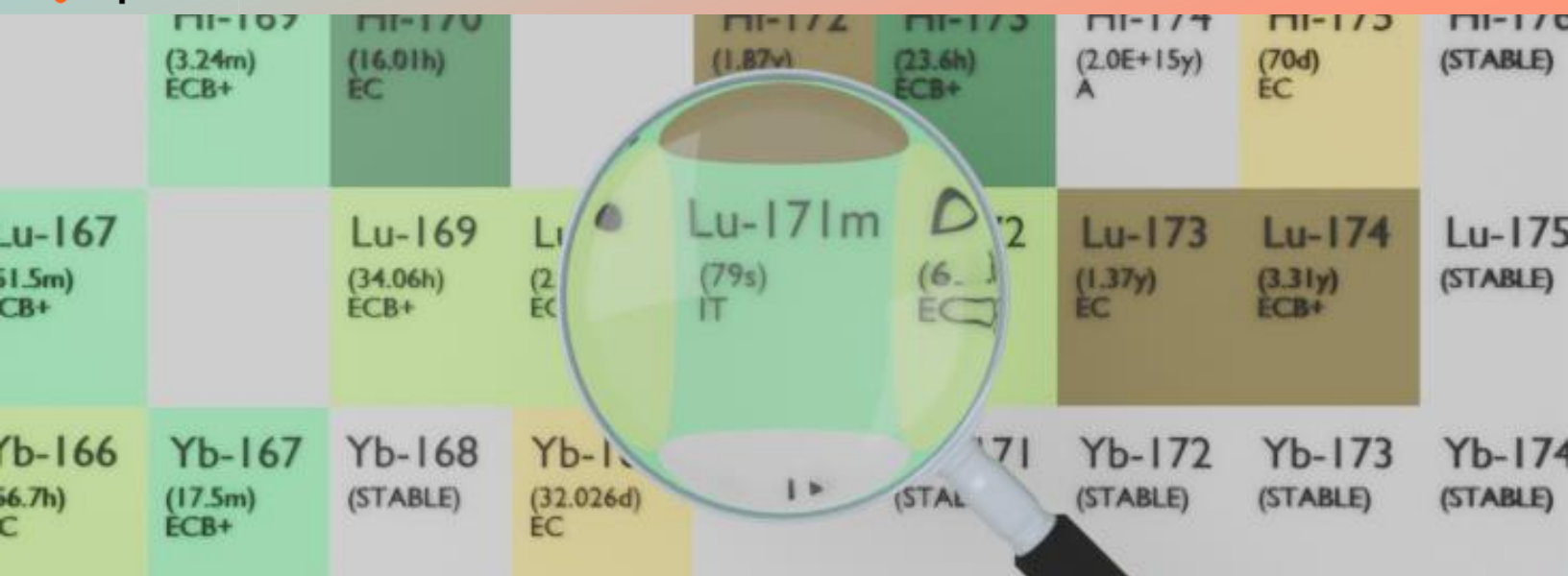




LUTETIUM-171M

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Lu-171m
Atomic number (Z): 71
Mass number (A): 171
Neutron number (N): 100

RADIOACTIVE DECAY

Decay modes: Internal transition
Half-life: 79.0 [s]
Decay constant: $8.7740\text{e-}03$ [1/s]
Daughters: Lu-171 (100.0%)
Radioactive daughters: Lu-171

DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.06905 [MeV]
Mean photon energy: 0.00208 [MeV]
Air kerma rate constant, Γ_{10} : $8.685\text{e-}19$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Air kerma coefficient, K_{air} : $8.685\text{e-}19$ [$\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : $1.106\text{e-}14$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]
Equilibrium dose constant for alphas, Δ_{α} : $0.000\text{e+}00$ [$\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$]

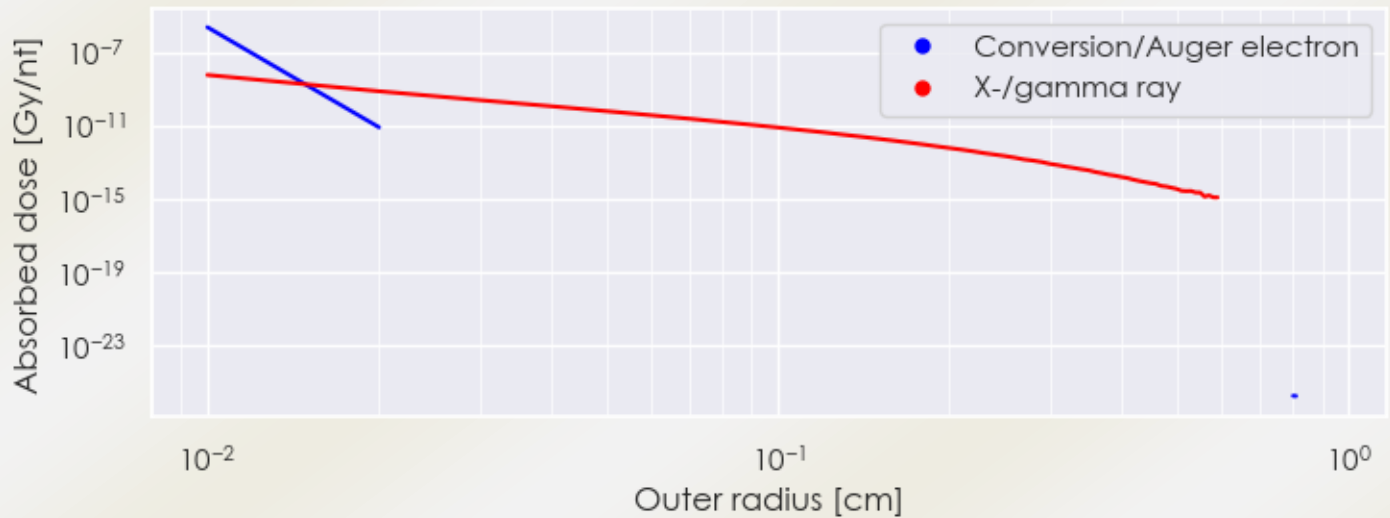
Equilibrium dose constant for betas/electrons, $\Delta_{\beta,\beta^+,e^-}$: 1.106×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 3.333×10^{-16} [Gy·kg/Bq·s]

DOSE POINT KERNELS (PLOT)

Dose point kernel source: **Graves, et al. Medical Physics. 2019 Nov.; 46(11):5284-5293.**

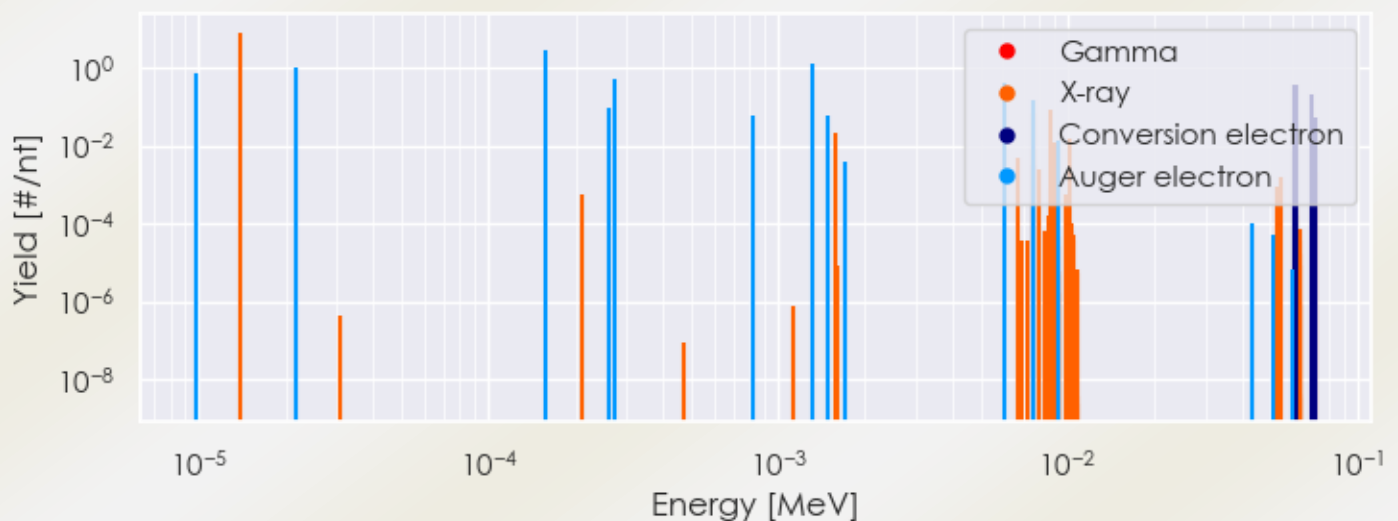
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: www.mirdsoft.org/products/MIRDspecs/Lu-171m DPK.csv

SUMMARY SPECTRA (PLOT)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Lu-171m Summary Spectrum.csv

TABULATED DATA

SUMMARY SPECTRA (TABLE)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**

Note: Radiations with yield < 0.01 are excluded from the table, but are available in the linked *.csv data.

Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Lu-171m Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Lu-171m%20Summary%20Spectrum.csv)

Energy [MeV]	Yield [# /n ^t] if > 0.01	Radiation type
1.40369e-05	8.104e+00	X-ray
1.57202e-03	2.231e-02	X-ray
7.64542e-03	6.894e-02	X-ray
8.72221e-03	7.975e-02	X-ray
9.04387e-03	1.186e-02	X-ray
1.01636e-02	1.435e-02	X-ray
9.80734e-06	7.037e-01	Auger electron
2.16348e-05	9.962e-01	Auger electron
1.56591e-04	2.904e+00	Auger electron
2.62973e-04	8.858e-02	Auger electron
2.73281e-04	5.311e-01	Auger electron
8.16381e-04	5.979e-02	Auger electron
1.31464e-03	1.211e+00	Auger electron
1.49298e-03	5.871e-02	Auger electron
6.06143e-03	3.918e-01	Auger electron
7.61738e-03	1.435e-01	Auger electron
9.20379e-03	1.329e-02	Auger electron
6.07270e-02	3.783e-01	Conversion electron
6.18568e-02	3.547e-01	Conversion electron
6.90839e-02	2.009e-01	Conversion electron
7.11000e-02	5.430e-02	Conversion electron

USEFUL LINKS

Isotope decay characteristics are periodically updated as better measurements can be made - changes that may not be reflected on this page. Please see useful links:

National Nuclear Data Center (NNDC): <https://www.nndc.bnl.gov/nudat3/mird/>

International Atomic Energy Agency (IAEA) Livechart: <https://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html>

REFERENCE LINKS

ICRP Report 107: <https://www.icrp.org/publication.asp?id=ICRP%20Publication%20107>

Graves et al. Dose Point Kernels: <https://doi.org/10.1002/mp.13789>

MIRD Decay Schemes 2nd Edition: https://sites.snmmi.org/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6