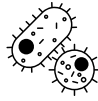


TUBERCULOSIS LABORATORY RESEARCH SAFETY

The following is general information for those involved in the laboratory-based research of tuberculosis (TB).¹⁻³
This information is applicable to those working directly with TB cultures or with TB positive patient samples.
Contact occupational.health@cuanschutz.edu if you have any questions.

ABOUT TUBERCULOSIS



Tuberculosis (TB) is a bacterial respiratory illness caused by the bacterium *Mycobacterium tuberculosis*. Infection with TB can occur through laboratory contact with TB cultures or TB positive patient samples. TB transmission occurs through the inhalation of infectious air particles. These particles can remain in the air for several hours, particularly indoors and in areas without circulation.

TUBERCULOSIS INFECTION

Tuberculosis infection can exist in two states:

- Active TB:
 - While most people never develop active TB, it can occur two months to years after infection; risk of developing active TB lessens over time
 - TB germs are actively multiplying
 - An individual feels sick and is contagious
 - Symptoms
 - Long lasting cough
 - Chest pain
 - Fatigue
 - Fever or chills
 - Treatment for TB consists of a four to six month antibiotic regimen and without treatment, can be fatal
 - Risk factors
 - Travel or having lived in areas where TB is endemic including some countries in Asia, Africa, and Latin America
 - Weakened immune system
 - Working in clinical settings
- Latent or inactive TB:
 - TB exists in one's body without making them sick
 - No symptoms
 - In this form, TB is not contagious
 - Without treatment, those with latent TB may develop active TB and become sick at any point

WORKING WITH TUBERCULOSIS



Follow CU Anschutz TB surveillance protocols

- Complete TB risk assessment questionnaire annually
- Baseline TB QuantiFERON test
 - Annual TB QuantiFERON test for high risk researchers
- Complete N95 fit test or PAPR training with EHS Research Safety and Industrial Hygiene Division
- No widely used vaccine for TB in the United States

TUBERCULOSIS EXPOSURE SAFETY

Follow proper exposure reporting protocols

- If you are injured on the job, promptly report the incident to your supervisor
 - Immediately call or email Occupational Health (303) 724-9145 during business hours
 - Outside of normal hours seek medical attention at emergency department or other healthcare provider
 - Fill out incident report for exposure to biological hazards
 - File a claim with University Risk Management
 - <https://www.cu.edu/risk/file-claim>
- Minor cuts and abrasions should be immediately cleansed with antibacterial soap
 - Protect injuries from exposure

Tell your physician you work with TB

- Whenever you are ill, mention to your physician that you work with TB

PPE FOR TUBERCULOSIS



- Personal protective equipment (PPE) for working with TB
 - Laboratory coat; gloves; safety glasses; N95 respirator (requires fit-test) or PAPR (requires training)
- Do not reuse PPE used for work with biohazards
 - Dispose of all PPE as biohazardous waste
- Always wash your hands after removing gloves and after handling biohazards

CONTROLS FOR TUBERCULOSIS

- BSL-3 protections
- Additional protections for procedures likely to produce droplets or aerosols
 - Exhausted air must not be recirculated
 - Negative airflow into laboratory
 - Physical separation from access doors
 - Self-closing, double door access



For more information, refer to the Occupational Health website:
<https://research.cuanschutz.edu/ehs/home/divisions/occupational-health>
or contact Occupational Health at occupational.health@cuanschutz.edu

ABOUT THE BACCILLE CALMETTE-GUÉRIN (BCG) VACCINE⁴

- BCG is a vaccine used to prevent TB
- The BCG vaccine is given to infants and children in many areas of the world where TB is common, however, this vaccine is not typically used in the United States
- BCG vaccination as a child may result in false-positive TB skin test reactions but does not affect TB QuantiFERON testing

BCG VACCINE FREQUENTLY ASKED QUESTIONS⁴⁻⁵

- *How does previous BCG vaccination affect TB testing?*
 - Previous BCG vaccination may cause a false positive TB skin test reaction
 - There is no reliable way to determine if a positive TB skin test reaction is caused by BCG vaccination or by a true TB infection
 - BCG vaccination does not affect TB QuantiFERON/ other TB blood testing and thus it is the preferred method of testing
- *Why isn't the BCG vaccine used in the United States?*
 - The overall risk of TB infection in the US is low
 - BCG vaccine has variable efficacy against pulmonary TB
- *Can I have inactive or active TB if I have received the BCG TB vaccine?*
 - Yes, it is possible for an individual to have or get TB even if they have received a BCG vaccine

Updated: 3/21/2025

Sources

1. Centers for Disease Control and Prevention. Tuberculosis. October 30, 2024. Accessed December 12, 2024. www.cdc.gov/tb/index.html.
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4. Centers for Disease Control and Prevention. Baccille Calmette-Guérin (BCG) vaccine for tuberculosis. July 8, 2024. Accessed January 17, 2025. www.cdc.gov/tb/hcp/vaccines/index.html.
5. Centers for Disease Control and Prevention. Tuberculosis vaccine. June 14, 2024. Accessed January 17, 2025. www.cdc.gov/tb/vaccines/index.html.