

This worksheet is intended to aid in characterization of radiopharmaceutical extravasation for determination of absorbed tissue dose. The information provided is meant to be used in conjunction with medical judgement to inform follow-up actions.

Follow all instructions in the order they are given.

Ensure that all calculations are accurate.

| **Instructions** | **Result** | **Units** | **Box #** |
| --- | --- | --- | --- |
| Repeated injection-site radioactivity measurements must be taken over time. Measurements may be quantitative or relative (unitless). Record these measurements using the table on **Page 2**. For each measurement, calculate its percentage of the first measurement. | N/A | N/A | 1 |
| Plot each measurement percentage (without decay correction) on the graph template found on **Page 2**. Using the provided exponential curves, estimate the effective half-life of the plotted points. Record the effective half-life in **Box 2**.Note: This value cannot be larger than the isotope’s physical half-life. |  | min | 2 |
| Obtain a quantitative measurement of injection-site radioactivity and record its value and the time it was taken relative to the injection.  |  | MBq | 3 |
|  | min | 4 |
| Calculate the initial activity using the following formula where *B3* is the value from **Box 3**, *B4* is the value from **Box 4**, and *B2* is the value from **Box 2**. Record the answer in **Box 5**.$$B3×2^{({B4}/{B2)}}$$ |  | MBq | 5 |
| Calculate the cumulated activity using the following formula where *B5* is the value from **Box 5**, and *B2* is the value from **Box 2**. Record the answer in **Box 6**.$$B5×B2×1.443$$ |  | MBq•min | 6 |
| Using the tables below, find the pre-calculated dose rate for the isotope being used. Record the value in **Box 7**. |  |

|  |
| --- |
| mGy |
| MBq•min |

 | 7 |
| Calculate the total tissue absorbed dose using the following formula where *B6* is the value from **Box 6**, and *B7* is the value from **Box 7**. Record the answer in **Box 8**.$$B6×B7$$ |  | mGy | 8 |

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| --- | --- | --- | --- | --- |
| **Isotope** | **mGy/MBq•min** |  | **Isotope** | **mGy/MBq•min** |
| C-11 | 0.803 |  | Lu-177 | 0.283 |
| Cu-64 | 0.253 |  | N-13 | 0.978 |
| F-18 | 0.553 |  | O-15 | 1.348 |
| Ga-67 | 0.086 |  | Rb-82 | 2.119 |
| Ga-68 | 1.330 |  | Sm-153 | 0.516 |
| I-123 | 0.068 |  | Sr-89 | 1.043 |
| I-131 | 0.385 |  | Tc-99m | 0.037 |
| In-111 | 0.093 |  | Y-90 | 1.544 |

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| **Time Relative to First Measurement (minutes)** | **Measurement** | **Percentage of First Measurement** |
| **0** |  | **100%** |
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