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Expression of Mina53, a novel c-Myc target gene, is a favorable prognostic marker in early stage lung cancer

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Expression of Mina53, a novel c-Myc target gene, is a favorable prognostic marker in early stage lung cancer
Previous ArticleValue of quantitative analysis of circulating cell free DNA as a screening tool for lung cancer: A meta-analysis
Next ArticleAberrant promoter methylation of FBLN-3 gene and clinicopathological significance in non-small cell lung carcinoma

Abstract

Mina53, a novel target gene product of c-Myc, is overexpressed in various malignancies. We previously demonstrated that Mina53 is overexpressed in lung cancer patients from the early clinical stages. In this paper, the association between disease prognosis and Mina53 expression in lung cancer patients is analyzed; we found that overexpression of Mina53 in lung cancer patients is associated with favorable prognosis. Statistical analysis using the Kaplan–Meier method showed that patients with negative staining for Mina53 had significantly shorter survival than patients with positive staining for Mina53, especially in stage I or with squamous cell carcinoma. Because the major cause of death in lung cancer patients after surgery is distant metastasis, the effect on cancer cell invasiveness was analyzed for the mechanisms involved in the association with favorable outcome. Overexpression of Mina53 in H226B, a lung squamous cell carcinoma cell line, inhibited cancer cell invasion. Transfection with *mina53* shRNA increased the number of invading cells. These results suggest that Mina53 immunostaining is a useful prognostic marker – especially in the early stage of lung cancer – and that Mina53 negative patients should be managed particularly carefully after surgery.

Keywords

- Mina53
- c-myc
- Lung cancer
- Apoptosis
- Cell invasion
- Prognosis

References

1. "Cancer Statistics in Japan" Editorial Board. Number of deaths and proportional mortality rates from malignant neoplasms by site in Japan.
in: Nomura K. Sobue T. Nakatani H. et al. Cancer Statistics in Japan-2005. Foundation for Promotion Cancer Research, Tokyo2005: 36-39
View in Article
   - Google Scholar
2. - Asamura H.
   - Goya T.
   - Koshiishi Y.
   - Sohara Y.
   - Eguchi K.
   - Mori M.
   - et al.

   Japanese Joint Committee of Lung Cancer Registry. A Japanese Lung Cancer Registry study: prognosis of 13,010 resected lung cancers.
   J Thorac Oncol. 2008; 3: 46-52
   View in Article
   - Scopus (347)
   - PubMed
   - Crossref
   - Google Scholar
3. - Ihde D.C.

   Chemotherapy of lung cancer.
   N Engl J Med. 1992; 327: 1434-1441
   View in Article
   - Scopus (433)
   - PubMed
   - Crossref
   - Google Scholar
4. - Jung K.J.
   - Lee K.S.
   - Kim H.
   - Kwon O.J.
   - Kim J.
   - Shim Y.M.
   - et al.

   T1 lung cancer on CT: frequency of extrathoracic metastases.
   J Comput Assist Tomogr. 2000; 24: 711-718
   View in Article
   - Scopus (25)
   - PubMed
   - Crossref
   - Google Scholar
5. - Tsuneoka M.
   - Koda Y.
   - Soejima M.

- Teye K.
- Kimura H.

A novel myc target gene, mina53, that is involved in cell proliferation.
J Biol Chem. 2002; 277: 35450-35459
View in Article
- Scopus (102)
- PubMed
- Crossref
- Google Scholar

6. - Teye K.
   - Tsuneoka M.
   - Arima N.
   - Koda Y.
   - Nakamura Y.
   - Ueta Y.
   - et al.

   Increased expression of a Myc target gene Mina53 in human colon cancer.
   Am J Pathol. 2004; 164: 205-216
   View in Article
   - Scopus (68)
   - PubMed
   - Abstract
   - Full Text
   - Full Text PDF
   - Google Scholar
7. - Teye K.
   - Arima N.
   - Nakamura Y.
   - Sakamoto K.
   - Sueoka E.
   - Kimura H.
   - et al.

   Expression of Myc target gene mina53 in subtypes of human lymphoma.
   Oncol Rep. 2007; 18: 841-848
   View in Article
   - PubMed
   - Google Scholar
8. - Tsuneoka M.
   - Fujita H.
   - Arima N.
   - Teye K.
   - Okamura T.
   - Inutsuka H.
   - et al.

   Mina53 as a potential prognostic factor for esophageal squamous cell carcinoma.
   Clin Cancer Res. 2004; 10: 7347-7356
   View in Article
   - Scopus (65)
   - PubMed
   - Crossref
   - Google Scholar
9. - Ishizaki H.
   - Yano H.
   - Tsuneoka M.
   - Ogasawara S.
   - Akiba J.
   - Nishida N.

- et al.

Overexpression of the myc target gene Mina53 in advanced renal cell carcinoma.
Pathol Int. 2007; 57: 672-680
View in Article
- Scopus (48)
- PubMed
- Crossref
- Google Scholar

10.
- Fukahori S.
- Yano H.
- Tsuneoka M.
- Tanaka Y.
- Yagi M.
- Kuwano M.
- et al.

Immunohistochemical expressions of Cap43 and Mina53 proteins in neuroblastoma.
J Pediatr Surg. 2007; 42: 1831-1840
View in Article
- Scopus (39)
- PubMed
- Abstract
- Full Text
- Full Text PDF
- Google Scholar

11.
- Sunaga S.
- Maki K.
- Komagata Y.
- Ikuta K.
- Miyazaki J.I.

Efficient removal of loxP-flanked DNA sequences in a gene-targeted locus by transient expression of Cre recombinase in fertilized eggs.
Mol Reprod Dev. 1997; 46: 109-113
View in Article
- Scopus (30)
- PubMed
- Crossref
- Google Scholar

12.
- Gupta G.P.
- Massagué J.

Cancer metastasis: building a framework.
Cell. 2006; 127: 679-695
View in Article
- Scopus (3054)
- PubMed
- Abstract
- Full Text
- Full Text PDF
- Google Scholar

13.
- Clissold P.M.
- Ponting C.P.

JmjC: cupin metalloenzyme-like domains in jumonji, hairless and phospholipase A2beta.
Trends Biochem Sci. 2001; 26: 7-9
View in Article
- Scopus (195)
- PubMed
- Abstract
- Full Text

- Full Text PDF
- Google Scholar

14. Tsukada Y.
    Fang J.
    Erdjument-Bromage H.
    Warren M.E.
    Borchers C.H.
    Tempst P.
    et al.
    Histone demethylation by a family of JmjC domain-containing proteins.
    Nature. 2006; 439: 811-816
    View in Article
    - Scopus (1487)
    - PubMed
    - Crossref
    - Google Scholar
15. Cloos P.A.
    Christensen J.
    Agger K.
    Maiolica A.
    Rappsilber J.
    Antal T.
    et al.
    The putative oncogene GASC1 demethylates tri- and dimethylated lysine 9 on histone H3.
    Nature. 2006; 442: 307-311
    View in Article
    - Scopus (582)
    - PubMed
    - Crossref
    - Google Scholar
16. Suzuki T.
    Minehata K.
    Akagi K.
    Jenkins N.A.
    Copeland N.G.
    Tumor suppressor gene identification using retroviral insertional mutagenesis in Blm-deficient mice.
    EMBO J. 2006; 25: 3422-3431
    View in Article
    - Scopus (127)
    - PubMed
    - Crossref
    - Google Scholar
17. Yamane K.
    Tateishi K.
    Klose R.J.
    Fang J.
    Fabrizio L.A.
    Erdjument-Bromage H.
    et al.
    PLU-1 is an H3K4 demethylase involved in transcriptional repression and breast cancer cell proliferation.
    Mol Cell. 2007; 25: 801-812
    View in Article
    - Scopus (370)
    - PubMed
    - Abstract

- Full Text
- Full Text PDF
- Google Scholar

18. Saze H.
    Shiraishi A.
    Miura A.
    Kakutani T.
    Control of genic DNA methylation by a jmjC domain-containing protein in Arabidopsis thaliana.
    Science. 2008; 319: 462-465
    View in Article
    - Scopus (210)
    - PubMed
    - Crossref
    - Google Scholar
19. Frescas D.
    Guardavaccaro D.
    Bassermann F.
    Koyama-Nasu R.
    Pagano M.JHDM1B/FBXL10 is a nucleolar protein that represses transcription of ribosomal RNA genes.
    Nature. 2007; 450: 309-313
    View in Article
    - Scopus (204)
    - PubMed
    - Crossref
    - Google Scholar
20. Pfau R.
    Tzatsos A.
    Kampranis S.C.
    Serebrennikova O.B.
    Bear S.E.
    Tsichlis P.N.
    Members of a family of JmjC domain-containing oncoproteins immortalize embryonic fibroblasts via a JmjC domain-dependent process.
    Proc Natl Acad Sci USA. 2008; 105: 1907-1912
    View in Article
    - Scopus (92)
    - PubMed
    - Crossref
    - Google Scholar
21. Lu Y.
    Chang Q.
    Zhang Y.
    Beezhold K.
    Rojanasakul Y.
    Zhao H.
    et al.
    Lung cancer-associated JmjC domain protein mdig suppresses formation of tri-methyl lysine 9 of histone H3.
    Cell Cycle. 2009; 8: 2101-2109
    View in Article
    - Scopus (69)
    - PubMed
    - Crossref
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