

225Actinium DOE User Meeting

July 28, 2020

Introduction

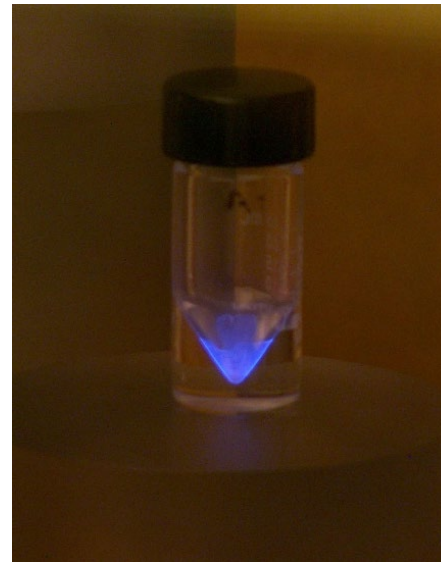
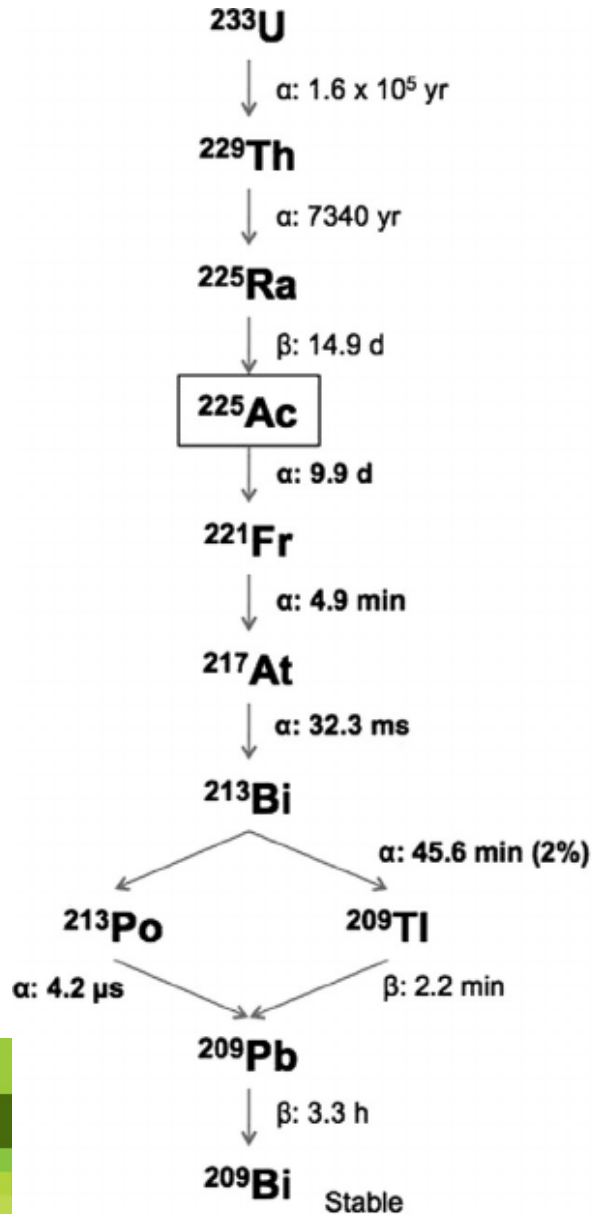
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Actinium-225 was discovered in 1947 by a team of physicists from Argonne National Laboratory led by F. Hagemann and, independently, by a Canadian group led by A. C. English.



The idea of using 225Ac and 213Bi for therapy expressed in 1993 (Geerlings MW et al. Nucl. Med. Commun. 1993)

Clinical use of 213Bi-labeled antibodies reported in 1999 (Sgouros G et al. J. Nucl Med. 1999)

Clinical use of 225Ac-labeled antibodies described in 2011 (Jurcic JG et al. Blood, 2011)

| Cancer Type | Radioconjugate | Patients |
|-----------------------|---------------------------------|----------|
| Leukemia | ²¹³ Bi-anti-CD33-mAb | 49 |
| | ²²⁵ Ac-anti-CD33-mAb | 76 |
| Lymphoma | ²¹³ Bi-anti-CD20-mAb | 12 |
| Melanoma | ²¹³ Bi-anti-MCSP-mAb | 54 |
| Bladder cancer | ²¹³ Bi-anti-EGFR-mAb | 12 |
| Glioma | ²¹³ Bi-Substance P | 68 |
| | ²²⁵ Ac-Substance P | 20 |
| Neuroendocrine tumors | ²¹³ Bi-DOTATOC | 25 |
| | ²²⁵ Ac-DOTATOC | 39 |
| Prostate cancer | ²²⁵ Ac-PSMA617 | >400 |

Morgenstern A., et al. Semin Nucl Med. 2020