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Ubiquitination of matrix protein 2 of influenza a virus is crucial for viral production

Wen-Chi Su[1], Wen-Ya Yu[1], Shih-Han Huang[1] and Michael M C Lai[1, 2]
[1]China Medical University, Taiwan
[2]Academia Sinica, Taiwan

Several studies have indicated a general requirement for ubiquitin signaling pathway in the influenza virus replication cycle. However, how the influenza virus utilizes cellular ubiquitin system for its replication remains unclear. Here, we demonstrated that influenza A virus matrix protein 2 (M2) could be ubiquitinated, the lysine residue at position 78 was essential for M2 ubiquitination. M2-K78R (Lys78◊Arg78) which is defective in M2 ubiquitination showed a severe defect in production of infectious virus. The progeny virions of M2-K78R mutant contained more HA proteins, less viral RNAs and less internal viral proteins, M1 and NP. Moreover, M2-K78R mutant had lower binding activity with M1 protein, which could account for the reduction of incorporation of viral ribonucleoprotein and the increase of empty virion production. Collectively, these results suggest that the ubiquitination of M2 plays an important role in infectious virus production by coordinating efficient packaging of genome into virus particles.

Biography

Wen-Chi Su is currently an Assistant Professor in China Medical University and an Assistant Researcher in China Medical University Hospital in Taiwan. Her study focuses on virus-host interactions and viral pathogenesis.

t23514@mail.cmuh.org.tw

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