

MARCH8: the tie that binds to viruses.

Abstract

Membrane-associated RING-CH (MARCH) family member proteins are RING-finger E3 ubiquitin ligases that are known to downregulate cellular transmembrane proteins. MARCH8 is a novel antiviral factor that inhibits HIV-1 envelope glycoprotein and vesicular stomatitis virus G by downregulating these envelope glycoproteins from the cell surface, resulting in their reduced incorporation into virions. More recently, we have found that MARCH8 reduces viral infectivity via two different mechanisms. Additionally, several groups have reported further antiviral or virus-supportive functions of the MARCH8 protein and its other cellular mechanisms. In this review, we summarize the current knowledge about the molecular mechanisms by which MARCH8 can regulate cellular homeostasis and inhibit and occasionally support enveloped virus infection.