of disease has been broken successfully, there remains a frightening prospect of a future outbreak which may be more contagious or virulent than ever encountered before.

Methods: Protein inhibitor of activated signal transducer and activator of transcription (STAT) 1(PIAS1) was identified in yeast two hybrid screens as an interacting partner for STAT1. The interaction of N with PIAS1 was validated in mammalian cells using co-immunoprecipitation.

Results: Our results of time-course based co-localisation shows that the localization of N shifts from cytoplasmic to nuclear in presence of PIAS1. This, not only points towards interaction between N and PIAS1 but also one that is of major physiological consequence. PIAS1 acts as a key regulator of NK'B signaling pathway in the nucleus where it inhibits its DNA binding activity and NK'B mediated gene activation. NF-kB is a critical regulator of the immediate early pathogen response, playing an important role in promoting inflammation and in the regulation of cell proliferation and survival. Gene activation analysis have shown that PIAS1 selectively regulates a subset of NK'B dependent genes, with a notable preference for proinflammatory cytokines and chemokines. Here, we found that in presence of N, the inhibition induced by PIAS1 to DNA binding activity of NF'B and NF'B mediated gene activation is lifted. Not only that, our results reveals that both DNA binding activity and NF'B mediated gene activation is enhanced in presence of N.

Conclusion: We hypothesize that N translocates into the nucleus where it, enhances the DNA binding activity of NF'B and NF'B mediated gene expression by lifting up the inhibition imposed by PIAS1. Since many protein products of the NF'B sensitive genes have been reported to be upregulated in fatal clinical cases of SARS, we further hypothesize that N protein plays an important role in excessive expression/secretion of cytokines and chemokines thereby contributing significantly to the lung injury seen in cases of SARS.

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Molecular epidemiology of rhinoviruses among children diagnosed as severe pneumonia in the Philippines

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Background: Rhinovirus (Rhino) is one of the major viruses of respiratory illness. There is a report that rhinoviruses had the highest prevalence among diseased cases among children under 5 years old who are hospitalized by acute respiratory illness. The novel group of rhinovirus (rhino C) was found recently. However, details of epidemiological features, including rhino C, in tropical climate are still unknown. In this study, we tried to access the importance of rhinoviruses among severe respiratory infection of children in the Philippines.

Methods: 816 nasopharyngeal swabs which were collected from May 2008 to May 2009 from children (age: 7days -14years old) who were diagnosed as severe pneumonia were used.

RNA was extracted and subjected to RT-PCR targeting 5'Non Coding Region and VP4/VP2 region. Sequencing analysis was carried out and rhinoviruses genogroups (A∼C) were determined.

Results: 243 out of 816 samples (30%) were positive for rhinoviruses. Among rhinoviruses positive samples, 131 (54%) were positive for rhino A, 25 (10%) were for rhino B, and 86 (35%) were for rhino C. The nucleotide sequence of Rhinovirses (A,B,C) in VP4/VP2 showed that variable types of rhinovirus are co-circulating in one area, and were related closely to the ones reported from various countries and year. No etiological correlation was seen between any genogroups or subspecies and severity. Rhinoviruses were detected all the year.

However there was a peak for Rhino A in July to September, Rhino B in September to November, and Rhino C in February to March. Rhinovirus infection in tropical zone may have different seasonality from the one in template zone and each genogroups may have different seasonality.

Conclusion: Rhinoviruses were detected with high prevalence among severe pneumonia which may suggest their importance among children in the Philippines.

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Ferrovir in treatment of viral infectious diseases

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Background: Viral diseases occupy 1-st place in infectious pathology and agents having pluripotent activity against different viruses are welcomed. Previously, it was found that Ferrovir (FV) (sodium salt of DNA from salmon's milt conjugated with Fe3+) possess antiviral activity against DNA- and RNA-viruses with lipid membrane: Herpes Simplex Virus (HSV), Cytomegalovirus (CMV), Human Immunodeficiency Virus (HIV), Tick-borne encephalitis virus, Human and Avian Influenza Virus in vitro studies. The mechanism of FV action is connected with induction of inflammation cytokines and oligopeptide antiviral factors. FV was effective in immunocompromised patients (pts) with HIV-infection and Hepatitis C infection. The aim of the study was to analyze the efficiency of FV against HSV-, CMV- and Human Papillomavirus infection (PVI).

Methods: Clinical study enrolled 29 pts (15 female and 14 male) with recurrent genital HSVinfection who received FV 75 mg once in 2 days as i/m injection for 20 days and 30 pts received standard therapy. Group of 11 pts (female) with

reactivated and persistent CMVinfection received 75 mg FV twice daily for 10 days. Group of 63 pts with latent form of PVI received course of FV of 10 injections every 72 hours.

Results: After FV treatment in 80% cases of pts with HSV-infection not a single relapse was observed during 6 months, lack of Ig M anti-HSV antibodies, negative cytological results. In pts group with standard therapy of HSV-infection lack of relapse was in 34% cases and in 50% cases in cytological substrates HSV-1,2 was found. In 81,8% pts with CMV-infection virus DNA in saliva, urine and cervical secret was not found by PCR after treatment and 1 month later. FV treatment resulted in 100% correction of immunological indices in untreated previously PVI pts and 93,8% cases who previously received therapy. 100% elimination of virus was observed in newly treated pts and in 77,5% pts with previous therapy. FV administration was well tolerated and no side effects were observed.

Conclusion: Ferrovir demonstrated good antiviral propertie, is well tolerated by patients, is useful in case of HSV-, CMV and HPV-infection, and the low price makes it accessible to population in limited resources context.

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Initial poor prognostic factors of echovirus 6 and 9 infections in children

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Background: Echovirus 6 and echovirus 9 have been found to cause deaths and critical infections in children but their initial poor prognostic factors and clinical courses were not well known.

Methods: Echovirus 6 or 9 was identified by immunofluorescent staining with virus-specific monoclonal antibody in cultures of children admitted in a tertiary hospital in Taiwan from 2000 to 2008. The medical records of all cases without any co-infection were extensively reviewed.

Clinical presentations of 6 severe cases (including those were fatal, with intensive care or long-term sequel) and 168 non-severe cases were analyzed. Initial prognostic factors were compared severe cases with non-severe cases by Fisher's exact test.

Results: Six children had severe clinical presentations. Two children with echovirus 6 infections and one child with echovirus 9 infection were fatal. They died of multi-organ failure, brain stem infarction and brain herniation, individually. One boy with echovirus 6 infection was rescued by extra-corporeal membrane oxygenation (ECMO). All live patients had full recovery except 2 children left long-term sequel of convulsion. Among 168 non-severe cases, the disease spectrums were similar for echovirus 6 (n = 96) and 9 (n = 72) infections, with aseptic meningitis being the most common syndrome, followed by meningismus, upper respiratory tract infection, pneumonia, and herpangina. The unfavorable outcomes were more frequently encountered in cases with initial presentations of seizure with hyperglycemia (serum glucose > 150 mg/dl: $p = 0.001$), diagnosis of myocarditis ($p = 0.034$), abnormal serum aspartate aminotransferase level (AST >80 U/l: $p = 0.006$), and higher serum alanine transaminase level (ALT >45 U/l: $p = 0.001$), but did not correlate with C-reactive protein level (CRP >50 mg/l: $p = 0.653$), white blood cell level (WBC level >15000 /ul: $p = 0.657$), or young age (<1 monthold: $p = 0.444$; < 3 month-old: $p = 0.319$; <6 month-old: $p = 0.135$) (Table 1).

Table 1 analysis on risk factors of severe eachovious 6 or 9 infection by comparing 6 severe cases with 168 non-severe cases (p was calculated by Fisher exact test)

Initial presentation of patients	Percentage of severe cases		Odds ratio	**95%** confidence interval	*P*
	Cases with this presentation	Cases wihout this presentation			
Seizure with initial hyperglyremta (sugar>150mgdL)	**100** (2 *2)**	2.3(4 172)	44.0	16.7—1119	
Nivocarditis	**100(11)**	**2.9(5.173)**	34.6	**14.6-82.1**	**0.034**
AST> SOUL	**50(24)**	2.4(4 170)	41.5	**4.6-373.3**	**0.006**
ALT>45UL	**100** (22)	2.3(4 172)	43.0	**16.3-113.3**	**0.001**
CRP>50mg 1	**2.9(135)**	**3.6(5.139)**	O.S	0.1-7.0	**0.653**
WBO15000 pi	**3.5 (1,28)**	**3.4(5,146)**	1.0	0.1-9.3	**0.657**
<3 monlh-old	**6.1(233)**	2.8(4141)	2.2	0.4-12.6	0.319

Percentage (Number of severe cases Total number of cases in this condition).

Abbreviations: AST Aspartate aminotransferase; ALT Alanine aminotransferase; CPJ[5], C-reactive protein; WBC White blood cell count.

Conclusion: The most common manifestation of echovirus 6 and 9 infections in children was aseptic meningitis. Initial biomarkers of poor prognostic factors, such as sugar, AST and ALT, are recommended to be checked. Fatal outcome or long term sequel in survivors may be encountered in young children with specific presentations, including seizure with hyperglycemia or organ (liver, brain or heart) damage. Early intensive care must be considered in patients with these initial poor prognostic factors.

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