



U.S. National Library of Medicine  
National Center for Biotechnology Information

**NLM Citation:** Drugs and Lactation Database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006-. Technetium Tc 99m Ethylenedicysteine. [Updated 2023 Nov 15].

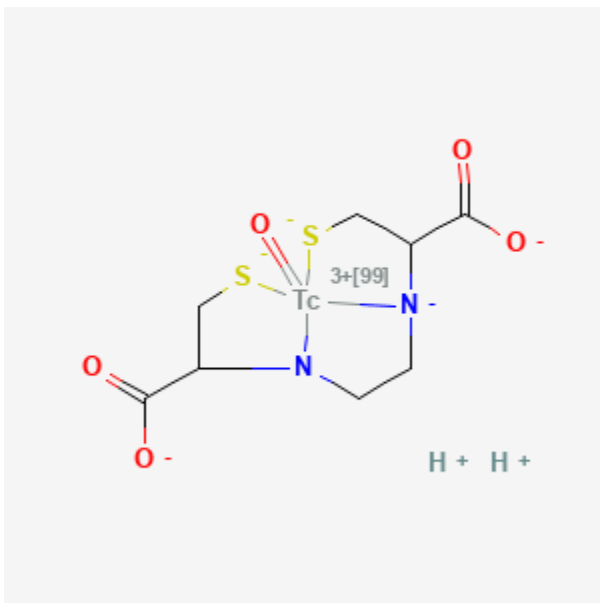
**Bookshelf URL:** <https://www.ncbi.nlm.nih.gov/books/>



## Technetium Tc 99m Ethylenedicysteine

Revised: November 15, 2023.

CASRN: 154069-62-2



## Drug Levels and Effects

### Summary of Use during Lactation

Information in this record refers to the use of technetium Tc 99m ethylenedicysteine (Tc 99m L,L ethylenedicysteine; Tc 99m LL-EC) as a diagnostic agent. A US Nuclear Regulatory Commission subcommittee has recommended that nursing be discontinued for 24 hours after administration of all technetium Tc 99m diagnostic products to simplify guidance recommendations, although this time interval may be longer than necessary.[1] To follow the principle of keeping exposure "as low as reasonably achievable", some experts recommend nursing the infant just before administration of the radiopharmaceutical and interrupting breastfeeding for 3 to 6 hours after the dose, then expressing the milk completely once and discarding it. If the mother has expressed and saved milk prior to the examination, she can feed it to the infant during the period of

**Disclaimer:** Information presented in this database is not meant as a substitute for professional judgment. You should consult your healthcare provider for breastfeeding advice related to your particular situation. The U.S. government does not warrant or assume any liability or responsibility for the accuracy or completeness of the information on this Site.

**Attribution Statement:** LactMed is a registered trademark of the U.S. Department of Health and Human Services.

nursing interruption.[2-4] Mothers need not refrain from close contact with their infants after usual clinical doses.[5]

Mothers concerned about the level of radioactivity in their milk could ask to have it tested at a nuclear medicine facility at their hospital. When the radioactivity is at a safe level, she may resume breastfeeding. A method for measuring milk radioactivity and determining the time when a mother can safely resume breastfeeding has been published.[6]

For nursing mothers who work with Tc 99m substances in their workplace, there is no need to take any precautions other than those appropriate for general radiation protection.[7]

## Drug Levels

Tc 99m is a gamma emitter with a principal photon energy of 140 keV and a physical half-life of 6.04 hours.[1] The effective half-life of Tc 99m LL-EC ranges from 30 to 143 minutes, depending on kidney function.[8]

## Effects in Breastfed Infants

Relevant published information was not found as of the revision date.

## Effects on Lactation and Breastmilk

Relevant published information was not found as of the revision date.

## Alternate Drugs to Consider

Technetium Tc 99m Medronate, Technetium Tc 99m Mertiatide, Technetium Tc 99m Pentetate

## References

1. Dilsizian V, Metter D, Palestro C, Zanzonico P. Advisory Committee on Medical Uses of Isotopes (ACMUI) Sub-Committee on Nursing Mother Guidelines for the Medical Administration of Radioactive Material. Final report submitted: January 31, 2019. 2019. Available at: <https://www.nrc.gov/docs/ML1903/ML19038A498.pdf>
2. Mountford PJ, Coakley AJ. A review of the secretion of radioactivity in human breast milk: Data, quantitative analysis and recommendations. *Nucl Med Commun* 1989;10:15-27. PubMed PMID: 2645546.
3. Early PJ, Sodee DB. Principles and practice of nuclear medicine. 2nd ed. St Louis Mosby-Year Book, Inc 1995:1380-1.
4. ARSAC notes for guidance: Good clinical practice in nuclear medicine. Notes for guidance on the clinical administration of radiopharmaceuticals and use of sealed radioactive sources. 2020. Available at: <https://www.gov.uk/government/publications/arsac-notes-for-guidance>
5. Mountford PJ, O'Doherty MJ. Exposure of critical groups to nuclear medicine patients. *Appl Radiat Isot* 1999;50:89-111. PubMed PMID: 10028630.
6. Stabin MG, Breitz HB. Breast milk excretion of radiopharmaceuticals: Mechanisms, findings, and radiation dosimetry. *J Nucl Med* 2000;41:863-73. PubMed PMID: 10809203.
7. Almén A, Mattsson S. Radiological protection of fetuses and breast-fed children of occupationally exposed women in nuclear medicine - Challenges for hospitals. *Phys Med* 2017;43:172-7. PubMed PMID: 28882410.
8. Kabasakal L, Turoglu HT, Onsel C, et al. Clinical comparison of technetium-99m-EC, technetium-99m-MAG3 and iodine-131-OIH in renal disorders. *J Nucl Med* 1995;36:224-8. PubMed PMID: 7830118.

## Substance Identification

### Substance Name

Technetium Tc 99m Ethylenedicysteine

### CAS Registry Number

134009-45-3

### Drug Class

Breast Feeding

Lactation

Milk, Human

Radiopharmaceuticals

Technetium Compounds

Diagnostic Agents