

Abstract

Background/Aim: The therapeutic strategy for patients with non-small-cell lung cancer (NSCLC) harboring the *BRAF* non-V600E mutation has not been established. LY3009120, a newly discovered pan-RAF inhibitor, has shown strong antitumor effects in cancers with various *BRAF* genotypes. This study investigated the antitumor effects of LY3009120 in NSCLC cells harboring the *BRAF* non-V600E mutation.

Materials and Methods: We examined the antitumor effects of LY3009120 by MTS assay and flow cytometry. We analyzed the expression status of proteins by western blot. The mouse xenograft models were used for the *in vivo* experiments.

Results: LY3009120 suppressed BRAF-related downstream pathway molecules and induced cleavage of poly ADP-ribose polymerase in all examined NSCLC cell lines. LY3009120 also inhibited *in vivo* tumor growth in NSCLC cells harboring the *BRAF* non-V600E mutation.

Conclusion: LY3009120 is a potent therapeutic agent for patients with *BRAF* non-V600E mutant NSCLC.