6th Annual CEIRS meeting

July 29 – August 1, 2012

New York, NY

New York Marriott Marquis, Times Square
New York, NY

Sponsored by:
NIH/NIAID CEIRS Program

Hosted by:
Mount Sinai School of Medicine

Center for Research on Influenza Pathogenesis (CRIP)

Welcome

6th Annual National Institute of Allergy and Infectious Diseases (NIAID)
Centers of Excellence for Influenza Research and Surveillance (CEIRS)
Network Meeting

July 29-August 1, 2012
Mount Sinai School of Medicine
Marriott Marquis, Times Square, New York, NY

Dear Colleague,

On behalf of the Influenza Program at the National Institutes of Health/National Institute of Allergy and Infectious Diseases/Division of Microbiology and Infectious Diseases (NIH/NIAID/DMID), and the Center for Research on Influenza Pathogenesis (CRIP), we welcome you to the 6th Annual Meeting of the Centers of Excellence for Influenza Research and Surveillance (CEIRS) at "The Crossroads of the World" in New York City's Times Square.

This meeting brings together representatives of the CEIRS network, including the foremost research scientists, public health experts, government representatives, wildlife biologists and veterinarians from all over the world to exchange and discuss critical scientific information on influenza virus infection in animals and in humans. The meeting will focus on progress made on the basic biology of influenza viruses, emerging scientific questions and future directions of the multiyear collaborative CEIRS contracts at: Mount Sinai School of Medicine, St. Jude Children's Research Hospital, University of Rochester, University of Minnesota, and Emory University.

Since the establishment of the CEIRS network, we have witnessed the 2009 H1N1 human pandemic, the establishment of H5N1 viruses as endemic viruses in poultry in different regions of the world, and the intense debate on the benefits and risks of experiments involving modified H5N1 viruses that are transmissible in ferrets. During this time, the CEIRS network has made significant scientific advances, identifying pathways and mechanisms involved in virus pathogenesis that could be used in antiviral development and expanding our understanding of the ecology and diversity of influenza viruses in animal reservoirs. In addition, the network has participated in the discovery of the conserved stem region of the HA as a potential Achilles' heel of the virus that might be a valuable contribution toward developing improved therapeutic and prophylactic measures against this continuously evolving pathogen. At the meeting, we will hear about progress and new discoveries in these and other areas of influenza research. The CEIRS network continues to highlight the value of an intercollaborative research program that contributes to understanding influenza virus biology and developing rational approaches to prevent infection, disease, and transmission in humans and animals.

We anticipate an exciting meeting covering broad areas of the influenza field, such as molecular virology, pathogenesis, immunology, transmission, and human and animal surveillance. There will be 56 speakers, dozens of posters, and plenty of opportunities to form and/or strengthen collaborations, develop interactions and exchange ideas and information, in both formal sessions and informal get-togethers. We hope that you will also enjoy this opportunity to explore New York and enjoy this unique city.

Sincerely,

Adolfo García-Sastre, PhD
PI/Director
CRIP

Diane Post, PhD
Program Officer
NIAID/DMID

6th Annual CEIRS Network Meeting

July 29 – August 1, 2012
New York Marriott Marquis, Times Square
1535 Broadway
New York, NY 10036

Arrival

Sunday July 29, 2012

5:00 – 7:00 pm Registration – Astor Ballroom Foyer, 7th Floor

7:00 – 9:00 pm Welcome Reception – Manhattan Ballroom, 8th Floor

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Monday July 30, 2012

7:30-8:30 Registration – 7th Floor Foyer
Breakfast – 7th Floor Foyer

8:30-8:35 Welcome - Adolfo Garcia-Sastre, CRIP Director

8:35 – 8:50 CEIRS Update – Diane Post (NIAID)

Session #1 – Dual Use Research of Concern

Session Chair: Carole Heilman (NIAID)

8:50 – 9:30 The USG Policy for Oversight of Life Sciences Dual Use Research of Concern-Implementation Issues– Dennis Dixon (NIAID)

9:30 – 10:30 Panel discussion - "USG policy implementation at the institution level"

- Discuss what the institutions are currently doing, mitigation strategies and responsible communication

Convener: Carole Heilman (NIAID)
Panelists:
Adolfo Garcia – Sastre, Ron Fouchier, Yoshi Kawaoka, Richard Webby, Mark Tompkins, Nancy Cox

General Discussion

10:30 – 11:00 **Break – 7th Floor Foyer**

Session #2 – Transmission

Session Chair: Peter Palese (CRIP)

11:00 – 11:30 Transmission of influenza A/H5N1 virus via aerosol or respiratory droplets – Sander Herfst (CRIP)

11:30 – 12:00 The Potential for Respiratory Droplet–Transmissible A/H5N1 Influenza Virus to Evolve in a Mammalian Host – Derek Smith (CRIP)

12:00 – 1:00 **Lunch – Cantor/Jolson, 9th Floor**

1:00 – 1:15 Alternative reassortment events leading to a transmissible H9N2 influenza virus in the ferret model – Brian Kimble (CRIP)

1:15 – 1:30 Comparable fitness and transmissibility between oseltamivir-resistant 2009 pandemic and seasonal H1N1 viruses with the H275Y neuraminidase mutation – Hui Ling Yen (SJCEIRS)

1:30 – 1:45 Molecular factors affecting the transmission of the pH1N1 influenza virus – John Steel (IPIRC)

1:45 – 2:00 Transmission of influenza A H1N1/2009 virus in China - Dhanasekaran Vijaykrishna (SJCEIRS)

Session #3 – Panel Discussion: Risk Assessment and CEIRS Role

2:00 – 3:00 "Risk Assessment of Influenza viruses and CEIRS role"
Convener: Stacey Schultz-Cherry
Panelists: (10 min each)
Nancy Cox: "Development of an Influenza Risk Assessment Tool"
Carol Cardona: "Phenotyping Influenza Viruses"
Hassan Zaraket: "Risk assessment studies on Avian H9N2 influenza viruses from different lineages"
Scott Krauss: "Risk assessment studies on H2 viruses"

General Discussion

3:00 – 3:30 **Break – 7th Floor Foyer**

Session #4 – Influenza Pathogenesis

Session Chair: Malik Peiris (SJCEIRS)

3:30 – 3:55 Secondary bacterial infection and the use of novel therapeutics in influenza virus infected-obese mice – Erik Karlsson (SJCEIRS)

3:55 – 4:20 Responses and outcomes to influenza virus infection in context – S. Mark Tompkins (IPIRC)

4:20 – 4:35 Effect of human mesenchymal stem cells on enhancing alveolar fluid clearance in human alveolar epithelium injured by influenza H5N1 virus infection – Michael Chan (SJCEIRS)

4:35 – 4:50 Pathogenesis of influenza virus infection is regulated by the disease progression stage of allergic asthma – Amali Samarasinghe (SJCEIRS)

4:50 – 5:05 Effect of Route of Inoculation and Type of Duck on the Pathogenicity of H5N1 Highly Pathogenic Influenza Viruses in Domestic Ducks – Mary Pantin Jackwood (MCEIRS)

5:05 – 6:30 Poster Viewing – Empire Complex

6:30 – 9:30 **Dinner – Cantor/Jolson, 9th Floor**

Tuesday July 31, 2012

7:30-8:00 **Breakfast –7th Floor Foyer**

8:00-8:05 Welcome and housekeeping

Session #5 – Molecular Virology

Session Chair: Dick Compans (IPIRC)

8:05 – 8:30 New insights on NS1 function – Adolfo Garcia-Sastre (CRIP)

8:30 – 8:55 Cleavage Activation of the HA of Human Influenza Virus Subtypes – Gary Whittaker & Karen Conrad (NYICE)

8:55 – 9:20 Role of PB1-F2 in the context of swine influenza strains in the pig model – Daniel Perez (CRIP)

9:20 – 9:35 Influenza HA subtypes demonstrate divergent phenotypes for cleavage activation and pH of fusion: implications for host range and adaptation to humans – Summer Galloway (IPIRC)

9:35 – 9:50 Influenza virus vs. host cell: a matter of life and death – Jerry Aldridge (SJCEIRS)

9:50 – 10:05 Functional consequences of influenza virus morphology – Anice Lowen (IPIRC)

10:05 – 10:30 **Special Topic**: Impact of non-influenza viruses in respiratory disease in families – John Treanor (NYICE)

10:30 – 11:00 **Break – 7th Floor Foyer**

Session #6 – Open Discussion

11:00 – 12:00 "The Way Forward in Influenza Research: A Dialogue with the NIAID Director" Convener: Dr. Anthony Fauci

12:00 – 1:00 **Lunch - Cantor/Jolson, 9th Floor**

Session #7 – Clinical Surveillance and Transmission

Session Chair: John Treanor (NYICE)

1:00 – 1:20 Modes of influenza transmission in households – Ben Cowling (SJCEIRS)

1:20 – 1:35 Faceoff: Using RFID in the ED to Fingerprint Influenza Transmission for Surveillance in Humans – Vicki Hertzberg (IPIRC)

1:35 – 1:50 Local and systemic immune responses predict clinical outcomes in influenza infection independently of age and viral titer – Paul Thomas (SJCEIRS)

1:50 – 2:05 Measuring H5N1 influenza prevalence in humans in Egypt - Ghazi Kayali (SJCEIRS)

Session # 8 – Influenza Immunology

Session Chairs: Paul Thomas (SJCEIRS) & Dave Topham (NYICE)

2:05 – 2:25 Automated analysis of influenza-specific human responses to vaccination – Tim Mosmann (NYICE)

2:25 – 2:45 Serological memory and bone marrow plasma cells after influenza vaccination – Carl Davis (IPIRC)

2:45 – 3:05 Vaccination and re-vaccination of human subjects with drifted variants of experimental inactivated subunit H5 influenza vaccine: Enhanced antibody secreting memory B cells and serum antibody responses in previously vaccinated subjects – Dave Topham (NYICE)

3:05 – 3:25 **Break – 7th Floor Foyer**

3:25 – 3:45 Linked B and T cell epitopes in influenza virus hemagglutinin – Joshy Jacob (IPIRC)

3:45 – 4:05 The Specificity and Function of CD4 T cells in Response to Influenza Virus Infection and vaccination – Andrea Sant (NYICE)

4:05 – 4:20 CD4 T cells respond to inactivated and live attenuated influenza vaccine with different kinetics – Xi Li (NYICE)

4:20 – 4:35 IFNγ-IL-2+ producing bias in human CD4 T cell cytokine profiles in response to recent influenza infection – Jason Weaver (NYICE)

4:35 – 4:50 Multiple Distinct Forms of CD8+ T cell Cross-reactivity and Specificities revealed after 2009 H1N1 Influenza A Virus Infection in Mice – Hailong Guo (NYICE)

4:50 – 5:05 Mapping drift of human H2N2 influenza viruses between 1957 and 1968 – Martin Linster (CRIP)

5:05 – 5:15 Universal influenza virus vaccine based on the conserved stalk domain of the HA – Florian Krammer (CRIP)

5:15 – 6:30 Poster Viewing – Empire Complex

Wednesday August 1, 2012

7:30-8:00 **Breakfast – 7th Floor Foyer**

9:00-12:15 Concurrent data manager breakout session (Soho Complex)

8:00-8:05 Welcome and housekeeping

Session #9 Panel Discussion: CEIRS Training Program

8:05 – 9:00 "CEIRS Training Program"
Convener: Adolfo Garcia-Sastre
Panelists: (10 min each)
Randy Albrecht "Highlights of the CEIRS training program"
Felix Santiago "The use of recombinant hemagglutinin proteins in the study of influenza vaccination"
Martin Linster "Difficulties rescuing mutant viruses: improving reverse genetics protocols"
Dan Dlugolenski "Phenotypic comparison of viral reassortments derived from co-infection of swine epithelial cells"
Karl Ciuoderis "Surveillance and characterization of circulating Influenza A viruses in the Llanos region of Colombia"

General Discussion

Session #10 CEIRS Surveillance Related Research - Avian

Session chairs: Robert Webster (SJCEIRS) & TBD (MCEIRS)

9:00 – 9:25 Influenza Surveillance: What a Novel Idea? – Mike Osterholm (MCEIRS)

9:25 – 9:50 Wild Bird Surveillance for Influenza A Viruses: Moving Forward – Dave Stallknecht (MCEIRS)

9:50 – 10:05 Surveillance for Avian Influenza Viruses in Live Poultry Markets in Tanzania: A Descriptive Epidemiologic Study - Peter Msoffe (MCEIRS)

10:05 – 10:25 **Break – 7th Floor Foyer**

10:25 – 10:40 Understanding Temporal and Spatial Patterns in Influenza A Virus Infections in Northwest Ohio Using Migratory Patterns of Mallards (Anas platyrhynchos) - Anthony Fries (MCEIRS)

10:40 – 10:55 Understanding Factors that Influence Low-Pathogenic AI Virus Infection in Ducks and Gulls – Justin Brown (MCEIRS)

10:55 – 11:10 Reassortant Influenza A Viruses in Wild Duck Populations: Effects on Viral Shedding and Persistence in Water - Camille Lebarbenchon (MCEIRS)

11:10 – 11:25 A point mutation in H5N1 HPAIV HA affects its processing and cell fusion activity - Chinglai Yang (IPIRC)

11:25 – 11:50 Long-term evolutionary consequences of viral migration between wild bird populations – Justin Bahl (SJCEIRS)

11:50 – 12:15 Avian influenza A virus ecology and surveillance in wild birds in Georgia: 2009-2011 - Nicola Lewis (CRIP)

Session #11 CEIRS Surveillance Related Research – Swine and Other species

Session chairs: Dick Slemons (MCEIRS)

1:15 – 1:40 Genetic Diversity and Transmission Dynamics in Swine Populations - Montse Torremorell (MCEIRS)

1:40 – 1:55 Genesis, establishment and risk assessment of pandemic 2009 reassortant viruses emerging from pigs in China – Huachen Maria Zhu (SJCEIRS)

1:55 – 2:10 Swine influenza surveillance in Guatemala: A nation-wide survey, 2010-2011 – Ana Silvia Gonzalez Reiche (CRIP)

2:10 – 2:25 Detection of Influenza Viruses among Pigs in a Kenyan Slaughterhouse - Kariuki Njenga (MCEIRS)

2:25 – 2:40 Potential Public Health Risk From Subclinical Influenza A Virus Infections in Swine at Agricultural Exhibitions in Ohio – Andrew Bowman (MCEIRS)

2:40 – 2:55 Characterization of pandemic H1N1 influenza viruses isolated from Northern Elephant Seals - Ignacio Mena (CRIP)

2:55 – 3:10 Canine influenza (H3N2) Outbreak in a Small-Animal Hospital in Thailand - Napawan Bunpapong (MCEIRS)

3:10 – 3:30 Program Highlights and Concluding Remarks

3:30 Adjourn

6TH ANNUAL CEIRS NETWORK MEETING
POSTERS

Monday, July 30 – 5:05-6:30PM Transmission, Immunology/Pathogenesis & Vaccines
Tuesday, July 31 – 5:15-6:30PM Virology & Surveillance

TRANSMISSION

01	Barman, S.	SJCEIRS	Pathogenicity and Transmissibility of North American Triple Reassortant Swine Influenza A Viruses in Ferrets
02	Campbell, P.J.	IPIRC	Role of the M Segment in 2009 Pandemic H1N1 Replication and Transmission
03	Allerson, M.	MCEIRS	Impact of Immunity on Influenza A Virus Transmission in Pig Populations
04	Allerson, M.	MCEIRS	Indirect Transmission of Influenza A Virus in Pig Populations under Two Different Biosecurity Settings
05	Liu, Q.	SJCEIRS	Increased replication and transmissibility of reassortant H9 influenza viruses with genes from pandemic H1N1 virus in pigs
06	Steel, J.	IPIRC	Molecular factors affecting the transmission of the pH1N1 influenza virus
07	Yoon, S.-W.	SJCEIRS	Role of hemagglutinin residues in the emergence of the 2009 H1N1 pandemic virus

VIROLOGY

08	Whittaker, G.R.	NYICE	Acquisition of a novel eleven amino acid insertion directly N-terminal to a tetrabasic cleavage site confers intracellular cleavage of an H7N7 influenza virus hemagglutinin
09	Dlugolenski, D.	IPIRC	Influenza virus coinfection of human and swine epithelial cell lines results in differential reassortment patterns and generation of novel recombinants
10	Dlugolenski, D.	IPIRC	*Pteropus alecto* epithelial kidney cells are susceptible to infection with human and avian strains of influenza A virus and allow for novel reassortments
11	Russell, C.J.	SJCEIRS	Energy barrier for HA activation helps determine influenza virus biology

12	Takimoto, T.	NYICE	Identification of Influenza A PB2 Residues Involved in Enhanced Polymerase Activity in Mammalian Cells at Low Temperature
13	Yen, H.-L.	SJCEIRS	Comparative Mutational Analyses of Influenza viruses
14	Costello, D.A.	NYICE	Individual Virion Studies of Influenza Virus Fusion to Biomimetic Membranes
15	Lowen, A.C.	IPIRC	Functional consequences of Influenza virus morphology
16	Tse, L.V.	NYICE	Modification of the pH1N1 influenza hemagglutinin cleavage site modulates viral growth kinetics by increasing the protease spectrum for viral activation
17	Finch, C.L.	CRIP	Reverse genetics of Influenza B virus, Victoria lineage
18	Aggarwal, S.	NYICE	The E627K mutation in the PB2 subunit of influenza A polymerase affects promoter binding at higher temperatures
19	Duan, S.	SJCEIRS	How did they get so fit? – The molecular determinants of the naturally-occurring neuraminidase inhibitor-resistant H1N1 influenza A viruses
20	Gao, Q.	CRIP	The influenza A virus PB2, PA, NP and M segments play a pivotal role during genome packaging
21	Fabrizio, T.P.	SJCEIRS	The propensity of swine viruses to reassort and grow with human glycoproteins
22	Noble, E.	NYICE	Endonuclease Substrate Selectivity Characterized with Full-Length PA of Influenza A Virus Polymerase
23	Ye, L.	IPIRC	Mutation of a glycosylation site in the HA of SX H5N1 HPAIV eliminates the need of polybasic residues for trypsin-independent processing and cell fusion activities
24	Diaz, A.	MCEIRS	Whole Genome Genetic Diversity of Influenza A Virus within and between Pigs
25	Bialas, K.	NYICE	Influenza virion morphology correlates with efficiency of viral spread *in vitro*

IMMUNOLOGY/PATHOGENESIS

26	Ramos, I.	CRIP	Contribution of dsRNA and CPSF Binding Domains of

			Influenza Virus NS1 to the Inhibition of Type I IFN Production and Activation of human Dendritic Cells
27	Alam, S.	NYICE	The specificity of CD4 T cells and its influence to promote a specific antibody response after influenza infection
28	Sánchez, M.T.	CRIP	Bimolecular fluorescence complementation assay, a new tool to study viral and host cell protein interactions
29	Richard, M.	CRIP	Replication of avian influenza viruses in respiratory and intestinal tracts explants of chicken and ducks
30	Ayllon, J.	CRIP	Differential activation of heterotypic PI3K complexes by influenza virus NS1
31	Sreevatsan, S.	MCEIRS	Generation of Novel Single Chain Variable Fragments Against Hemagglutinin 3 for Influenza Surveillance in Swine
32	Bortz, E.	CRIP	DDX17 regulates highly pathogenic avian influenza virus replication in human cells according to PB2 genotype at position 627
33	Martínez-Romero, C.	CRIP	Residues 200 and 227 in the hemagglutinin of swine-origin H1N1 2009 influenza virus affect receptor binding and murine tropism
34	Dlugolenski, D.	IPIRC	Differential induction of antiviral genes in primary human and swine bronchial epithelial cells upon infection with Influenza A viruses
35	Xu, K.	CRIP	Isolation and characterization of an H9N2 influenza virus isolated in Argentina
36	Varga, Z.T.	CRIP	The Influenza Virus PB1-F2 Protein Inhibits the Induction of Type I Interferon by Binding to MAVS and Decreasing the Mitochondrial Membrane Potential
37	Minicucci, L.	MCEIRS	Avian Influenza at the Human-Animal Interface: Study Design and Virus Selection to Assess Exposure Risks in Wildlife and Conservation Professionals
38	Dash, P. & Sanders, C.J.	SJCEIRS	Early Replication and Host Response Characteristics Derived From the Parental Swine Strains Determine the 2009 Pandemic H1N1 Phenotype
39	Rajsbaum, R.	CRIP	Species-Specific Inhibition of RIG-I Ubiquitination and IFN Induction by the Influenza A Virus NS1 Protein

40	Wong, S.-S.	SJCEIRS	Flu09: A serological and virological profile of influenza infected children and their household contacts
41	Schmolke, M.	CRIP	Length of the NS1 linker region determines pathogenicity of a highly pathogenic H5N1 influenza A virus
42	Bui, V.N.	CRIP	H4N8 subtype influenza viruses isolated from shorebirds and causing severe respiratory disease in mice are PB1 reassortants: strategies to identify the viral genetics responsible for murine pathogenesis
43	Angel, M.	CRIP	*In vivo* characterization of influenza gene reassortment and constellation selection
44	Albrecht, R.A.	CRIP	Studies on the proteins encoded by the influenza A virus NS segment: potential contribution of the NEP to host tropism
45	McGargill, M.A.	SJCEIRS	Enhancing immunity to highly pathogenic H5N1 avian influenza A viruses
46	Ridenour, C.	IPIRC	Amino acid exchanges associated with continuous passage of a LPAIV chicken isolate in ducks suggests a strong selection process during adaptation to waterfowl
47	de Graaf, M.	CRIP	Characterization of influenza virus receptors in the respiratory tract of ferrets
48	Ye, J.	CRIP	Emergence of 2009 pandemic H1N1 with S186P in HA alters its phenotype?

SURVEILLANCE

49	Oshansky, C.M.	SJCEIRS	Age-associated immune factors during natural acute influenza infection as predictors of clinical outcome
50	Jairak, W.	MCEIRS	Swine Influenza Surveillance during the 2011-2012 Season in Thailand
51	Jairak, W.	MCEIRS	Serologic Surveillance of Influenza A Virus Antibodies in Dogs and Cats in Thailand
52	Holden-Wiltse, J.	NYICE	*B*io-*L*ab *I*nformatics *S*erver (*BLIS*) A Data Integration System for Clinical Influenza Surveillance & Vaccination Studies with Biological Assay Data Using the Open-Source LabKey Server
53	Nolting, J.	MCEIRS	H14 Influenza A Virus: Where Have You Been?
54	González-Reiche, A.S.	CRIP	Phylogenetic analysis of Type A Influenza viruses isolated

			from waterfowl in Guatemala
55	Spackman, E.	MCEIRS	Assuring the Quality of Laboratory Testing Across the CEIRS Surveillance Network
56	Cowling, B.J.	SJCEIRS	Assessing the severity and impact of 2009-H1N1
57	Leyva-Grado, V.	CRIP	Serological evidence of influenza virus infection in South American guinea pigs
58	Smith, G.J.D.	SJCEIRS	Evolutionary genomics of pandemic H1N1/2009 influenza in Singapore
59	Chiwanga, G.	MCEIRS	Surveillance for Avian Influenza Viruses in Live Poultry Market in Tanzania: Serological Evidence of Avian Influenza Viruses in Marketed Domestic Chickens
60	Neumann, G.	CRIP	Influenza Virus Surveillance in Avian Species in Vietnam in 2010-2011
61	King, C.-C.	IPIRC	Establishment of Chicken H6N1 Avian Influenza Viruses in Taiwan
62	Shiilegdamba, E.	MCEIRS	High and Low Pathogenic Avian Influenza Virus Surveillance among Wild Birds in Mongolia from 2007-2011
63	Perera, H.K.K.	SJCEIRS	Longitudinal study of swine influenza in Sri Lanka
64	Ogawa, H.	CRIP	Surveillance of avian influenza virus in migratory waterfowls in eastern Hokkaido, Japan, during 2009 to 2010
65	Slemons, R.	MCEIRS	Avian Influenza Virus in Sea Duck Populations
66	Fourment, M.	SJCEIRS	Evolutionary dynamics and interspecies transmission of H2 influenza A viruses
67	Sayfutdinova S.	CRIP	Influenza surveillance in North-Eastern Eurasia in 2008-2011
68	Bunpapong, N.	MCEIRS	Survey of Influenza A Viruses in Free-Grazing Ducks in Thailand, 2011-2012
69	Shao, H.	CRIP	A monoclonal antibody-based ELISA for serologic surveillance of H9 avian influenza virus

VACCINES

70	Nayak, J.L.	NYICE	CD4 T cell expansion predicts pH1N1 vaccine neutralizing

			antibody response
71	Margine, I.	CRIP	An influenza B virus vaccine based on a conserved region of the hemagglutinin protein
72	Sutton, T.C.	CRIP	Development of an Influenza-vectored Respiratory Syncytial Virus vaccine
73	Richards, K.A.	NYICE	Trivalent inactivated influenza vaccines induce broad immunological reactivity to both internal virion components and influenza surface proteins
74	Chen, H.	CRIP	Speeding up influenza vaccine development: partial and full plasmid-free reverse genetics systems
75	Cox, A.	NYICE	The role of influenza virus polymerase stability in vaccine safety
76	Miller, M.S.	CRIP	1976 and 2009 H1N1 Influenza Virus Vaccines Boost Anti-Hemagglutinin Stalk Antibodies in Humans
77	Baker, S.F.	NYICE	Protection against lethal influenza challenge with a viral mimic
78	Roumanes, D.	NYICE	CD4 T cells in elderly subjects respond in vivo and secrete effector cytokines in vitro in response to seasonal influenza vaccination

6TH ANNUAL CEIRS NETWORK MEETING
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6TH ANNUAL CEIRS NETWORK MEETING
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