ABSTRACT

SPRED2 (Sprouty-related, EVH1 domain-containing protein 2), a negative regulator of the ERK1/2 pathway, is downregulated in several cancers; however, the significance of SPRED2 expression in lung adenocarcinoma (LUAD) remains unclear. Here, we investigated the pathological expression of SPRED2 and its relationship with ERK1/2 activation (ERK1/2 phosphorylation), Ki67 index and clinicopathological features in 77 LUAD tissues from clinical patients. Immunohistochemically, SPRED2 expression was decreased in invasive adenocarcinoma (IA) compared to adenocarcinoma in situ (AIS). There was a negative correlation between SPRED2 expression and pERK1/2 levels and a positive correlation between SPRED2 expression and Ki67 index. In the database analysis, the survival probability was higher in patients with higher SPRED2 expression than in those with lower expression. In vitro, SPRED2 deletion increased cell proliferation, migration and invasion of three LUAD cell lines (A549:KRAS mutation, H1993:METamplification, and HCC4006:EGFR mutation), whereas SPRED2 overexpression decreased these responses. Thus, SPRED2 appears to be a regulator of LUAD progression and a potential target for the treatment of LUAD.

Keywords

SPRED2; ERK1/2; Ki67; Lung adenocarcinoma