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**Original contribution**

**Prognostic importance of mitochondrial markers in mucosal and cutaneous head and neck melanomas****[☆](https://www.sciencedirect.com/science/article/abs/pii/S004681771830443X?via%3Dihub" \l "aep-article-footnote-id1)****[☆☆](https://www.sciencedirect.com/science/article/abs/pii/S004681771830443X?via%3Dihub" \l "aep-article-footnote-id2)**

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**Highlights**

•

High content of mitochondria may play an important role in melanoma pathogenesis.

•

FIS1 expression predicts lower overall survival rates in oral melanoma patients.

•

FIS1 expression is associated with vascular invasion in mucosal melanoma patients.

•

MFN2 expression predicts metastasis in cutaneous melanoma patients.

**Summary**

Mitochondrial dysfunction is caused by an imbalance in the fission and fusion processes, and it has been implicated in the [pathogenesis](https://www.sciencedirect.com/topics/medicine-and-dentistry/pathogenesis) of several human [cancers](https://www.sciencedirect.com/topics/medicine-and-dentistry/malignant-neoplasm). However, the [role](https://www.sciencedirect.com/topics/medicine-and-dentistry/role-playing) of mitochondrial [markers](https://www.sciencedirect.com/topics/medicine-and-dentistry/marker) in [melanomas](https://www.sciencedirect.com/topics/medicine-and-dentistry/nodular-melanoma) still remains poorly understood. In this study, the authors assessed the expression of 3 mitochondrial markers (antimitochondrial, fission [protein 1](https://www.sciencedirect.com/topics/medicine-and-dentistry/synapsin-i) [FIS1], and [mitofusin 2](https://www.sciencedirect.com/topics/medicine-and-dentistry/mitofusin-2%22%20%5Co%20%22Learn%20more%20about%20Mitofusin%202%20from%20ScienceDirect%27s%20AI-generated%20Topic%20Pages) [MFN2]) in a series of head and [neck](https://www.sciencedirect.com/topics/medicine-and-dentistry/neck) [mucosal and cutaneous melanomas](https://www.sciencedirect.com/topics/medicine-and-dentistry/mucosal-melanoma). Patients with cutaneous (n = 56) and mucosal (oral, n = 30, sinonasal, n = 26) melanomas of the head and neck region were enrolled in this study. Clinical and [follow-up](https://www.sciencedirect.com/topics/medicine-and-dentistry/follow-up) data were retrieved from medical records. The expression of 3 mitochondrial markers was assessed by the [immunohistochemistry](https://www.sciencedirect.com/topics/medicine-and-dentistry/immunohistochemistry), and then digitally quantified and correlated with clinicopathological data and outcome information. In the multivariate model, high mitochondrial content was identified as an independent prognostic value for [disease-free survival](https://www.sciencedirect.com/topics/medicine-and-dentistry/disease-free-survival) (DFS) in [cutaneous melanomas](https://www.sciencedirect.com/topics/medicine-and-dentistry/cutaneous-melanoma) and [overall survival](https://www.sciencedirect.com/topics/medicine-and-dentistry/overall-survival) in oral melanomas. FIS1 expression was significantly associated with lower overall survival rates in patients with oral melanomas and strictly correlated with vascular invasion in mucosal melanomas. MFN2 was associated with high risk of [distant metastasis](https://www.sciencedirect.com/topics/medicine-and-dentistry/distant-metastasis) in patients with cutaneous melanomas. In summary, the authors demonstrated that mitochondrial content, along with FIS1 and MFN2 expressions, is correlated with important clinicopathological characteristics in patients with cutaneous and mucosal head and neck melanomas.

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