

Avian Influenza virus A H5N1 polymerases PA, PB1 and hemagglutinin contain a platelet integrin ITGB3 inducing auto-immune anti-platelet antibodies and thrombocytopenia.

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Among the prognostic factors in complicated lethal Influenza A H5N1 Vietnam, a low platelet count in patients is highly correlated to mortality ; oseltamivir is completely inefficient and not recommended in these cases. This thrombocytopenia was investigated by analysing amino acid sequences of platelet glycoprotein gpIIb/IIIa (integrin ITGA2b/ITGB3) at the epitope ITGB3 49-CAPESIEFPVSEARVLED-66 of Nardi MA (PNAS, 1997), which induced a thrombocytopenia in mice by inducing high affinity auto-antibodies. Many pathogens mimic this Phenylalanine-Proline FP dipeptide (Tran GMK, ISHEID Conf 2010), most of them being hemorrhagic fevers (for instance, Ebola, hemorrhagic dengue fever type 2, leptospirosis Adaman hemorrhagic fever, etc). Avian Influenza H5N1 was compared to a chicken Ebola ; Ebola (Sudan) L polymerase was 747-SVFPL(S,E)S-754. We found this crucial auto-immune epitope in Influenza A H5N1 Duck/Guandong/07/2000 RNA-dependent polymerase subunit PA 522-SMEFPLTDPRL-533. Other Influenza were H5N1 Goose/Guandong/1/96(Gs/Gd),A/India /Pun/2015(H1N1),A /canine/NY /dog /2008(H3N8). The longest alignment was between a chimera (Goose /Guandong with other Influenza) and ITGB3 :

ITGB3

CDLKENLLKDNCAPESEIEFPVSEARVLE

Influenza

CQLKWALGENMAPESMEFPLTDPR-LE

There is an alignment between gallus ITGB3 and Influenza H5N1 Hemagglutinin :

Gallus ITGB3

DF(E,I)FPRSS

Influenza H5N1 HA

128-EKIQIFPRSS-137

Vietnam Homo/2005

EKIQIIPKSS

Polymerase PB1 (Kawaoka Y, 1989) of A/Mallard/Shanghai/2013 (H5N8) has SMELP(F,S).
Conclusion : Influenza virus A H5N1 contains a platelet integrin ITGB 3 with a central motif FP which induces high affinity auto-antibodies against platelets and destroying them, at 3 places (polymerases PA, PB1 and HA). As anti-proteases (Saquinavir, Ritonavir, etc) used in HIV-1 infection mimic this FP (because FP is present in HIV-1 GAG, cleaved by the protease), they may constitute haptens blocking deleterious anti-platelet auto-antibodies. We suggest that antiproteases were used in hemorrhagic influenza, hemorrhagic Dengue fever 2, Ebola, Hantaan, Leptospiriosa, etc. This dangerous auto-immune epitope must be deleted from Influenza A vaccine, as well as Dengue 2 vaccine, to avoid enhancing hemorrhagic auto-antibodies.