- 24. Code of Federal Regulations. Title 9—animals and animal products [9 CFR]. Animal and Plant Health Inspection Service, Department of Agriculture. Subchapter D—exportation and importation of animals (including poultry) and animal products. Part 93—importation of certain animals, birds, fish, and poultry, and certain animal, bird, and poultry products; requirements for means of conveyance and shipping containers [9 CFR 93]. Subpart D—ruminants; Mexico 9, 93.427–93.429; 2000 Jan 1 [cited 2014 April 29]. http://www.gpo.gov/fdsys/granule/CFR-2000-title9-vol1/CFR-2000-title9-vol1-sec93-427
- Palmer MV, Waters WR. Bovine tuberculosis and the establishment of an eradication program in the United States: role of veterinarians. Vet Med Int. 2011;2011:816345.
- Walker TM, Ip CL, Harrel RH, Evans JT, Kapatai G, Dedicoat MJ, et al. Whole-genome sequencing to delineate *Mycobacterium tuberculosis* outbreaks: a retrospective observational study. Lancet Infect Dis. 2013;13:137–46. http://dx.doi.org/10.1016/ S1473-3099(12)70277-3
- de Kantor IN, LoBue PA, Thoen CO. Human tuberculosis caused by *Mycobacterium bovis* in the United States, Latin America and the Caribbean. Int J Tuberc Lung Dis. 2010;14:1369–73.
- LoBue PA, LeClair JJ, Moser KS. Contact investigation for cases of pulmonary *Mycobacterium bovis*. Int J Tuberc Lung Dis. 2004;8:868–72.

- Lighter J, Rigaud M. Diagnosing childhood tuberculosis: traditional and innovative modalities. Curr Probl Pediatr Adolesc Health Care. 2009;39:61–88. http://dx.doi.org/10.1016/j.cppeds.2008.12.003
- Andersen P, Doherty TM. The success and failure of BCG implications for a novel tuberculosis vaccine. Nat Rev Microbiol. 2005;3:656–62. http://dx.doi.org/10.1038/nrmicro1211
- Fine PE. Variation in protection by BCG: implications of and for heterologous immunity. Lancet. 1995;346:1339–45. http://dx.doi. org/10.1016/S0140-6736(95)92348-9
- García-Rodríguez JF, Álvarez-Díaz H, Lorenzo-García MV, Mariño-Callejo A, Fernandez-Rial Á, Sesma-Sánchez P. Extrapulmonary tuberculosis: epidemiology and risk factors. Enferm Infecc Microbiol Clin. 2011;29:502–9. http://dx.doi. org/10.1016/j.eimc.2011.03.005
- Colditz GA, Berkey CS, Mosteller F, Brewer TF, Wilson ME, Burdick E, et al. The efficacy of bacillus Calmette-Guerin vaccination of newborns and infants in the prevention of tuberculosis: meta-analyses of the published literature. Pediatrics. 1995;96:29–35.

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Mycobacterium bovis [mi"ko-bak-tēr-eəm bō'-vis]

From the Latin bos ("ox" or "cow") My-cobacterium bovis is a virulent bacterial species originally isolated from tubercules in cattle. Robert Koch, who discovered the tubercle bacillus in 1882, believed that M. bovis was not a danger to humans. Theobald Smith and others established beyond doubt that, contrary to Koch's belief, M. bovis could infect humans but was not the usual source of human infection. In 1908, French scientists

Albert Calmette and Camille Guérin chose an *M. bovis* strain for their work on a tuberculosis vaccine. They repeatedly subcultured the isolate on a mixture of glycerol, potato, and bile for 13 years until it was sufficiently attenuated to be used as a vaccine. The bacillus Calmette-Guérin (BCG) vaccine was adopted by the League of Nations as the standard tuberculosis vaccine in 1928 and continues to be used in most developing countries.

Sources

- LoBue P. Tuberculosis. In: CDC Health Information for International Travel 2014. New York: Oxford University Press; 2014. p. 310–7.
- Schultz MG. Robert Koch [photo quiz]. Emerg Infect Dis. 2011;17:547–9. PubMed http://dx.doi. org/10.3201/eid1703.101881
- Smith KC, Orme IM, Starke JR. Tuberculosis vaccines. In: Plotkin SA, Orenstein WA, Offit PA, editors. Vaccines. 6th ed. Philadelphia: Elsevier Saunders; 2013. p. 789–811.

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