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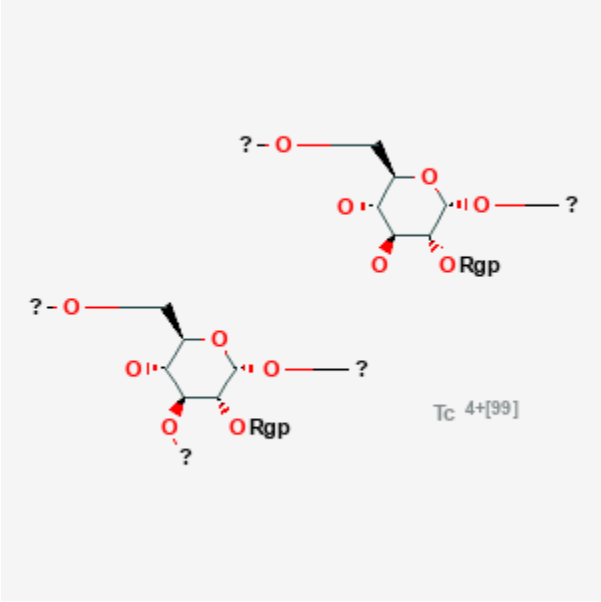
Technetium Tc 99m Tilmanocept

Revised: June 30, 2019.

CASRN: 1262984-82-6



Drug Levels and Effects

Summary of Use during Lactation

Information in this record refers to the use of technetium Tc 99m tilmanocept as a diagnostic agent. No information is available on the use of technetium Tc 99m tilmanocept during breastfeeding. The manufacturer recommends withholding breastfeeding for 60 hours after a diagnostic dose. This length of time is 10 half-lives of the radioisotope, so the nursing infant should not be exposed to radiation if this guideline is followed. However, the effective half-life is 1.8 to 3.1 hours, indicating that resumption of breastfeeding after 30 hours should ensure that the infant is not exposed to any radioactivity via breastmilk. The mother can nurse just before administration of the radiopharmaceutical. If the mother has expressed and saved milk prior to the examination, she can feed it to the infant during the period of nursing interruption.[1][2][3] The milk that is pumped by the mother during the time of breastfeeding interruption can either be discarded or stored frozen and given to the infant after 10 physical half-lives, or about 60 hours, have elapsed.

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.[4]

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.[5]

Drug Levels

Tc 99m is a gamma emitter with a principal photon energy of 140.5 keV and a physical half-life of 6.024 hours.[1] The biological half-life is 1.8 to 3.1 hours, giving an effective half-life from 1.4 to 2 hours.

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.

References

1. Howe DB, Beardsley M, Bakhsh S. Appendix U. Model procedure for release of patients or human research subjects administered radioactive materials. In, NUREG-1556. Consolidated guidance about materials licenses. Program-specific guidance about medical use licenses. Final report. U.S. Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards. 2008;9, Rev. 2. Available at: http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v9/r2/
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. Stabin MG, Breitz HB. Breast milk excretion of radiopharmaceuticals: mechanisms, findings, and radiation dosimetry. J Nucl Med. 2000;41:863-73. PubMed PMID: 10809203.
5. Almen A, Mattsson S. Radiological protection of foetuses and breast-fed children of occupationally exposed women in nuclear medicine - Challenges for hospitals. Phys Med. 2017;43:172-7. PubMed PMID: 28882410.

Substance Identification

Substance Name

Technetium Tc 99m Tilmanocept

CAS Registry Number

1262984-82-6

Drug Class

Breast Feeding

Lactation

Radiopharmaceuticals

Technetium Radioisotopes

Diagnostic Agents