecular markers of melanoma, including SOX10, PRAME, Cyclin D1 and p16, may more accurately detect the extent of acral melanoma in-situ than standard H&E assessment[3,4]

This study aims to determine whether molecular markers can detect molecularly abnormal but histologically normal cells beyond the tumor margin, and whether such cells are associated with recurrence in acral melanoma.

Methods

Primary acral melanomas excised 1993-2011 with histopathologically reported clear margins of >0.3mm (n = 85), with median clinical follow-up of 6 months (range 1-260 mo)

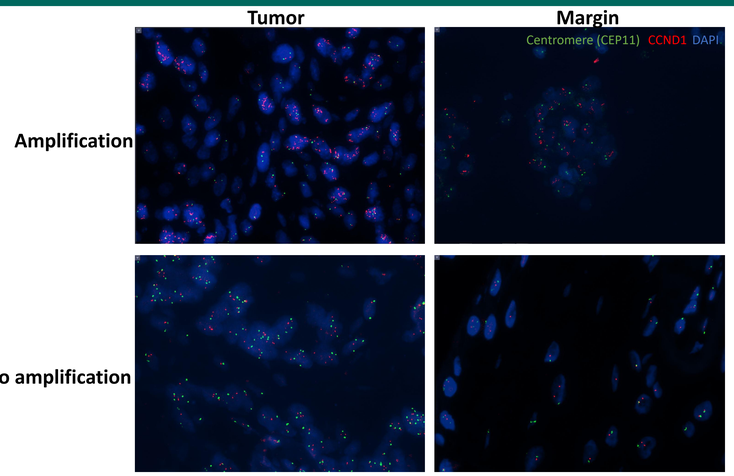
Recurrence-free (n = 37) | Recurred (n = 48)



Tumor & histological margin assessed for malignant cells using:

1. Traditional H&E assessment
2. FISH: detected *CCND1* amplification (n=75)
3. mIHC: quantified expression of molecular markers SOX10, PRAME, p16, Cyclin D1 (n=71)

CCND1 amplification in acral melanoma



CCND1 FISH	Amplification	No amplification
Total	9 (11.8%)	67 (88.2%)
Recurrence	3 (7.7%)	36 (92.3%)
Recurrence-free	6 (16.2%)	31 (83.8%)

Figure 1. Amplification of *CCND1* detected by FISH is not closely associated with recurrence

Expression of Cyclin D1, PRAME & p16

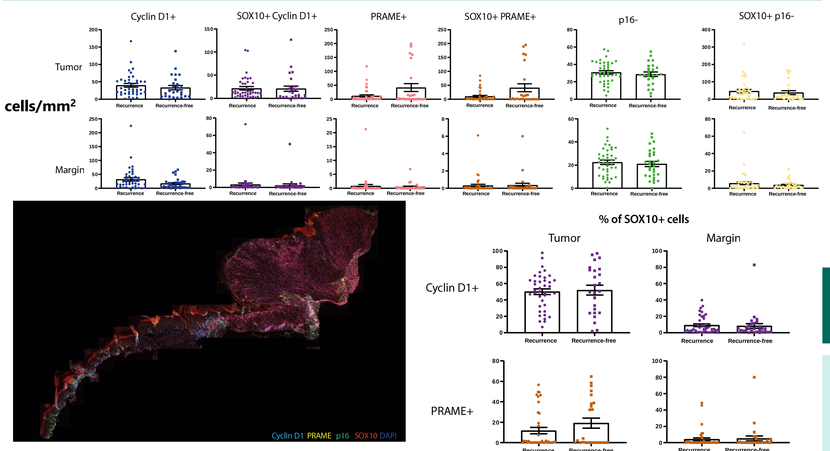
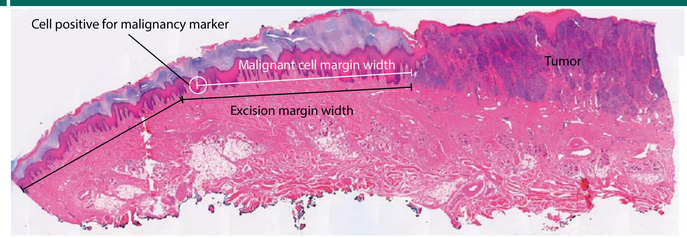


Figure 2. mIHC finds that neither Cyclin D1, PRAME nor p16 are associated with recurrence when expressed alone or co-expressed with SOX10

Excision margin width correlation with recurrence



Malignant cells detected using traditional H&E assessment

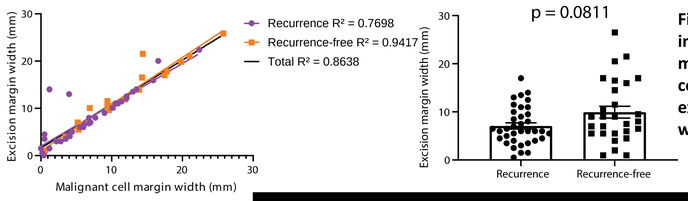
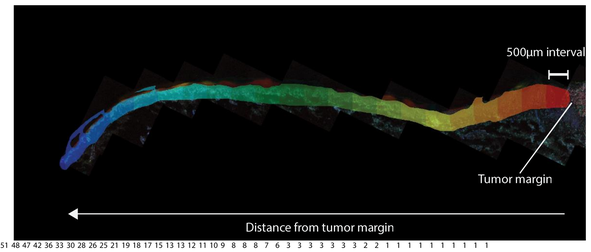
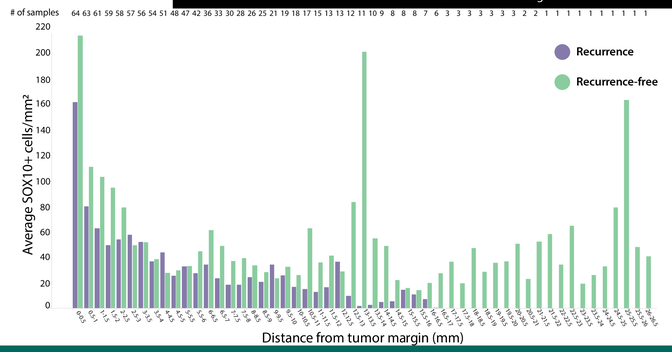


Figure 3. Recurrence in primary acral melanoma is best correlated with excision margin width in this cohort

Figure 4. SOX10 cell extent into histological margin is more closely associated with excision margin width than with recurrence





Conclusion

- Expression of molecular markers Cyclin D1, p16 and PRAME was not associated with recurrence in acral melanoma
- *CCND1* amplification could not be associated with recurrence
- Excision margin width in primary acral melanoma remains a strong predictor of melanoma recurrence

References

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