Natural gallium (31Ga) consists of a mixture of two stable isotopes: gallium-69 and gallium-71. The most commercially important radioisotopes are gallium-67 and gallium-68.

Gallium-67 (half-life 3.3 days) is a gamma-emitting isotope (the gamma emitted immediately after electron-capture) used in standard nuclear medical imaging, in procedures usually referred to as gallium scans. It is usually used as the free ion, Ga3+. It is the longest-lived radioisotope of gallium.

The shorter-lived gallium-68 (half-life 68 minutes) is a positron-emitting isotope generated from germanium-68 in gallium-68 generators, for use in a small minority of diagnostic PET scans. For this use, it is usually attached as a tracer to a carrier molecule, which gives the resulting radiopharmaceutical a different tissue-uptake specificity from the ionic Ga-67 radioisotope normally used in standard gallium scans.

68Ga-DOTATATE PET

68Ga-DOTATATE PET