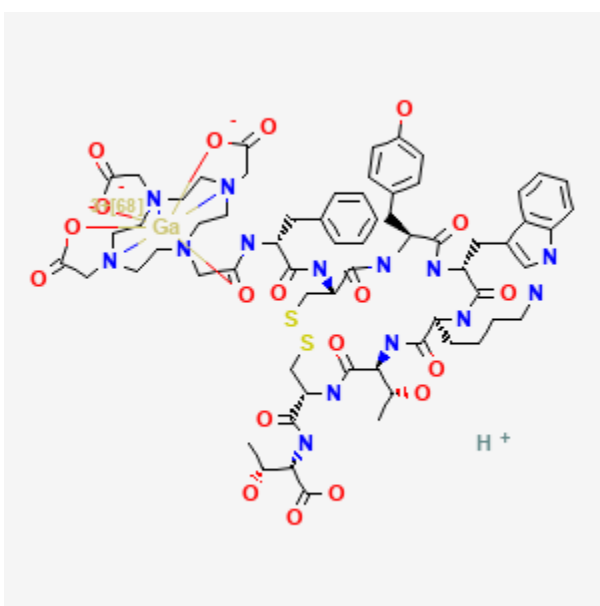




## Gallium Ga 68 Dotatate

Revised: June 15, 2024.

CASRN: 459831-08-4



## Drug Levels and Effects

### Summary of Use during Lactation

Gallium Ga 68 dotatate is used for localization of somatostatin receptor positive neuroendocrine tumors. It can be found in lactating breasts in higher than usual amounts.[1] Labeling in the U.S. advises nursing mothers to pump and discard breastmilk for 12 hours after a dose, based on isotope's physical half-life alone. However, one group of investigators and the International Atomic Energy Agency recommend pumping and discarding breastmilk for 4 hours after a dose of 100 to 200 MBq, then resuming breastfeeding.[2,3]

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

**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.

measuring milk radioactivity and determining the time when a mother can safely resume breastfeeding has been published.[4]

Nursing mothers should not work with radioactive substances used in PET scans in their workplace.[5]

## Drug Levels

Ga 68 decays primarily by positron-emission with a half-life 68 minutes and a mean energy of 836 keV followed by photonic annihilation radiations of 511 keV.[6]

*Maternal Levels.* A nursing mother who was 7 months postpartum was administered 200 MBq of Ga68 dotatate for quantitative PET-CT imaging. An expressed breastmilk sample at about 90 minutes post injection contained 2.8 kBq of gallium 68. The authors calculated that the effective dose of radiation to the infant would be 1.03 mSv if it were fed at 4 hours after the dose, and 12 mSv if it were fed immediately after injection. They recommend avoiding breastfeeding for 4 hours after the dose, pumping and discarding the milk, then resuming breastfeeding.[2]

A woman received an injection of 150 MBq of Ga 68 dotatate for a PET scan. Milk samples were measured at 80 and 135 minutes after administration. The authors estimated that the infant would receive an effective dose of 0.014mSv if the patient resumed breastfeeding 80 minutes after administration. If a 4-hour interruption in breastfeeding were used, the infant would potentially receive 0.003 mSv.[7]

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

## 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. Aksoy SY, Vatankulu B, Akgün E, et al. Breast uptake of Ga-68 DOTA-TATE in a nursing woman with NET diagnosis. *Gazi Med J* 2016;27:176-7. doi:10.12996/gmj.2016.55
2. Forwood NJ, Kanthan GL, Bailey DL, et al. 68Ga-dotatate breast uptake and expression in breast milk. *Clin Nucl Med* 2016;41:654-5. PubMed PMID: 27276203.
3. International Atomic Energy Agency. Radiation Protection and Safety in Medical Uses of Ionizing Radiation, IAEA Safety Standards Series No. SSG-46, IAEA, Vienna. 2018. Available at: <https://www.iaea.org/publications/11102/radiation-protection-and-safety-in-medical-uses-of-ionizing-radiation>
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. Almén 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.
6. Dilsizian V, Metter D, Palestro C, et al. Advisory Committee on Medical Uses of Isotopes (ACMUI) Subcommittee 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>
7. O'Mahoney E, Chacko A, McGill G, et al. (68)Ga-dotatate expression in breastmilk and the potential dose to the breastfeeding infant. *Intern Med J* 2019;49:25. doi:10.1111/imj.14678

## **Substance Identification**

### **Substance Name**

Gallium Ga 68 Dotatate

### **CAS Registry Number**

459831-08-4

### **Drug Class**

Breast Feeding

Lactation

Milk, Human

Diagnostic Agents

Radiopharmaceuticals

Gallium Radioisotopes