

16. Salazar-Schettino PM, Bucio MI, Cabrera M, Bautista J. First case of natural infection in pigs. Review of *Trypanosoma cruzi* reservoirs in Mexico. Mem Inst Oswaldo Cruz. 1997;92:499–502.
17. Sosa-Jurado F, Zumaquero-Ríos JL, Reyes PA, Cruz-García A, Guzmán-Bracho C, Monteón VM. Factores bióticos y abióticos que determinan la seroprevalencia de anticuerpos contra *Trypanosoma cruzi* en el municipio de Palmar de Bravo, Puebla, Mexico. Salud Publica Mex. 2004;46:39–48.
18. Castellani O, Ribeiro LV, Fernandes JF. Differentiation of *Trypanosoma cruzi* in culture. J Protozool. 1967;14:447–51.
19. Plata F, García Pons F, Eisen H. Antigenic polymorphism of *Trypanosoma cruzi*: clonal analysis of trypomastigote surface antigens. Eur J Immunol. 1984;14:392–9.
20. Antas PR, Azevedo EN, Luz MR, Medrano-Mercado N, Chaves AC, Vidigal PG, et al. A reliable and specific enzyme-linked immunosorbent assay for the capture of IgM from human chagasic sera using fixed epimastigotes of *Trypanosoma cruzi*. Parasitol Res. 2000;86:813–20.
21. Bhatia V, Sinha M, Luxon B, Garg N. Utility of *Trypanosoma cruzi* sequence database for the identification of potential vaccine candidates: in silico and in vitro screening. Infect Immun. 2004;72:6245–54.
22. Voller A, Draper C, Bidwell DE, Bartlett A. Microplate enzyme-linked immunosorbent assay for Chagas' disease. Lancet. 1975;1:426–8.
23. Umezawa ES, Shikanai-Yasuda MA, Gruber A, Pereira-Chiocola VL, Zingales B. *Trypanosoma cruzi* defined antigens in the serological evaluation of an outbreak of acute Chagas disease in Brazil (Catole do Rocha, Paraíba). Mem Inst Oswaldo Cruz. 1996;91:87–93.
24. Umezawa ES, Nascimento MS, Kesper N Jr, Coura JR, Borges-Pereira J, Junqueira AC, et al. Immunoblot assay using excreted-secreted antigens of *Trypanosoma cruzi* in serodiagnosis of congenital, acute, and chronic Chagas' disease. J Clin Microbiol. 1996;34:2143–7.
25. Latour J, Abreira V, Cabello JB, Lopez Sanchez J. Investigation methods in clinical cardiology. IV. Clinical measurements in cardiology: validity and errors of measurements. Rev Esp Cardiol. 1997;50:117–28.
26. Shadomy SV, Waring SC, Chappell CL. Combined use of enzyme-linked immunosorbent assay and flow cytometry to detect antibodies to *Trypanosoma cruzi* in domestic canines in Texas. Clin Diagn Lab Immunol. 2004;11:313–9.
27. Umezawa ES, Shikanai-Yasuda MA, Stolf AM. Changes in isotype composition and antigen recognition of anti-*Trypanosoma cruzi* antibodies from acute to chronic Chagas disease. J Clin Lab Anal. 1996;10:407–13.
28. Wincker P, Telleria J, Bosseno MF, Cardoso MA, Marques P, Yaksic N, et al. PCR-based diagnosis for Chagas' disease in Bolivian children living in an active transmission area: comparison with conventional serological and parasitological diagnosis. Parasitology. 1997;114:367–73.
29. Gurtler RE, Solard ND, Lauricela MA, Haedo AS, Pietrokovski SM, Alberti AA, et al. Dynamics of transmission of *Trypanosoma cruzi* in a rural area of Argentina. III. Persistence of *T. cruzi* parasitemia among canine reservoirs in a two-year follow-up. Rev Inst Med Trop Sao Paulo. 1986;28:213–9.
30. Gurtler RE, Cohen JE, Cecere MC, Chuit R. Shifting host choices of the vector of chagas disease *Triatoma infestans* and the availability of hosts in houses in north-west Argentina. Journal of Applied Ecology. 1997;34:699–715.

---

Address for correspondence: Nisha Garg, Department of Microbiology and Immunology, University of Texas Medical Branch, 3.142 Medical Research Bldg, 301 University Blvd, Galveston, TX 77555, USA; fax: 409-747-6869; email: nigarg@utmb.edu

## etymologia

### measles

[mē'zəlz]

Highly contagious disease caused by a virus of the genus *Morbillivirus*, marked by an eruption of distinct, red, circular spots. From the Middle Dutch *masel*, “blemish.” References to the disease date back to at least 700 AD, but the first recorded scientific description of measles was in the 10th century AD by the Persian physician Ibn Razi, who described it as “more dreaded than smallpox.” Prior to 1963, when the first measles vaccine was licensed, 3–4 million cases and 450 deaths occurred in the United States every year. Measles remains a primary cause of death in developing nations, where vitamin A deficiency is common. According to the World Health Organization, measles is the leading cause of vaccine-preventable death in children; it is responsible for ≈850,000 deaths each year.

**Sources:** Merriam-Webster's collegiate dictionary. 11th ed. Springfield (MA): Merriam-Webster Incorporated; 2003; Centers for Disease Control and Prevention. Measles history. Available from <http://www.cdc.gov/nip/diseases/measles/history.htm>; and World Health Organization. Measles mortality reduction and regional elimination. Available from <http://www.who.int/vaccines-documents/DocsPDF01/www573.pdf>