

Advances and challenges in developing andrographolide and its analogues as cancer therapeutic agents

ABSTRACT

Andrographolide (AGP), a naturally occurring bioactive compound, has been investigated as a lead compound in cancer drug development. Its multidimensional therapeutic effects have raised interest among medicinal chemists, which has led to extensive structural modification of the compound, resulting in analogues with improved pharmacological and pharmaceutical properties. Nevertheless, the analogues with the improved properties need to be rigorously studied to identify drug-like lead compounds. We scrutinised articles published from 2012 to 2018, to objectively provide opinions on the mechanisms of action of AGP and its analogues, as well as their potential as viable anticancer drugs. Preclinical and clinical data, along with the extensive medicinal chemistry efforts, indicate the compounds are potential anticancer agents with specific value in treating recalcitrant cancers such as pancreatic and lung cancers.