this variant H3N2 virus. Our findings emphasize the importance of continued molecular surveillance for characterizing emerging influenza drift variants.

Acknowledgments

We thank Bishnu K. Shrestha, Subash Malla Thakuri, and Atma K. Ranjit for help in collecting throat swab specimens and performing preliminary optical immunoassay rapid diagnostic tests.

We acknowledge Joel Gaydos and the Global Emerging Infections System for funding the Department of Defense influenza strain surveillance program at the Center for Excellence in Biotechnology and Bioprocessing Education and Research, Brooks City Base, San Antonio, Texas.

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References

- CDC influenza weekly report: influenza summary update, questions and answers, the 2003–2004 influenza season. [cited 19 May 2005]. Available from http: www.cdc.gov/flu/about/qa/fluseason.htm
- Harper SA, Fukuda K, Uyeki TM, Cox NJ, Bridges CB. Centers for Disease Control and Prevention Advisory Committee on Immunization Practices. Prevention and control of influenza: recommendations of the advisory committee on immunization practices (ACIP). MMWR Morb Mortal Wkly Rep. 2004;53:1–40.
- Webster RG, Kendal, AP, Gerhard W. Analysis of antigenic drift in recently isolated influenza A (H1N1) viruses using monoclonal antibody preparations. Virology. 1979;96:258–64.
- Wiley DC, Wilson IA, Skehel JJ. Structural identification of the antibody-binding sites of Hong Kong influenza haemagglutinin and their involvement in antigenic variation. Nature. 1981;289:373–8.
- 5. Wilson AI, Cox NJ. Structural basis of immune recognition of influenza virus hemagglutinin. Annu Rev Immunol. 1990;8:737–71.
- Lee MS, Chen JS. Predicting antigenic variants of influenza A/H3N2 viruses. Emerg Infect Dis. 2004;10:1385–90.

- Bush RM, Bender CA, Subbarao K, Cox NJ, Fitch WM. Predicting the evolution of human influenza A. Science. 1999;286:1921–5.
- Plotkin JB, Dushoff J. Codon bias and frequency-dependent selection on the hemagglutinin epitopes of influenza A virus. Proc Natl Acad Sci U S A. 2003;100:7152–7.
- Canas LC, Lohman K, Pavlin JA, Endy T, Singh DL, Pandey P, et al. The Department of Defense laboratory-based global influenza surveillance system. Mil Med. 2000;165(Suppl 2):52–6.
- Daum LT, Canas LC, Smith CB, Klimov A, Huff WB, Barnes WJ, et al. Genetic and antigenic analysis of the first A/New Caledonia/20/99-like H1N1 influenza isolates reported in the Americas. Emerg Infect Dis. 2002;8:408–12.
- Kendal AP, Pereura MS, Skehel J. Concepts and procedures for laboratory based influenza surveillance. Geneva: World Health Organization; 1982.
- Koradi R, Billeter M, Wuthrich K. MOLMOL: a program for display and analysis of macromolecular structures. J Mol Graph. 1996;14:29–32, 51–55.
- Guex N, Peitsch MC. SWISS-MODEL and the Swiss-PdbViewer: an environment for comparative protein modeling. Electrophoresis. 18;2714–23.
- Cross KJ, Burleigh LM, Steinhauer DA. Mechanisms of cell entry by influenza virus. Expert Rev Mol Med. 2001;6:1–18.
- Wilson IA, Ladner, RC, Skehel, Wiley DC. The structure and role of the carbohydrate moieties of influenza virus hemagglutinin. Biochem Soc Trans. 1983;11:145–7.
- Hughey PG, Roberts PC, Holsinger LJ, Zebedee SL, Lamb RA, Compans RW. Effects of antibody to the influenza A virus M2 protein on M2 surface expression and virus assembly. Virology. 1995;212:411–21.
- Zebedee SL, Lamb RA. Influenza A virus M2 protein: monoclonal antibody restriction of virus growth and detection of M2 in virions. J Virol. 1988;62:2762–72.
- Webster RG, Brown LE, Laver WG. Antigenic and biological characterization of influenza virus neuraminidase (N2) with monoclonal antibodies. Virology. 1984;135:30–42.
- Okuno Y, Isegawa Y, Sasao F, Ueda S. A common neutralizing epitope conserved between the hemagglutinins of influenza A virus H1 and H2 strains. J Virol. 1993;67:2552–8.
- CDC weekly report: influenza summary update (week ending April 16, 2005). [cited 19 May 2005]. Available from http://www. cdc.gov/flu/weekly/

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cephalosporin

[sef''a-lo-spor'in]

Any of a class of broad-spectrum, relatively penicillinase-resistant, β -lactam antimicrobial drugs originally derived from species of the fungus *Acremonium* (formerly called *Cephalosporium*). Italian scientist Giuseppe Brotzu first isolated the parent compound cephalosporin C from a sewer in Sardinia in 1948. Cephalosporins available for medical use today are semisynthetic derivatives of this natural antimicrobial compound.

Sources: Dorland's illustrated medical dictionary. 30th ed. Philadelphia: Saunders; 2003. and Merriam-Webster's collegiate dictionary. 11th ed. Springfield (MA): Merriam-Webster's, Inc; 2003.