

Investigating the Role of Circular RNA GATAD2A on H1N1 Replication

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Abstract : Circular RNAs (circRNAs) play critical roles in various diseases. However, whether and how circular RNA regulates influenza A virus (IAV) infection is unknown. Here, we studied the role of circular RNA GATA Zinc Finger Domain Containing 2A (circ-GATAD2A) in the replication of IAV H1N1 in A549 cells. Circ-GATAD2A was formed upon H1N1 infection. Knockdown of circ-GATAD2A in A549 cells enhanced autophagy and inhibited H1N1 replication. By contrast, overexpression of circ-GATAD2A impaired autophagy and promoted H1N1 replication. Similarly, knockout of vacuolar protein sorting 34 (VPS34) blocked autophagy and increased H1N1 replication. However, the expression of circ-GATAD2A could not further enhance H1N1 replication in VPS34 knockout cells. Collectively, these data indicated that circ-GATAD2A promotes the replication of H1N1 by inhibiting autophagy.

Keywords : autophagy, circ-GATAD2A, H1N1, replication

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